Auckland, Counties Manukau
and Waitemata District Health
Boards

**Auckland Region Information
Services Strategic Plan
Appendices**

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About this Document

This document contains the Appendices to the Regional Information Services Strategic Plan (RISSP) for the Auckland, Counties Manukau, and Waitemata District Health Boards.

The RISSP is one of four Asset Management plans required by the Ministry of Health. It replaces the DHBs' individual Information Services Strategic Plans.

The RISSP is endorsed by the Auckland, Counties Manukau, and Waitemata District Health Boards. The Boards acknowledge that alignment of information services can provide benefits in improved health outcomes, cost savings, and improved quality and safety of care.

This document is consistent with the format prescribed in the "National Framework for DHB Strategic Information System Planning" (Ministry of Health, 2003).

This document is not intended to be read "end-to-end"; rather the reader is invited to select individual sections that are of interest. Each section has therefore been written to be as self-contained as possible, with cross-referencing kept to a minimum in the interests of readability. This has caused some duplication of content.

3. BUSINESS ENVIRONMENT AND DRIVERS

3.1. Business Drivers

Introduction
Each District Health Board's strategies are documented in its District Strategic Plan (DSP). Key elements of the DSPs are reproduced below; they were the starting point for the Auckland Regional information Services Strategic Plan.

Auckland District Health Board

ADHB's four Key Goals are:

<u>Lift the health performance of Aucklanders</u>

Auckland DHB will focus on protecting and investing in the primary sector, specifically through health promotion, protection and preventative services. The benefits of this approach will be realised in the long term, not the immediate future.

The *New Zealand Health Strategy* 13 priority objectives will determine our actions in the next five years, with greatest emphasis on the prevention of diabetes.

Auckland DHB will be encouraging integration between the primary, secondary and tertiary services. We will identify areas to make primary services more efficient, reallocating resources from low priority areas to high priority areas within primary health, and shifting resources from the secondary, tertiary and national tertiary sector into the primary services.

Auckland DHB provides more than 50 percent of its hospital services to people outside the Auckland DHB area. Reductions in Auckland DHB services will create problems for other DHBs and will affect the people from other areas who use Auckland DHB services. The Auckland DHB will work with other DHBs to manage the flow of patients between areas. We will also need to recover the costs for providing those services.

Public consultation will help determine the priority health areas and processes for funding decisions. We will also consult if more changes are proposed following the formal adoption of the Strategic Plan.

<u>Make the change programme happen</u>

We need to speed up the move to standardise, cnsolidate and integrate our services to capture the required efficiencies.

<u>Finish the building programme</u>

So our gains from the change programme can work to maximum effect in our new and efficient hospital.

<u>Get control of our finances</u>

We were (2001/02) losing over $70 million per annum and we need to do things very differently to stop this loss.

Counties Manukau District Health Board

Vision

Our vision is "To work in partnership with our communities to improve the health status of all, with particular emphasis on Maori and Pacific peoples and other communities with health disparities".

We will do this by leading the development of an improved system of healthcare that is more accessible and better integrated.

- Establish Primary Health Organisations (PHO) which will make it easier for people to access primary health care and a range of services to support their health needs
- Make it easy for people to find the right care, at the right time, in the right place
- Help people to understand how to prevent illness and how to keep healthy by good nutrition, exercise, stopping smoking and reducing obesity
- Involve our communities in planning and improving services
- Support providers to use electronic care management to contribute to improved outcomes
- Ensure people will know through access to information:

  how to protect their health
  warning signs of illness
  what services are available and when to use them

CMDHB Health Gain priorities

These areas will be accorded investment priority, particularly withrespect to inequalities and disparities

- Cardiovascular diseases
- Chronic respiratory diseases
- Diabetes
- Infectious diseases
- Oral health

CMDHB Service Development priorities

These areas will be accorded development priority, particularly in respect of access and availability

- Child and youth health
- Elective Surgery
- Maori health services
- Mental health including alcohol, drug & addiction services
- Pacific health services
- Primary health care
- Public health – disease and injury prevention and health promotion
- Rural health
- Sexual and reproductive health

Waitemata District Health Board

<u>Key Themes</u>

WDHB has identified some key themes which it believes will be central to the new way of doing things in the health service we need to create and be part of

- Seamless Service
- Continuity of care and service integration.
- Wellness and Responsibility
- Healthy lifestyles and communities
- Consumer and Family Focus
- Safety

<u>WDHB Top 10 Things to Do</u>

1. Systems and processes established for improved reporting of health outcomes, and for reporting on service delivery and quality dimensions.

2. Reducing the Incidence and Impact of Cardiovascular Disease.

3. Effective integration of services to achieve seamless care from the consumer's perspective.

4. A reduction in the occurrence and impact of adverse events.

5. Reduction in health inequalities for Māori and Pacific children and young people.

6. People in the Waitemata district receiving care from organisations that deliver a comprehensive range of well integrated primary services with an emphasis on fostering good health and wellness.

7. Improved access to services for people with serious mental health disorders.

8. North Shore Hospital upgrade and commissioning of the new Waitakere Hospital completed.

9. Information and Shared Services:

- implementation of the top priorities of the national information strategy
- ensuring regional convergence on IT systems in Auckland
- implementing shared management and provision of shared support services.

10. Enhanced and sustainable organisational capability and workforce capacity, and on-going financial viability.

Conclusion

There are three strategic challenges facing the DHBs

- Keeping the population well
- Caring for people with chronic diseases in a Primary Health Care setting
- Making the Secondary Health Care sector cost efficient and effective

The RISSP Information Strategies will support DHB Strategies to

- Measure and monitor population health status
- Improve equity of access to healthcare services
- Improve the safety and quality of care
- Involve people in their healthcare
- Enable the Primary Care Strategy
- Coordinate care across the Community (including NGO), Primary, and Secondary Health Care sectors
- Enable Integrated Care
- Avoid duplication and waste to reduce the costs of existing care delivery
- Consolidate and strengthen the performance, robustness, security and scalability of systems

3.2. Information Services Vision

Auckland's three DHBs will collaborate to improve health outcomes through information interchange.

1. The DHBs will adopt regional standards and information systems to allow sharing of information within the relevant legal framework.

2. Information systems will contribute to the development of new processes for improved clinical effectiveness and efficiency.

3. Information systems will support the priority development of Primary Health Care. The emphasis will be on supporting new models of healthcare in preference to automating current processes. Regional information systems will be innovative, to support emerging healthcare strategy.

4. There will be a single information services direction for the region. This means reducing the number and variety of information systems used, and balancing commercial risk by having relationships with a limited number of strategic vendors.

5. Autonomy is to some degree constrained once the commitment is made to a regional programme; if any DHB contemplates digression from such a programme then that decision will be made regionally. Flexibility in implementation is allowed through individual DHB action plans and by recognising different starting points.

6. Information systems will align with national, regional and DHB health strategies to support DHBs attaining their strategic goals.

7. All IT/IM activities will
- be healthcare-business focused, aligned to clear clinical or management drivers and benefits
- take into account patient expectations of how their health information will be managed.

8. Regional projects will deliver affordable, incremental IT/IM building blocks founded on the principles of high quality information exchange rather than the big bang monolithic approach. The analogy for this concept is "dolphins not whales". Note that "quality" does not equate to "perfection"; the aim is for affordable solutions provided at pace.

9. Projects will be linked into the DHBs' information systems operational plans by structuring milestones and timelines by financial year in order to permit the projects to be carried into annual operational plans.

10. The DHBs will seek to maximise IT effectiveness within available resource by seeking out alternative sources of funding, reconfiguring existing costs and redirecting resources.

11. Wherever possible the significant historical investment in secondary IT will be leveraged to deliver benefits to patients through the primary and Community/NGO sectors, without prejudicing primary health care independence. Information systems will be implemented in partnership with the primary and NGO sectors, with consideration of providers' skills, capacity and existing IT infrastructure and resources.

12. The impact of change at point-of-care will be minimised by taking into account the timing of national project implementations.

3.3.   Information Services Principles

3.3.1. <u>Strategic Framework</u>

These are the overarching principles to guide Information Services collaboration between the three Auckland-region DHBs. The principles apply to all IS projects and to any substantial IS components of wider business projects. They are intended to cover the full range of DHB activities in both "funder" and "provider" roles, including investment in development of the primary health care and community/NGO sectors.

The principles are divided into seven categories:

IS Governance

These principles describe the governance function and role required for regional information systems and for the proposed regional shared Information Services organisation.

Compliance

These principles cover the general rules applicable to regional information systems.

Cultural

These principles cover the alignment of regional information systems to patients' cultural values, and include reference to Te Tiriti O Waitangi/The Treaty of Waitangi.

Financial

These principles apply to the financial management of regional information systems.

Privacy and Security

These principles state the privacy rules applicable to regional information systems.

Clinical and Business Information

These principles will ensure that information can be successfully shared between patients and their whānau, clinicians and (business) managers

Architecture

These principles will provide direction to the development of Information Services resources (hardware, software, staff and processes) used to manage and provide access to electronic information and data.

3.3.2. IS Governance

Regional Governance

A regional governance function will oversee the strategy, planning, implementation, operation, and ongoing management of regional and shared information systems. Primary and Community/NGO Health Care representatives will participate in IS governance.

1. The regional governance group will be the business owner of the Regional Information Services Strategic Plan and will

- define the vision, values, mission and goals of the shared Information Services organsation
- provide direction for IS strategy and coordinate delivery of the RISSP
- advise and inform Information Services strategy development
- agree priorities, using a common prioritisation process
- work with the Regional Capital Group to align capital expenditure processes within the national framework
- resolve issues and keep things moving forward even when there is disagreement
- provide a communication and liaison between management, clinical and information systems functions
- agree and use common processes for budget setting, business case review and approval, and delegated authority
- ensure business cases comply with requirements for approval, and approve recommendations to DHB management teams for IS projects and expenditures
- oversee the progress of key strategic IS projects, and monitor the projects sponsors' achievement of business case benefits
- approve IS service level agreements and review service performance against targets

with the objectives of

- achieving greater IS alignment with business strategies and requirements across DHBs
- creating and sustaining awareness of the strategic role and value of information systems at the top management level
- encouraging desirable behaviour in the use of IT
- using the collective capability of attendees and the wider organisations as a basis for efficiently and consistently acting collaboratively
- assisting with management of organisational change in the DHBs
- supporting and progressing the achievement of regional information services strategies and objectives
- leveraging IT's enabling capacity for new business models and changing business practices
- ensuring that the DHBs' resources are used responsibly
- constraining technology's increasing cost and maximising information's increasing value
- minimising the risks of participating in an interconnected digital world and the dependence on entities beyond the direct control of the DHBs

- monitoring the impact on business continuity of the increasing reliance on information systems in all aspects of the enterprise
- building the shared services organisation's ability to maintain the knowledge essential to sustain the healthcare business

2. A Regional IS Operational Group will be formed to provide a mechanism for the three DHBs to

- agree regional operational matters
- optimise common systems
- reach agreement on operational issues related to common systems
- provide a single point of liaison with common vendors.

This group will escalate and recommend to the governance group, and will be one of several similar groups, for example the General Managers' Clinical Support group.

3. Each DHB is expected to have an internal IS committee that will ensure business ownership of systems and processes and two-way communication between the regional governance function and the DHB.

Project governance

There will be a consistent governance structure and process for regional IS projects.

4. Each project will have a project governance structure, such as a Steering or Project Control Committee, consistent with its size, budget, and impact on the DHBs. The structure will be defined as part of the project's Business Case.

5. The DHBs will provide resources for projects to allow effective governance, measured both in terms of funding and staff time.

6. Membership of a project governance committee will comprise the project sponsor, clinical champion, project manager, and senior clinician, business and IS governance stakeholders. For regional projects, stakeholders from all three DHBs will be represented. Representatives of Primary Health Care and Community/NGO providers will be involved in projects that affect them.

7. The project governance committee will appoint a project team comprising project manager and relevant clinical, business and IS implementation stakeholders. For regional projects, stakeholders from all three DHBs will be represented. Representatives of vendors and/or external agencies may be involved in the project team if they are expected to provide and receive information from the project.

8. The project governance committee may, if it considers necessary,
- establish a representative patient/consumer group
- consult with Iwi and other relevant stakeholders

to assist with the establishment of any new information systems.

9. The project governance committee will consider measures to ensure clinician participation and feedback is actively encouraged, particularly concerning clinical prioritisation. As clinical priorities can change quickly, the priority of any information system should respond to these needs.

10. The project governance committee will maintain links with its counterparts on other regional and national IS projects.

11. The project governance committee will ensure that pilot projects are independently evaluated before full implementation is commenced.

12. The project governance committee's role is to ensure that
- the project is well planned
- the project is delivered successfully according to performance requirements (e.g. on time, on budget)
- the project's promised benefits are achieved
- risks are managed appropriately
- the DHBs' resources are used responsibly
- lessons are learned from a project post implementation review
- the completed system is handed over to a business owner.

13. The project governance committee is responsible for seeing that the Principles of the Strategic Framework (in this RISSP) are applied sensibly to the project.

14. While the project governance committee sets policy, makes key decisions and commits DHB resources, its members are not generally involved in the daily operation of a project, nor do they (or should they) necessarily know the technical solutions to IT issues.

15. The project governance committee will provide continuing leadership to a project. This means a commitment for the full term of the project implementation and its ongoing operation.

3.3.3. Compliance

Recognised best practice management techniques will be applied to information systems implementation and operation.

1. Information systems will comply with statutory and regulatory obligations, Government and DHB policies.

2. Ownership of information will be in accordance with national policies promulgated by the Ministry of Health.

3. Information systems will comply with the Health Information Privacy Code (HIPC).

4. Information will be aggregated in accordance with the Health Research Council (HRC) Research Guidelines.

5. Information systems will be accredited to the Quality New Zealand (QNZ) data standard for DHBs.

6. Information systems will be accredited to appropriate standards where possible (for example IANZ and the Medical Council IT principles).

7. IS delivery and management will be innovative, subject to continuous improvement, and will meet established industry standards.

8. Business process design will be considered an integral part of systems design. IS projects will include the business process changes associated with the implementation of any new system.

9. Population Health information requirements will be considered when new systems are designed.

10. Business processes will be aligned and integrated across the DHBs.

11. All regional IT projects will have sound project management, risk management and change management reflecting accepted best practice, and will take into account the DHBs' ongoing operational requirements.

12. Information Systems projects will be subject to formal post-implementation review to determine whether their objectives have been met.

13. Information Systems will complement the professional and ethical standards of their users.

14. Robust business processes will be implemented at the point of data capture and entry to ensure the quality and accuracy of data.

15. Information systems will comply with the technical standards promulgated by the DHBs' information systems organisation(s). Such standards will be developed in consultation with the DHBs.

16. Whenever Information systems incorporate data required for the National Health Information Systems the data definitions used in those systems should correspond directly with the national standard data definitions issued by the New Zealand Health Information Service.

17. Linkages with national standards bodies such as the Health Information Standards Organisation (HISO) and other organisations will be maintained and enhanced to maximise the benefits of standards.

18. The DHBs acknowledge that intellectual property has value, and where possible will negotiate appropriate commercial terms with software vendors who wish to exploit it.

3.3.4. Cultural

Auckland's regional population is made up of diverse groups; the DHBs will recognise and respect people's cultural needs and values when collecting and disseminating information.

Te Tiriti O Waitangi (the Treaty of Waitangi)

1. The Treaty establishes the unique and special relationship between Iwi Māori and the Crown. As Crown agencies, the DHBs consider the Treaty principles of partnership, participation, and active protection of Māori Health interests, cooperation, and utmost good faith, to be implicit conditions of all information systems.

2. Health information about Māori is a taonga that should be protected in accordance with Article II of the Treaty. The collection, storage, use, and disclosure of such information will therefore be based on the principle of informed consumer awareness.

3. The DHBs will agree on key priorities and share information with the Māori co-funder MaPO to improve Māori health outcomes in accordance with Article III of the Treaty.

Ethnicity Information

4. Ethnicity data will be recorded at all points of data capture to assist in the achievement and measurement of population health gain for distinct ethnic groups.

5. Education about ethnicity and training for staff who need to collect and input patient demographic data will be a fundamental part of every IT training programme

6. All reporting will specify ethnicity so that information about various ethnic groups' health status is readily accessible to business and service managers.

7. Ethnicity information used in data collection and reporting will be coded according to the Statistics NZ Standard Classification of Ethnicity.

Personal Information

8. Information systems will be flexible in recording people's personal details by, for example,

- Allowing identification using multiple names
- Taking into account the name formats used by various ethnic groups (e.g. Pacific "Matai Name", Asian "family name first")
- Recording complex family/whānau structures.

9. Information systems will make specific provision to record incomplete personal information, e.g. unspecified gender will not default to "male".

Cultural Values

10. Information systems will allow dissemination of information, within strict privacy guidelines, to multiple caregivers in the primary and community sectors, including consumers' family/whānau.

11. Decision support systems will include guidelines for appropriate cultural behaviour by providers.

12. Religious and cultural information about individuals will be recorded and made available to providers where relevant to inform care decisions (e.g. "no blood", "Halal diet").

3.3.5. <u>Financial</u>

The limited funds available will be used to achieve the maximum possible positive impact on the DHBs' operational performance.

1. The DHBs will actively work to reduce the total cost of ownership of Information Technology.

2. DHBs will maintain a rolling 3-5 year capital plan for information systems. Capital and Operational budgets will be allocated on a project basis.

3. Where appropriate capital budgets for a particular area may be combined across the three DHBs to facilitate the funding of a regional project.

4. The budget will be assigned to individual IS System portfolios (or "envelopes") to ensure that the balance of investment in key business areas is in line with the priorities that are set out in the Regional ISSP. The envelopes are

- **National Projects** where implementation is mandated by Ministry of Health
- **Patient and Clinical Systems** for primary and secondary/tertiary healthcare, including Integrated Care and integration of Primary Care and NGO systems
- **Funding and Performance Systems** for the DHB purchasing arms
- **Business Systems** used to manage and operate the DHB
- **Infrastructure** the information technology required to support application systems

- **Latent Demand** funding for ongoing development of non-strategic IS initiatives, i.e. projects that have business priority but have not been included in the Regional ISSP

5. The business case for any information systems project will include all implementation and ongoing operational costs.

6. Financial approval for IS project funds will follow an appropriate process. This will include compliance with the Ministry of Health IT capital guidelines and the regional capital planning process.

7. IS projects will provide a positive contribution to the Operational Performance of the DHBs. The exception will be where the DHBs consider the projects deliver value through enabling and driving DHB strategy.

8. IS projects will leverage existing IS/IT investments where possible.

9. The shared Information Services organisation will seek to maximise the effective life of computer hardware by reallocating stock as it is replaced.

10. IS projects will strive to achieve their objectives as efficiently as possible.

11. IS projects will adhere to standard financial project accounting principles. Capital and Operational costs will be reported against individual projects.

3.3.6. Privacy and Security

Reasonable measures will be put in place to ensure that people's information is managed in accordance with the Health Information Privacy Code, the NZ Privacy Act, and health information policies developed by the DHBs.

1. The DHBs will support and adhere to the policies promulgated by the Ministry of Health's Privacy and Security project.

2. Every DHB employee is responsible for ensuring that all personal information is captured, accessed, and used for the purpose for which the individual has provided it to the DHB.

3. The (project) manager that implements (a change to) a registration of personal information is responsible for ensuring that a process is put in place to inform individuals of the purpose for that registration.

4. The (project) manager that implements (a change to) a registration of personal information is responsible for ensuring that, as part of the project/change:

- A Privacy policy is developed based on the regional Privacy Assessment Framework. This will be done as early as possible to ensure that the recommendations can be taken into account in a timely fashion.

- "Reasonable" privacy protection measures will be developed in the context of the purpose of the information system. "Reasonable" means finding an appropriate balance between the interests of the individual, the practicality of the use of the system and the cost of implementing the measures.

- The privacy protection measures that are required based on the Privacy Policy are implemented in a timely fashion.

5. All privacy policies will be submitted to, registered, and reviewed by a regional Privacy Advisory Group. This group's role is to advise the project team whether the privacy protection measures are deemed reasonable, given the purpose of the registration, and whether any privacy risks that may be associated to the registration are acceptable to the DHBs.

6. If a system or project passes personal information to another system or project, the purpose of the system that passes the information on should be extended to include the purpose of the system that the information is passed to. Hence, any system that passes information to a regional or national repository automatically shares the purpose of that repository and consumers should be informed accordingly.

7. Access to electronic personal information will be controlled and monitored, using access control, logging and audit tools to ensure users adhere to the agreed privacy protection measures. The level of access control will be determined as the part of the reasonable measures of privacy protection set out in the privacy policy.

8. Unless there are specific and acceptable reasons not to, the generic guideline is that systems that give access to personal information will have "Role based and Individual based system security" as defined in Appendix 8 Levels of System Security).

9. Summaries of health events will be reported to patients' GPs unless a patient specifically requests otherwise. This principle will be widely communicated to the population.

3.3.7. <u>Clinical and Business Information</u>

Uniformity of data definition, information management processes, and information systems will enable information to be shared efficiently and meaningfully to coordinate healthcare and business management decisions. Information systems will be

- *Fast*
- *Intuitive*
- *Robust*
- *Stable*
- *Trustworthy*

Clinical Information (Systems) Principles

1. Clinical information will be made available to authorised users via a uniform clinical systems user interface or portal. This will seamlessly bring together relevant clinical information for a (relevant group of) patient(s) across multiple information sources

2. There will be a single (regional) patient administration system that will
- ensure that patients are uniquely identified
- support an end-to-end view of patients' health care events.

3. All clinicians involved in the care of a patient will gain access to and contribute to a chronological set of Health Event Summaries for that patient.

4. Clinical systems will be flexible and configurable to support clinicians' specialised focus.

5. There will be a standard data definition for clinical information shared electronically between healthcare providers. This definition will be stored in a regional repository accessible to authorised clinicians and decision support systems.

6. Standard decision support tools will be implemented to enable clinicians to capture and share their expertise to improve patient outcomes. Where possible these tools will be transparent (standardised and/or integrated) throughout the region to enable collaborative disease and workflow management between primary, secondary and tertiary healthcare providers.

7. Clinical resource planning tools (referrals, outpatient scheduling, booking, theatre planning, acute demand management, electronic order entry, etc) will be standardised and integrated to ensure optimal use of available clinical resources.

8. Electronic clinical audits will be enabled by implementing a generic audit tool that can review data across all data stores.

9. Clinical information systems will meet contractual requirements with respect to information standards and the exchange of information with national repositories such as the National Minimum Data Set.

10. All clinical information stored electronically will be subject to archiving and destruction policies.

11. Clinical information systems will make provision for patients to access their own information and any other information required to enable care.

Business Information (Systems) Principles

12. The sole purpose of business information and the associated investment in business solutions and shared services is to support the cost-effective management and delivery of healthcare services to patients and consumers.

13. The successful implementation of an efficient regional shared service environment will be facilitated by standardising the data definition, information management processes, and information systems for business support processes.

14. Business information will be made available to authorised users via a uniform business solutions user interface or portal. Such users will be able to update information that is relevant to their individual role or business unit electronically.

15. A consistent regional reporting framework will make it easier to benchmark regional activities and will increase the efficiency of regional and national reporting activities.

16. Business information systems will meet regulatory requirements with respect to information standards and the exchange of information with national repositories.

Information Management

An information management process that supports the effective delivery of health services and management of the DHBs requires a balance of investment in the various information system portfolios. Only a balanced approach will ensure that gains in one area are not undermined by gaps in other areas. This applies equally to information systems used by Primary and Community/NGO Health Care providers.
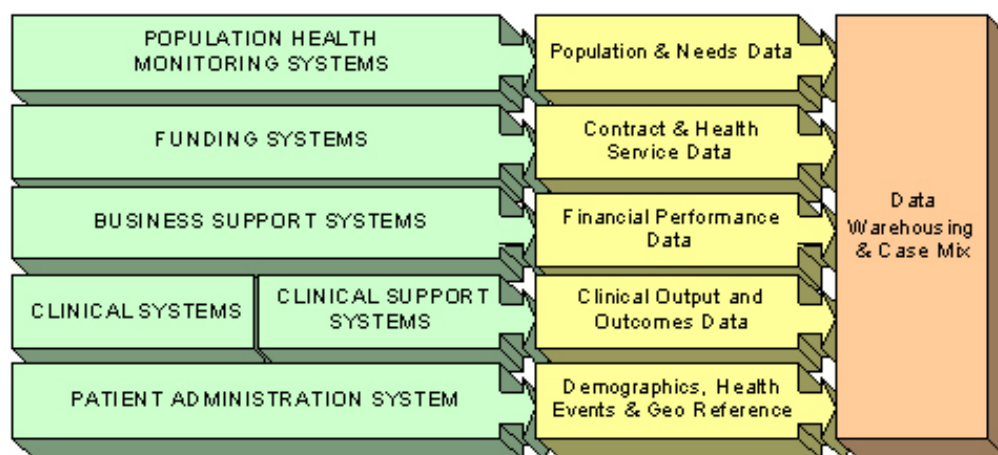
The management of **Population Health** requires gathering of information on the health status of the population, not just individual health or sickness events. DHBs will work together with Primary and Community/NGO Health Care providers to establish a monitoring system that will provide insight into the health status and health service needs.

Funding Systems will analyse population health data in relation to health service cost and outcome data to ensure the DHB can negotiate contracts that are relevant to the needs of the region and the resources and capabilities that are available.

Business Support Systems will not only support the management of DHB finances but also the management of assets, in particular human resources. The DHBs' capability and costs are predominantly determined by the quality of investment and management of staff.

Clinical Systems will support the quality of care, creating more focus on sharing experience and information aimed to improve health outcomes for patients.

Clinical Support Systems will support the efficient and speedy delivery of diagnostics and treatments. It is important that clinicians can interact easily with these departments with an easy to use system to make requests and access results.

The Patient Administration System will provide for a reliable common identification and tracking of the patient throughout the healthcare process. This will support the integration of clinical information and the efficient use of clinical resources.

A comprehensive **Data Warehousing** strategy will allow combination and comparison data from the various system areas and across the region to make informed decisions about better ways to fund, manage and provide care for the Auckland population.

Information Management

Systems and Support Services will care for the differences in specific needs and focus of Primary, Community and Hospital Based Clinicians. Community and Mental Health workers will require mobility and tight integration/or sharing of applications across primary, secondary and community healthcare providers. Primary Care and Community Care Providers will require solutions that make it easier to update software and allow them to benefit from new Integrated Care opportunities in the region. Hospital Services will require applications that are robust to cope with many transactions and flexible to cater for the wide variety of information needs of the various secondary and tertiary services.

Self Care initiatives will allow people to take a more active role in their healthcare by providing them with access to their clinical information through self care system modules.

Integrated Care initiatives such as Chronic Care Mgt, Health Event Summaries and eReferrals will develop and implement solutions that will allow clinicians to share information and coordinate activities across multiple organisations; including primary, secondary and community providers.

Concerto will be continuously improved to provide for a secure, uniform and easy way to access all clinical applications across the region

A Clinical Data Dictionary will allow clinicians to define a common set of data to ensure that clinical details are captured, used and interpreted appropriately. This will also assist the consistent capture of ethnicity data. By agreeing upfront the way certain clinical details are collected, data can be shared with less risk of misinterpretation. Clinical research and health service planning will benefit from the fact that data can be more easily compared across primary, secondary and community health services and providers.

The Clinical Data Repository will provide for a (logical) combination and integration of the various clinical data stores such as CMS, PiMS, Primary PMS, Éclair, Soprano, PACS, CRIS, MedDocs, ePrescribing, etc. In combination with the data dictionary this will make data more widely available to authorised users in the primary, secondary and community health organisations. The link to demographic, ethnicity and health event data from the patient admin system allows clinical information to be presented in the right context of time, event, episode, geographical location, etc. Technical Architecture strategies in this area will provide for more efficient backup, storage and long term archiving solutions.

Clinical Applications will be aligned and standardised where possible to increase the ability to share processes and information across services and organisations. It will also provide for better and more efficient (regional) support structures

The Clinical Process will be supported by applications that comply with relevant IT standards and where possible use a preferred set of common tools to create documents, forms, decision support rules, lists, reports, etc. This will increase the ability to allow one clinical process or decision to benefit from the outcomes or approach of another clinical process. It will also create a more common look and feel of applications which makes them easier to learn and use; especially where clinicians work in multidisciplinary teams and/or across services.

3.3.8. <u>Architecture</u>

Rationalisation and standardisation of systems, and consolidation and reuse of equipment will result in improved service levels and reduced costs.

Regional Technology Standards

1. A Regional Enterprise Architecture Standards document will be developed and maintained. It will list the specific standards applicable to hardware, software, networking, database management, and messaging.

Suppliers

2. All other criteria being equal, preferred vendors will be those that
- Have a New Zealand based support capability
- Have a proven record of accomplishment of health information system delivery and support in New Zealand and/or Australia.

3. Preferred vendors will be experts in their field and will work closely together for the greater good of healthcare outcomes in the region.

Network

4. Access by third parties to DHB network, systems and data will be managed with "external facing" firewalls.

5. Use of internal firewalls between ADHB, CMDHB, and WDHB will be minimised to ease the sharing of information while assessing and managing business risk.

6. Nationally accredited standard communications channels will be used for all exchange of clinical data with third parties or access to clinical information or applications by third parties.

7. Staff will be provided with secure access to DHB systems from anywhere [home/off site/mobile], taking into account business need and financial and security constraints.

8. Performance of the network will be pro-actively monitored and managed.

Telecommunications

9. An effective seamless regional internal communications solution that maximises use of internal lines will be provided.

Servers

10. One industry standard server operating system, which is fully supported by its vendor, will be standardised upon as much as possible. It will be compatible with core applications and its version will be up to date (usually the previous or current latest version).

11. To meet specific business application requirements other Operating Systems will be supported by exception, reducing the variety to a minimum.

12. In order to meet the continued business need for optimum cost efficiency, Open Source software (both operating and application software) will be studied for feasibility, piloted, and implemented where the case is justified.

13. Servers will be housed in an industry standard best practice computer facilities environment.

14. Servers will be centrally managed and monitored.

15. Servers will be categorised based on their function. A standard build script will be created for each server category; where appropriate these scripts will be automated.

Databases

16. The number of different Relational Database Management Systems used will be minimised.

17. Enterprise systems will be used wherever possible to satisfy departmental information requirements. Ad-hoc database development will be supported to provide for "small database environments", i.e. those that

- Can not be served by enterprise systems
- Have no more than five users
- Require no electronic interfaces to other systems
- Can be installed on a shared server (i.e. no dedicated hardware)
- Can be supported by the business unit with respect to first level support and training
- Require no more than four weeks of development (i.e. equivalent of $20K)
- Do not impact on strategic ISSP applications

Desktop

18. Desktop and peripheral hardware will be standardised wherever possible and its lifecycle maximised.

19. All new hardware will be tested prior to deployment to ensure that

- The hardware is compatible with existing infrastructure and software
- Support documentation is updated
- The hardware can be supported with the available resources.

20. The number of Desktop Operating Systems will be minimised, if possible, to one that is supported by its vendor and compatible with the enterprise applications.

21. The number of desktop images will be minimised by

- Creating images that are hardware agnostic where possible
- Creating a core image with fundamental software components that can be used as a foundation for a maximum number of desktops
- Packaging and distributing additional software that fits on top of this core image to meet specific software requirements of various user groups.

22. Software installations will be packaged and where possible delivered to the desktop via the network in an automated fashion.

23. The Desktop operating environment will be locked down to restrict the ability of individual users to change the (standard) software image. The level of lock down for different groups of users will be determined by balancing technical support and business requirements.

24. Use of terminal services for enterprise applications will be supported where appropriate.

25. Remote management tools and processes will be used to assist users with the analysis and resolution of desktop problems.

Integration

26. Where applicable a single high-end industry standard tool will be used to implement, manage, and monitor two-way communications between enterprise applications.

27. For purposes of cost efficiency, a second medium/low end industry standard integration tool may be used to implement, manage, and monitor one-way communications between enterprise applications.

28. Proprietary messaging solutions required for pre-defined interfaces between applications from the same vendor will be supported.

29. Use of point-to-point, custom developed, synchronous interface technologies such as components, APIs and direct database access will be minimised in favour of the loosely coupled technologies described above.

30. Templates for word processing, spreadsheets, and presentation graphics will be used so that users can freely exchange revisable form documents.

31. Open standards for information exchange will be used in favour of proprietary technologies.

Disaster Recovery

32. Disruption to the availability of systems will be prevented through

- The timely installation of up to date virus protection software and operating system patches for all desktops and servers
- The Implementation of appropriate redundancy in systems based on the balance between cost and business requirements/risk
- The establishment of adequate support agreements with vendors that are in line with system availability requirements
- The implementation of adequate network and server monitoring tools and processes.

33. Enterprise systems will be categorised based on their criticality with respect to business continuity. Appropriate disaster recovery policies for each of these categories will be developed based on the balance of cost and business requirements/risk.

34. Business units will be encouraged to ensure they have a business continuity plan that outlines the continuity of critical services without the use of IT.

Security

35. Industry standard security management tools will be used to implement the desktop, network and server security measures that are required by the privacy policy.

36. Network security will be supported by a range of different firewall policies for the following security profiles

- Internet network access
- Third party network access
- Trusted party Access
- Remote network Access
- Internal network access.

37. Application Security will be supported by the use of security features that facilitate a granularity in the access to personal information and the logging and audit of this access.

38. Data Security will be supported by the prevention of direct access to databases that bypass the security rules administered by the information system that manages the data.

39. Wherever possible a central login facility (such as LDAP) will be provided.

40. Servers will be located in a computer facility that is physically locked and only accessible by authorised support personnel.

Future Proofing of the infrastructure

41. As part of the rationalisation, consolidation, and standardisation of the regional DHB IT infrastructure, solutions will be implemented that are resilient and flexible to cater for potential future changes in policy, governance, and structure of the three DHBs.

42. If solutions that substantially reduce this resilience and flexibility are implemented (because of considerations of efficiency or technology), the relevant business owners will assess the long term risks associated with this decision.

Application Systems

43. Common, enterprise-wide systems will be implemented for common processes wherever possible.

44. The number of disparate applications and versions across the region will be reduced, thus reducing the complexity and cost of integration and support, and improving the ability to share information through common systems.

45. The portfolio of regional information systems will be balanced by

- Reducing the number and variety of applications and vendors to increase consistency and reduce cost

- Creating relationships with multiple vendors to access different pools of expertise and to spread commercial risk.

The DHBs will benefit from the tight integration of applications from one vendor in its specialised field while this cluster of applications will share information with other systems via open standard interfaces

46. In all cases, the approach of a single instance across the region will be considered and adopted where appropriate.

47. Standard commercially available "packaged" software will be selected where possible in preference to custom developed solutions.

48. Packaged software that complies with the Regional Enterprise Architecture standards will be selected unless this prevents critical business requirements being met.

49. Packaged software will be maintained at release levels supported by the vendor.

50. Modification of packaged software will be minimised to protect the software's upgrade path.

51. Where packaged software allows configuration an investment will be made in the ongoing support and maintenance of the configuration.

52. Where custom-developed software is required, it will be developed in strategic partnership with preferred vendors.

53. Application and business processes will be aligned to maximise the use and benefit of the application investment.

54. Data will be collected once and as close to the source as possible, taking into account constraints of cost and business practicality.

55. Where possible a standard tool will be used for the creation and scheduling of reports.

56. Subject to financial and technological constraints, reporting systems' negative impact on operational systems' performance will be minimised.

4. CURRENT STATE/FUTURE STATE ANALYSIS

4.1.   The Health System of the Future

Introduction

The current round of health reform in New Zealand is building a new way of delivering health care. Government strategies and Ministry of Health policies describe at a high level the start of a journey to the "Health System of the Future".

DHBs and their associates, Primary Health Organisations (PHOs), are the structures required by legislation to deliver health care under the new system. The new system is required to be focused on wellness rather than illness, on promotion of collective responsibility for population health and on sensible co-ordination of individual patient's treatment. Radical, disruptive reform within the health sector carries huge risk of adversely impacting patient outcomes. Consequently, the current reform is being implemented progressively and incrementally, allowing time for adjustments and corrections at each stage.

In the health system of the future, all participants, including health care providers, patient, family/support groups, etc, will be required to work in a collaborative manner to provide a seamless continuum of health care, that makes sense to the patients, rather than in the manner represented by the traditional "silo structure", where the care and responsibility for patients is handed from one organisation to another.

In order to achieve the goals of the new system, there is a need for a focus on increasing collaboration and increasing the consistency of approach towards adoption of solutions nationally to avoid duplication and waste.

How Strategies and Policies Point to the Health System of the Future

The New Zealand Health Strategy describes how the Government is "reconfiguring the health and disability sector to improve the overall health status of New Zealanders" (page 3). It states that "services must be co-ordinated, and providers must collaborate to ensure institutional boundaries do not compromise quality of care" (page 9).

The seven principles of the *New Zealand Health Strategy* are:

1. acknowledging the special relationship between Māori and the Crown under the Treaty of Waitangi

2. good health and wellbeing for all New Zealanders throughout their lives

3. an improvement in health status of those currently disadvantaged

4. collaborative health promotion and disease and injury prevention by all sectors

5. timely and equitable access for all New Zealanders to a comprehensive range of health and disability services, regardless of ability to pay

6. a high-performing system in which people have confidence

7. active involvement of consumers and communities at all levels

Information systems are clearly seen as critical to delivering the strategy: "the ability to exchange high quality information between partners in health care processes will be vital for a health system focused on achieving better health outcomes. Better access to timely and relevant clinical information can improve clinical decision-making and, therefore, health outcomes for individual patients" (page 29).

The Primary Health Care Strategy is a key first step in implementing the New Zealand Health Strategy. It presents "a new vision" which will lead to "a new direction for primary health care with a greater emphasis on population health" (page vii), which "will involve moving to a system where services are organised around the needs of a defined group of people" (page viii). The health system of the future is specifically contrasted with the old health system (page 6) as shown in table 1.

Table 1: Contrasting the health system of the future with the old health system

Old	New
Focuses on individuals	Looks at health of populations as well
Provider focused	Community and people-focused
Emphasis on treatment	Education and prevention important too
Doctors are principal providers	Teamwork - nursing and community outreach crucial
Fee-for-service	Needs-based funding for population care
Service delivery is monocultural	Attention paid to cultural competence
Providers tend to work alone	Connected to other health and non-health agencies

A later Ministry of Health paper, *From Strategy to Reality: the WAVE Project* lists 10 priorities for a national information strategy. This landmark document credibly reflects significant health sector input and includes the key recommendation made by all of the work streams making up the WAVE project. "Establishing a central body to exercise leadership, to drive the standards setting and governance functions (including design, implementation, promulgation) necessary to implement and order the future environment."

WAVE identified the following as the criteria indicating success:

New Zealand will have succeeded if, in three years time, we have:

Clear role accountability: Ensured organisations involved in the delivery of information and payment services have clearly defined roles, avoiding duplication and maximising efficiencies.

A focus on health outcomes: Ensured information systems support the objective of improving health outcomes and being able to measure health outcomes.

A common and complete technical language: On-going development of robust data sets and data collections to assist DHBs in providing targeted care to their populations.

Developed analytical capability: Ensured improved analytical capability so data is used more effectively.

Reduced provider compliance costs: Developed information systems, promoting reduction in costs for health and disability support service providers.

Empowered communities: Designed information systems catering for different cultural needs and empowering individuals and communities to manage their own health care.

Health sector representatives continued meeting after the completion of the WAVE report and collaborated on funding and policy documents for a leadership body. The sector representatives were clear that WAVE was to be an operational plan that was to be implemented immediately.

Some progress has been made to address this, with a new standards committee, HISO (Health Information Standards Organisation), being established and having held its first meeting in June 2003. This body is seen to be taking the key leadership position prescribed in WAVE, and the sector is now looking forward to similar action towards completing the other WAVE recommendations.

A Framework for Collaboration

A factor critical to achieving "the health system of the future" is the ability of various parties involved in health care to collaborate. These parties must agree on their respective roles, responsibilities and strengths, with willingness and drive to genuinely partner with each other to achieve common goals.

The Operational Policy Framework [*(OPF)* one of a set of documents known as the "Policy Component of the District Health Board Planning Package", describes the Government's expectations of DHBs. The 2003/04 edition describes the expectation for collaboration on information technology in Appendix A Section A.3.B (2):

"DHBs should employ a consistent collaborative approach to information technology (IT) investments in order to maximise benefits. The approach should build on the experience and knowledge gained in the IT area of the health sector. DHBs should ensure that benefits achieved through IT investment are shared throughout the sector.

Any DHB considering significant IT investments must show how it has consulted with other DHBs experienced in the IT area, in order to establish compatibility and demonstrate the best outcome for the sector from the use of modern information technology. Ministers expect DHBs to learn from the experiences of other DHBs where relevant."

The health system of the future is a partnership between providers, PHOs, DHBs, the Minister of Health and MoH. PHOs provide team based co-ordination of care to their local communities, under agreement with their DHB, which is formally accountable to the Minister of Health for monitoring the needs of their population as well as developing and purchasing services to meet these needs. The Ministry provides: high level policy and strategic direction; standard toolkits and materials covering the most common health conditions; national service planning to avoid duplication and waste; and targeted funding to enable DHBs and PHOs to provide equitable distribution of resources. It also monitors the activities of all health care providers to minimise duplication of effort across the sector.

"The risk in not implementing a collaborative framework through which to work towards the desired health system is that staff across all DHBs and the Ministry continue to waste time establishing appropriate roles and responsibilities in implementing strategic work programmes, which at times would jeopardise the strategy itself."

The Ministry also has a vital role in developing, implementing and operating national information systems such as the NHI, HPI, Health Information Network and national health databases, again to avoid duplication and waste. The new health system model positions the Ministry as a partner, resourcer and facilitator, working closely with, not in control of, DHBs. DHBs and MoH together will determine the priorities and actions required to bring about the desired future. This will include MoH working with DHBs experienced in the implementation and development of IT, and leveraging proven successes as national demonstrations and templates for the sector as a whole. This new relationship will require a level of trust by MoH in those DHBs' capabilities and expertise.

Different views of roles within the emerging health system can compound difficulties and tension associated with the adoption of any systemic change. Therefore, there is a need to ensure a common vision of the future, clarity of goals and agreement of purpose, and much good work already exists in the area. For example *The Primary Health Care Strategy* (February 2001) provides clear structure and role definition expected within the health system of the future (on page 5). Speaking at HINZ, Annette King made the point that implementing this strategy was her top priority:

"An issue that is my highest priority as Health Minister … is successfully implementing the Primary Health Care Strategy. The need for accurate information management will increase as funding is based on the needs of an enrolled population."

Figure 1: The new primary health care sector
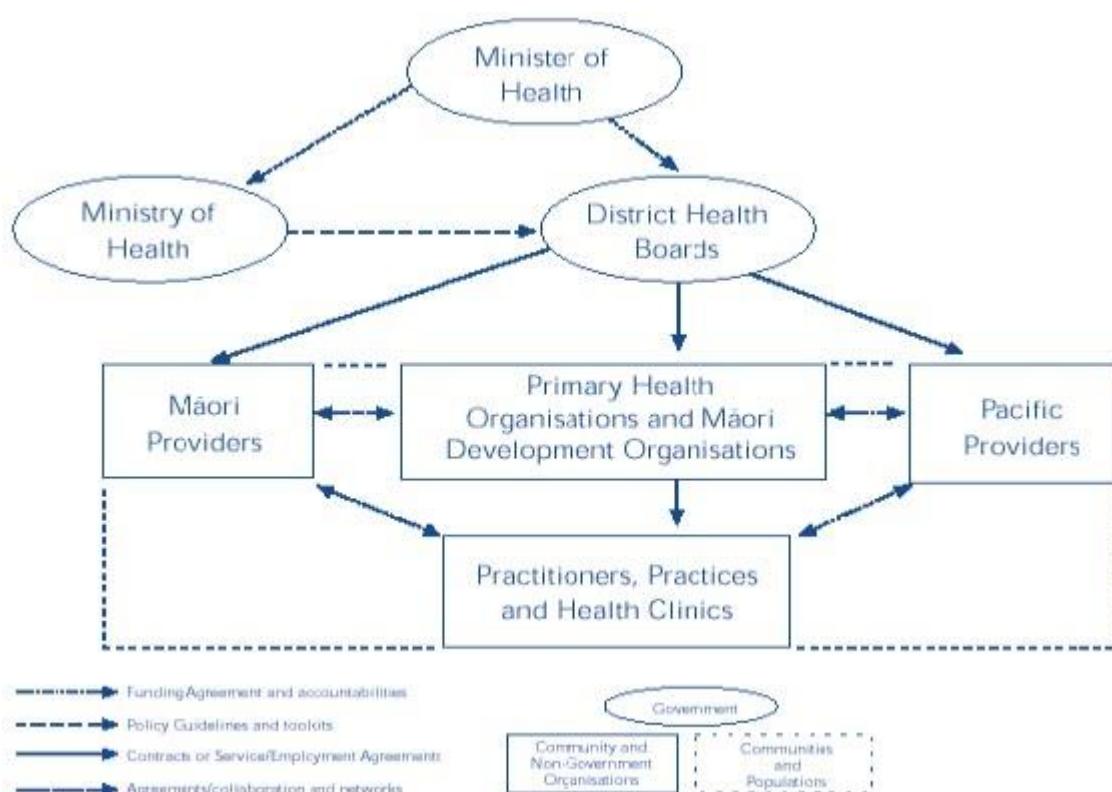
Similarly, there is a significant opportunity to ensure that structures within the DHBs and MoH match the new requirements of the new vision for the sector. Mismatch makes it hard to get effective communication between those creating and implementing policies, as multiple organisational units within DHBs and PHOs have to liaise with multiple organisational units within MoH.

Fundamental change is never easy and it will require all parties to compromise some level of local need in favour of a more standard investment in information systems, particularly the adoption of systems proven to be of value even if not developed locally. In the past, large and often unsuccessful IT investments have been made in the health sector by organisations that took little notice of the experiences or requirements of other health care organisations. In the future, New Zealand must develop a more co-ordinated and common approach to information systems investment and to information sharing technology.

Getting to the Health System of the Future

Crossing the Quality Chasm, A New Health System for the 21st Century, published by the USA Institute of Medicine's Committee on Quality Health Care in America in 2001, is a seminal description of the health system of the future. On page 67 it contrasts the features of new and the old health systems as shown in table 2.

Table 2: A contrast of the features of new and old health systems

Old	New
Care is based primarily on visits	Care is based on continuous healing relationships
Professional autonomy drives variability	Care is customised according to patient needs and values
Professionals control care	The patient is the source of control
Information is a record	Knowledge is shared and information flows freely
Decision making is based on training and experience	Decision making is evidence-based
Do no harm is an individual responsibility	Safety is a system property
Secrecy is necessary	Transparency is necessary
The system reacts to needs	Needs are anticipated
Cost reduction is sought	Waste is continuously decreased
Preference is given to professional roles over the system	Co-operation among clinicians is a priority

The future health system will be patient focused and will integrate health care providers in order to deliver consistent, continuous, evidence-based care. DHBs must deliver "the Right Care in the Right Place at the Right Time". In this model, the patient is surrounded by a seamless continuum of care between primary, secondary and community carers. The activities of providers are integrated and their boundaries are not of concern to the patient. In this theoretical future system, the patient has a good understanding of the points at which they have access to care, is fully informed about their own health status and about the decisions that are being made for the delivery of their health care.

4.2. Collaboration

Overview

ADHB, WDHB and CMDHB have moved from independent technology directions in the time of Crown Health Enterprises to a much more collaborative environment aimed at alignment of information technology and infrastructure. A key feature of the new collaboration is the development of this Regional Information Systems Strategic Plan.

Informal collaboration has been happening for some time - various recent decisions have followed a regional approach:

- Implementation of the Web Éclair Regional Results Reporting System
- Commitment from ADHB to adopt a regional implementation of the Orion Clinical Information Systems suite of products
- The principle decision from ADHB to accept PiMS as the preferred Patient Management System to replace CMS/PHS in due time
- The regional pharmacy IS project.

In recent years, DHBs have also moved to work more closely with Primary Health Care, to improve the exchange of relevant information between providers. In particular, CMDHB has initiated various projects that allow the DHB and Primary Health Care providers to work together easily.

Current and Planned Programmes

Two subsidiary organisations currently provide shared services to the Auckland regional DHBs.

healthAlliance NZ Ltd is a company that was created by CMDHB and WDHB in July 2000. Each has a 50% share in its ownership.

healthAlliance is a vehicle for providing shared operational services to both DHBs. It delivers five functions

- Procurement
- Supply Chain
- Finance
- Human Resources
- Information Services

healthAlliance is the only provider of these key functions to CMDHB and WDHB.

The three Auckland DHBs own the **Northern DHB Support Agency (NDSA)**. It provides services to them and to the Northland DHB.

The NDSA provides support to the DHBs in their role as health and disability service funders. The NDSA is responsible for the funding of

- Mental Health services
- Disability Support Services
- Services for Older People
- Personal Health services such as pharmacies, community laboratories, dental and administration of Section 88 notices

In addition, a **Regional Capital Group** has been set-up that will ensure that decisions to invest in major capital items, including information technology, are made with the regional interest in mind.

On 7 October 2003, the Regional Shared Services project was officially launched, with the intention of designing a new regional shared service for the three Auckland DHBs. The IS organisation will deliver the programme of work defined in the RISSP; its collaborative focus will be on alignment of information systems between the DHBs.

Information Strategies

Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Align Applications by:

- Completing the DHB application system projects that are currently underway. These are listed in Appendix 10 (DHB Information Systems Alignment Matrix), with value of "I" in the Required Focus Column.

- Implementing a preferred common system in those DHBs not already using that system, taking into account the preferred timing for each DHB. These are listed in Appendix 10 (DHB Information Systems Alignment Matrix), with value of "K" in the Required Focus Column.

- Selecting a regional solution for those areas where alignment between the DHBs within the timeframe of this RISSP is important. Implementing each selected regional solution in those DHBs that are not already using that system, taking into account the preferred timing for each DHB. These are listed in Appendix 10 (DHB Information Systems Alignment Matrix), with value of "U" in the Required Focus Column. (O2-35)

Information Objectives

Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Implement *Soprano* Electronic Discharge Summaries in ADHB. (S1)

2. Implement *Leader* HRMS & Payroll in ADHB. (S1)

3. Implement *Kidslink*/NIR in ADHB. (S1)

4. Select and Implement a new Pharmacy System for the region. (S1)

5. Implement *IDAS* in WDHB and CMDHB. (S1)

6. Migrate NBRS *CMS* to Knowledge Solution's National Booking Review System in ADHB. (S1)

7. Migrate *CMS* Patient Management Suite of products in ADHB to the *PiMS* PMS suite of products. (S1)

8. Implement *Soprano*/*Predict* Clinical Workflow as platform for disease management in ADHB region. (S1)

9. Implement a regional clinical data repository using *Éclair* as a starting point. (S1)

10. Implement *PiMS* & *3M Encoder* as the preferred DRG Coding solution in the region. (S1)

11. Implement Orion *Soprano* Patient Tracking System in ADHB. (S1)

12. Migrate helpdesk from *Infra Active* to *Quetzal* in ADHB. (S1)

13. Migrate the Delphic solution in CMDHB blood service to the *Progesa* solution. (S1)

14. Migrate the *PHS* outpatient scheduling solution in ADHB to the *PiMS* outpatient scheduling solution. (S1)

15. Implement the Healthlink provider directory in ADHB and mature the solution across all three DHBs. (S1)

16. Migrate the *CRTS* Records Tracking solution in ADHB to the *PiMS* PDT solution. (S1)

17. Implement the *Optimise* Retinal Screening solution in ADHB. (S1)

18. Select and implement a regional Acuity solution. (S1)

19. Select and implement a regional solution for assessment forms. (S1)

20. Select and implement a regional solution for Bed Allocation. (S1)

21. Select and implement a regional solution for Decision Support & Clinical Pathways. (S1)

22. Select and implement a regional solution for Clinical Notes & migrate from various clinical notes systems. (S1)

23. Select and implement a regional solution for Community and Mental Health services. (S1)

24. Select and implement a regional Colposcopy solution. (S1)

25. Select and implement a regional complaints & incidents tracking system. (S1)

26. Select and implement a regional elearning solution. (S1)

27. Select and implement a regional elective surgery scoring system. (S1)

28. Select and implement a regional electronic referrals solution. (S1)

29. Select and implement a regional electronic prescribing solution. (S1)

30. Select and implement a regional health information and communication solution. (S1)

31. Select and implement a regional Radiology Management Solution. (S1)

32. Select and implement a regional standard scheduled and ad-hoc reporting tool. (S1)

33. Select and implement a regional Rostering solution. (S1)

34. Implement a regional solution for document management of laboratory accreditation/process documents. (S1)

4.3. Population and Public Health

Overview

The New Zealand Health Strategy defines Population Health as "The health of groups, families, and communities. Populations may be defined by locality, biological criteria such as age or gender, social criteria such as socioeconomic status, or cultural criteria such as whānau." Population health is therefore an overview of the health of a group of people.

With respect to DHB strategy, the term "Population Health" has two distinct meanings.

Population Health Services

This refers to the services a DHB provides or funds to improve the health of its entire population or of a particular group within it. These services are frequently preventative and are therefore provided not only to those with illness but also to healthy members of the population.

Many population health services are provided through community care providers such as DHB community services and PHOs. Services delivered on a one to one basis, by clinical service providers such as GPs, are sometimes classified as "clinical prevention" services. These include screening and immunisation programmes.

Other services, often delivered outside of the clinical setting, may use methods such as media based campaigns or regulatory controls of health hazards. These Population Health services tend to be classified as Public Health services and are delivered by the Auckland Regional Public Health Service (ARPHS), NGOs, and to some extent Local Government. There are also services that rely on collaboration between Public Health and other Population Health service providers. These include Population Health programmes such as nutrition advice provided by Primary caregivers in collaboration with ARPHS nutrition advisors.

Public Health services are generally funded directly by the Ministry of Health. Nevertheless, Public Health Services affect DHB population health, and the DHBs influence service provision through participation in a regional public health steering group. ARPHS is part of the Auckland DHB and is supported by the ADHB IS department. ADHB's DSP requires that adequate communicable disease Risk Management systems are established and maintained.

Population Health Assessment

The second meaning of Population Health can be summarised as a particular focus on service provision, planning and funding. At the clinical level, this amounts to the prioritisation of specific therapies and services based on epidemiological and economic evidence of effectiveness. Population based approaches are generally discussed in the context of service provision for groups rather than individual patients. The Ministry of Health summarises the role of Population Health as:

"A population health approach is one that considers the wider determinants of health, and considers the health of a range of populations. Populations can be geographic populations or populations with common characteristics e.g. women, schoolchildren, Māori, Pacific people, or particular socio-economic groupings. The wider determinants of health include age, sex, hereditary, living, and working conditions, gender, culture, and general socio-economic position.

PHOs can use a population health approach by considering the health of their enrolled population and planning services according to need."

Thus, the second aspect of Population Health concerns the development of capacity and infrastructure

- for the assessment of the health of the people of Auckland
- for planning services to meet that need
- for providing DHBs with the information they require to influence other agencies' activities that will effect the region's health.

The DHBs have a statutory duty to develop the capacity and infrastructure to assess the health of the people of Auckland and plan services to meet that need.

Whatever the levels of future funding, there is a need to ensure that the health system is working, and funding is applied, in the most efficient and effective ways, and that effort is focussed on those areas with the most potential for gain.

The DHBs' need quality Population Health information to

- build the research base and analytical expertise about population health and wellbeing (including primary sector, clinical governance, costing systems, health needs, and demographic information) to assist in planning and surveillance
- supply demographic, epidemiological, service use data and outcome information to allow the DHBs to set explicit local health goals and targets (aligned to the New Zealand Health Strategy), and monitor progress
- analyse the demographics of the population of regional Auckland to understand the future profile of the Auckland region covering ethnicity, age structure, population growth, and other indicative factors, all of which will be linked to morbidity and mortality data
- undertake a Health Needs Assessment for the region incorporating the demographic characteristics, health status, availability, and access of services, identification and prioritisation of need areas in the local community; improve, promote and protect the health of Aucklanders
- provide systems to measure positive and negative health indicators, assess health needs, and prioritise and allocate resources to match health and disability service needs.

Current and Planned Programmes

Assessing the health of populations and planning services according to need are among the DHBs' core functions. The information required to support these functions has received relatively little attention. Health assessments to date have been based on data provided by legacy systems such as NMDS and NZHIS reporting requirements, rather than on an evaluation of DHB functional requirements.

Each DHB has a department that does casemix and decision support reporting. These have grown out of the HHS environment and are largely secondary care based. They need to be developed to meet the requirements of the Funder, and broader DHB Population Health requirements.

Current statistical and epidemiological reporting systems are generally limited to ad-hoc systems based on in-patient discharge records.

GPSURV is a regional epidemiological reporting system currently in its second phase of implementation by ADHB (ARPHS). This system is designed to collect and analyse current population health status for target conditions using a network of GPs who record READ diagnosis codes.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

Population Health Services Support

1. Predict the risk of future ill health in children and provide appropriate interventions. (O3,5,7,10)

2. Use information technology to engage the population in greater self-management such as by providing lifestyle advice (e.g. smoking cessation, nutrition, weight optimisation, and exercise) to patients with or at risk of disease, and to track their compliance with advice, as part of a personalised care plan. (O1,2,9,10)

3. Collaborate with the Ministry of Health to support the national programmes. (O4,5,6)

4. Use information technology to allow people access to useful health information. (O2,9)

5. Provide the ability to identify and continuously monitor high-risk patients in the Auckland region, in particular those with chronic physical or mental diseases and the elderly. Monitor their health status and risk, provide assessment, care plans, and risk management in a continuum of care for each individual that improves health status or reduces progression or risk. Track and report on improvement in Population Health status and risk. (O1,9,10)

6. Support the management of public health and civil defence emergencies. (O8,11,12,17)

Population Health Assessment Support

7. Enable each segment of the health system to collect the data it needs to measure the results of its work. Ensure such data is

*   as complete, accurate and timely as is practicable
*   able to be able to be linked, most likely by NHI, to any other health system segment
*   available to population health analysts (O10,11,12,13,14,15,17)

8. Enhance Population Health Assessment capacity by making better use of current systems to identify and monitor inequalities in health status between population sub-groups. (O3,7,8,13,14,17)

9. Provide the means to create a risk profile of the enrolled population. (O11,17)

10. Record all child immunisations to allow measurement of immunisation rates. (O4,5,7)

11. Establish an integrated Business Intelligence function which develops and delivers an organisation-wide Information Management strategy, including

- developing and reporting on DHB KPIs such as Population Health status and gain, service access, reducing inequalities, health disparities, chronic disease incidence, referral utilisation, service delivery effectiveness
- clinical and casemix costing
- decision support reporting
- audit and financial reporting
- clinical audit and utilisation reporting
- needs analysis
- epidemiological population profiling
- enterprise document management
- data storage, archiving and destruction
- clinical informatics
- Ministry of Health and other statutory reporting. (O13,14,15,17)

12. Enhance public participation in health services planning. (O16)

Information Objectives

Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

Population Health Services Support

1. Develop and implement a system that attracts a significant number of defined high-risk patients to interact with their care plan using web or telephony. (S2,5)

2. Implement a web-based Population Health Education service, allowing people to access useful health information in different languages, including advice on smoking, weight, exercise, diet, and alcohol. (S2,4)

3. Extend the *Kidslink* system to record the observations from the Well Child check across the region. (S1,8)

4. Collaborate with the Ministry of Health to implement a Meningococcal vaccination system, including a school based vaccination system, across the whole Auckland region. (S3,10)

5. Collaborate with the Ministry of Health to implement the National Immunisation Register System for 0-5's (NIRS) across the whole Auckland region. (S1,3,10)

6. Collaborate with the Ministry of Health to support the national screening programmes. (S3)

7. Implement *Kidslink* reporting of child immunisation rates. (S1,8,10)

8. Develop regional health hazard geographic information system. (S6,8)

9. Implement Clinical Decision Support and patient information sheets. (S2,4,5)

10. Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary Health Care and Secondary providers. (S1,2,5,7)

Population Health Assessment Support

11. Integrate population health surveillance, monitoring and reporting into DHB and PHO systems. (S6,7,9)

12. Develop regional sexual health epidemiological reporting system linking DHB and community clinical and laboratory systems. (S6,7)

13. Establish information system to monitor health outcome targets aligned to NZHIS on a DHB and regional basis. (S7,8,11)

14. Establish systems to monitor and report on accessibility of services. (S7,8,11)

15. Develop population health reporting capability for outpatient, laboratory, pharmacy, and radiology systems. (S7,11)

16. Develop information systems to enhance public participation in planning such as web-based survey systems. (S12)

17. Set up a Business Intelligence unit

- Define meta-data
- Establish data sources
- Collect and warehouse data
- Structure and order data
- Provide end-user desktop analysis, reporting and modelling tools. (S6,7,8,9,11)

4.4. Primary Health Care

Overview

The term "Primary Health Care" has a number of connotations, some of them technical (referring to the first contact with the health system, or the first level of care, or simple treatments that can be delivered by relatively untrained providers, or interventions acting on the primary causes of disease) and some political (depending on multisectoral action or community involvement). The scope of this RISSP confines the definition to the services provided by PHOs, GPs, NGOs, and community-based Pharmacies, Radiologists and Laboratories.

DHBs and Primary Health Care providers have a mutual interest in Population Health improvement. A key focus is providing a continuum of care and an integration of services for patients, so DHBs and Primary Health Care providers need to exchange information about the shared care of their common patients.

Primary Health Organisations (PHOs) are not-for-profit bodies funded by DHBs for the provision of a set of essential primary health care services to those people who are enrolled. Information strategies that support PHO establishment and sustainability are a priority.

Primary Health Care will have a key role in many integration initiatives and in finding new ways to deliver health care that will shift the focus from hospitals. Each DHB recognises the importance of integrating service delivery between Primary Health Care, Secondary care, and Community services. Effective sharing of information is essential to providing these continuums of care to patients.

The DHBs see Electronic requests for assistance, referrals, consultation advice, and discharge communications as enablers of integration between Primary Health Care, Community and Ambulatory, and Secondary care providers. Such integration is necessary to manage acute demand, and to serve patients with high and complex needs effectively. There is a need to achieve the national minimum standards of a maximum six-month waiting time for First Specialist Assessment and a maximum six-month waiting time for operation for high priority procedures.

Development of effective communication and information links among Primary Health Care service providers and between Primary and Secondary providers may require a level of investment that is beyond the resources of some providers.

DHBs are responsible for funding and contracting services from Primary Health Care providers, however much of Primary Health Care will continue to retain a high degree of organisational independence and autonomy, which means that DHBs must only encourage, rather than dictate information strategies for Primary Health Care.

Current and Planned Programmes

CMDHB has developed a primitive electronic referrals system that will receive and acknowledge Electronic Referral messages, then format and print them. CMDHB and WDHB have the ability to send electronic acknowledgment of referrals back to providers.

The plans are to follow this initial implementation with increasing levels of sophistication. The next phase is being undertaken as a joint project with Ministry of Health. It will involve referral templates for multiple elective conditions, routed to the *Predict* decision support engine, which has been populated with assessment criteria for these conditions, based on national guidelines but edited by local clinicians to suit local conditions. Based on assessment of the referral, providers will be given treatment advice and/or confirmation of acceptance of the referral.

Beyond this will be a further phase where referrals that meet the assessment criteria within *Predict* are offered appointments or a choice of appointments.

CMDHB, in conjunction with the Ministry of Health and Telecom, has initiated a pilot project to supply Patient Management systems to GPs as an ASP (Application Service Provider) service.

Electronic Discharge Summaries (EDS) may now be accessed through all leading GP Patient Management Systems; the three DHBs are implementing EDS through their departments.

Integrated Care technology has been implemented at CMDHB, which uses the template and messaging capabilities within leading GP Patient Management Systems to exchange information for advice with the DHB based Integrated Care Server (Orion *Soprano Clinical Workflow*) system.

Information Strategies

Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Consolidate, upgrade, and improve usage of existing systems to meet changing clinical and business needs and risks. (O1,2,4,7,8,9,15,17)

2. Provide integrated information systems that allow "seamless" access to information and care coordination among Primary Health Care providers and between Primary Health Care and Secondary services. (O2,3,4,7,8,9,10,12,13,14,15,17,19,20,21,22,24,25,26,27)

3. Provide and promote evidence-based guidelines and electronic clinical decision support tools that aid effective clinical decision-making and management of patients in Primary health care, including health promotion and illness prevention, with responsive and appropriate support from Secondary services. (O7,10,12,18,22,23,24,25)

4. Support integrated Primary/Secondary care continuum (e.g. Care Plus) initiatives focused on priority populations and conditions and on managing demand for Secondary services. (O2,7,10,12,13,17,19,21,22)

5. Improve quality of care and avoid unnecessary orders by providing accurate and timely access to electronic results ordered by other caregivers. (O3,4,8,14)

6. Provide accredited Primary caregiver access to information held by DHB, community and private investigative and diagnostic services, and to patient information and Health Event Summaries held by other caregivers and services. (O2,3,4,8,10,12,13,15,24)

7. Develop integrated systems and processes for management of specialist referrals, and hospital discharges and follow-up. For example:

• Simplify and automate referral and acknowledgement standards and processes

• Provide electives scoring results and referring advice and guidance electronically. (O2,9,15,17,19,22)

8. Collaborate with the Ministry of Health to provide Primary caregivers with fast, timely, and accurate access to and ability to update the NHI. (O5,16,20,24,25,27,29)

9. Collaborate with the Ministry of Health to provide access to a national authenticated provider services directory for efficiently identifying other providers for information sharing and for secure identification and authentication of providers. (O15,19,22)

10. Capture and code the information needed to identify Population Health risks (including ethnicity). Enable information and resources to be targeted to patients with highest needs, where there is potential to respond to Primary and Secondary prevention programmes. (O7,10,16,28,29)

11. Use information technology to engage the population in greater self-management such as by providing lifestyle advice (e.g. smoking cessation, nutrition, weight optimisation and exercise) to patients with or at risk of disease, and to track their compliance with advice, as part of a personalised care plan. (O11)

12. Develop capabilities and systems for monitoring, reporting, and forecasting Primary health care expenditure, utilisation, outcomes, and population health status. (O5,7,16,28,29)

13. Enable more effective and safe drug use by improving information exchange and reporting between prescribers and dispensers, and providing decision support. (O14,18,23,24)

14. Improve quality and auditability of individual patient enrolment and capitation information, and the quality of payments to contracted providers. (O5,20,25,29)

15. Engage IPAs and PHOs and their management support organisations in the development and implementation of IS objectives. (O6,27)

16. Where appropriate and possible, leverage the historical investment in Secondary IT to provide affordable, current state IM, IS and IT services to Primary health care. (O6,27)

17. Participate in setting national standards for structured messages. (O2,4,14,15,17,20,22,25)

18. Use information held by Primary caregivers to improve the management of patients in the Secondary setting. (O8,20)

19. Use information technology to improve the management of patients by Community and Ambulatory services. (O7,12,13,21,22)

20. Increase the value Primary health care receives from investing in broadband Internet access. (O2,3,4,7,8,15,23,25,27)

21. Ensure all information exchange regarding individual patients includes NHI number. (O4,7,14,19,20,24,25)

22. Reduce waste and improve utilisation of pharmacy, laboratory, and radiology by implementing electronic prescribing and electronic ordering of laboratory and radiology tests. (O14,18)

Information Objectives

Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Maintain the currency of patient/clinical systems with version changes so that they remain clinically relevant and supportable. (S1)

2. Implement improved Electronic Discharge Summaries and referral status messaging across ADHB and WDHB. (S1,2,4,6,7,17,20)

3. Provide all outpatient, inpatient, and investigative event summaries to patients' Primary caregivers and allow them access to event details held in Secondary systems. (S2,5,6,20)

4. Define, develop, and implement further Health Event Summaries such as inpatient and outpatient clinical notes, specialist reports, problem lists, medications, allergies. (S1,2,5,6,17,20,21)

5. Monitor the output and collaborate with the Ministry of Health to support the implementation of affordable recommendations of the PHO Enrolment Taskforce (aka CBF Improvement Project). (S8,12,14)

6. Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

- Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers

- a regional helpdesk and technical support capability

- an ASP model for delivering services. (S15,16)

7. Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary Health Care and Secondary providers. (S1,2,3,4,10,19,20,21)

8. Extend the *Éclair* regional laboratory result reporting system to provide accredited Primary, Secondary and Tertiary caregiver access to

- all Auckland region DHB laboratory and radiology test results reports

- all community and private laboratory and radiology test results reports. (S1,2,5,6,18,20)

9. Complete the electronic decision support and electronic referral pilot project for elective services at CMDHB in partnership with the Ministry of Health and Procare, and explore the possibility of rolling out a regional implementation of electronic referral and electronic decision support for all services to all three DHBs and most regional PHOs. (S1,2,7)

10. Deliver and implement a regional integrated system for enabling the requirements for information exchange between Primary Health Care and DHBs for high-needs patients and the elderly.

- Develop, pilot and implement standardised population risk assessment tools for two further conditions in *Predict*

- Implement national guideline based screening tools for five conditions in *Predict* within one year. (S2,3,4,6,10)

11. Develop and implement a system that attracts a significant number of defined high-risk patients to interact with their care plan using web or telephony. (S11)

12. Define Community and Ambulatory, Disability, and Mental Health information system requirements, including Primary health care connectivity; select and implement a single regional solution. (S2,3,4,6,19)

13. Complete the planned CMDHB project for IS enablement of care coordination between Primary health care, Secondary, and NGO Mental Health providers, and rollout a regional solution including PHOs. (S2,4,6,19)

14. Examine the feasibility of implementing electronic (or barcoded) Primary health care prescriptions, and electronic processing by pharmacists which inform prescribers that the drugs have been collected. (S2,5,13,17,21,22)

15. Extend the use of the regional electronic services directory to all three DHBs and most PHOs, and secure access with single signon and one password for all three DHBs and most PHOs to the national Health Practitioner Index. (S1,2,6,7,9,17,20)

16. Collaborate with the Ministry of Health to implement systems to provide reliable KPI data collection and reporting by Primary Health Care and by DHBs to

- assess the level of need for Māori and Pacific peoples and others
- assess the effectiveness of resources targeted to that need
- measure Population Health status improvement for Māori and Pacific peoples and others. (S8,10,12)

17. Implement structured electronic decision support messages and messages for referral status changes. (S1,2,4,7,17)

18. Align with the Ministry of Health e-Laboratory and e-Pharmacy projects. (S3,13,22)

19. Provide Primary caregivers with access to waiting list information and the ability to book patients directly for First Specialist Assessments. (S2,4,7,9,21)

20. Collaborate with the Ministry of Health to provide a mechanism for Secondary care organisations to access PHO records to determine the current GP for an NHI number and the current contact details for that patient. (S2,8,14,17,18,21)

21. Provide Community and Ambulatory Services (e.g. District Nurses) with tools to provide Primary health care clinicians with electronic notes about services provided to the clinician's patients. (S2,4,19)

22. Support the development and implementation of standards that allow Primary health care clinicians to refer patients electronically to Community and Ambulatory services, particularly District Nursing. (S2,3,4,7,9,17,19)

23. Facilitate and support access to online reference texts (e.g. *MDConsult*, *Clinical Evidence*, etc) that are applicable to Primary health care clinicians. (S3,13,20)

24. Collaborate with the Ministry of Health to provide Primary health care clinicians with access to adverse reactions data as maintained and provided by the NHI Medical Warning System (and currently available to hospital-based I.T. systems). (S2,3,6,8,13,21)

25. Support the national strategy to provide secure online access to the NHI for accurate patient look-up. (S2,6,8,14,17,20,21)

26. Implement information access at multiple points of care, including desktop, remote, and mobile. (S2)

27. Collaborate with the Ministry of Health to provide affordable access to secure high-speed electronic networks for information exchange. (S2,8,15,16,20)

28. Collaborate with the Ministry of Health to provide systems to capture, collate, store and report PHO performance information. (S10,12)

29. Collaborate with the Ministry of Health to ensure timely development of a CBF warehouse, and access by PHOs and DHBs to relevant data in it. (S8,10,12,14)

4.5. Secondary and Tertiary Health

Overview

Secondary and Tertiary (and Quaternary) services are health services of increasing complexity provided in a hospital, such as

- Emergency care
- Surgical services
- Medical services
- Diagnostic services
- Intensive care

Services may be provided to inpatients or outpatients.

The DHBs are committed to a realistic and sustainable Secondary and Tertiary strategy that will ensure quality specialist services are available to support the health needs of the Auckland region.

Service delivery must have a strong focus on the person, so that service provision is well integrated, coordinated and culturally appropriate. Each DHB recognises the importance of integrating service delivery between Primary Health Care, Secondary care, and Community services. Effective sharing of information is essential to providing this continuum of care to patients.

The focus for Secondary and Tertiary Care information systems is consolidation and improvement rather than radical change. For existing systems, continual investment must be made to take advantage of product upgrades/enhancements, changing business requirements and new technology. These all fall within the overall aim of improving decision-making, aligning processes and sharing information across the region.

Whilst the Secondary and Tertiary systems have provided many benefits within the hospital environment, they are still weak in terms of exchanging information with Primary Health Care and community organisations, and in providing the flexible environment needed for clinicians who work in the home and community environments. The systems do not allow easy access in for external providers (e.g. for receiving electronic referrals or making appointment bookings).

Data is currently held in a number of different repositories, and the number of repositories has been dramatically increasing over recent years. CMDHB alone estimates that its data is held in over 200 different applications.

Maintaining multiple repositories is expensive and ineffective; furthermore, it precludes privacy and patient access to information. Some Practice Management Systems already operate based on a Clinical Data Repository within the PMS.

New developments in the area of electronic orders and electronic prescribing offer a significant opportunity within the Secondary and Tertiary environment.

Current and Planned Programmes

Significant progress has been made in Patient and Clinical Information systems, and all DHBs are well down the path towards fully integrated systems in this area. The regional *Web Éclair* Results Reporting System has been very successful across the three Auckland DHBs and has demonstrated many savings (e.g. reduced duplicate tests, a regional view of information, less clinician re-training as they move around the hospitals). A move towards more systems that are common, and a common working environment (e.g. desktop) will deliver further benefits.

ADHB has made a principle decision to accept *PiMS* as its preferred Patient Administration System, to replace *CMS* in due time. *PiMS* is already used by WDHB and CMDHB, so its adoption by ADHB will provide an integrated regional solution for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and will consolidate patient demographic details.

The pharmacy system at ADHB is no longer meeting business requirements and forces ADHB to be reliant on an external inventory supplier. ADHB therefore has an urgent need to replace the system. The other DHBs have agreed to make this a regional project, whereby the selected system will be implemented in all three.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Consolidate, upgrade, and improve usage of existing secondary and tertiary care systems to meet changing clinical and business needs and risks. (O1,3,6,14,20,21)

2. Provide and populate a DHB Clinical Data Repository to facilitate decision support, information sharing, information analysis, patient access to information and privacy. (O2,11,13,14,15)

3. Extend the Integrated Care/Decision Support concepts established with the *Kidslink*, CCM, *Predict* and *Nexus* projects to incorporate a wider range of conditions including elective assessment and referral assessment. (O3,12,13)

4. Align regional systems for Community and Ambulatory services to facilitate care coordination and high quality information exchange with Primary health care. (O4)

5. Improve the efficiency and effectiveness of the Referral Process by implementing an Electronic Referrals System for both external referrers (e.g. GPs, community) and for internal referrals between specialists. (O3,12,18)

6. Reduce waste and improve utilisation of pharmacy, laboratory, and radiology by implementing electronic prescribing and electronic ordering of laboratory and radiology tests. (O5,22,23)

7. Implement a single regional (Secondary and Tertiary Care) Patient Information System for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and to consolidate patient demographic details. (O6)

8. Enhance the capability and integration of clinical resource planning systems such as acute demand management, outpatient scheduling, booking, and acuity. (O7,15,17)

9. Provide greater access to electronic patient information for clinicians at multiple points of care. (O9,10)

10. Identify and convert to exclusive electronic form those parts of the permanent patient record currently held on paper that are required frequently at the point of care (e.g. results reports, referrals from GPs or within Secondary care, medication lists, disease coding). (O2,11,14)

11. Capture structured information for decision support purposes rather than document images or free text. (O2,14)

12. Provide a repository of clinical image observations that is integrated with the Clinical Data Repository as part of the longitudinal patient record. (O2,14)

13. Improve efficiency and patient outcomes by implementing tools to support more efficient scheduling of nursing resources. (O17,20,21)

14. Implement tools to support continuous quality improvement and ongoing efficiency and effectiveness. (O8,16,19)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Maintain the currency of patient/clinical systems with version changes so that they remain clinically relevant and supportable. (S1)

2. Establish a regional clinical data repository to hold all structured clinical results, observations, and images, including access to clinical photographic and other images e.g. ECGs, Holter Tests. Include an index to those components of the patient record that are held on paper. (S2,10,11,12)

3. Complete the electronic decision support and electronic referral pilot project for elective services at CMDHB in partnership with the Ministry of Health and Procare, and explore the possibility of rolling out a regional implementation of electronic referral and electronic decision support for all services to all three DHBs and most regional PHOs. (S1,3,5)

4. Define Community and Ambulatory, Disability, and Mental Health information system requirements, including Primary health care connectivity; select and implement a single regional solution. (S4)

5. Implement CPOE progressively across the DHBs. (S6)

6. Implement a single regional instance of the *PiMS* patient management system. (S1,7)

7. Explore the possibility of rolling out CMDHB's Acute Demand Management solution to ADHB and WDHB. (S8)

8. Implement an asset management system, which provides for ongoing sustainable replacement of equipment. (S14)

9. Implement information access at multiple points of care, including desktop, remote, and mobile. (S9)

10. Provide desktop, mobile, and remote access devices to meet clinical and business needs within funding limitations. (S9)

11. Implement electronic capture of non-clinical documents from other organisations (DHBs, specialists) and store them in the Clinical Data Repository. (S2,10)

12. Implement a web-based booking system to allow Primary caregivers to electronically book outpatient and other clinics and appointments. (S3,5)

13. Implement further messages for GPs such as radiology results, outpatient clinics, and other inpatient notes. (S2,3)

14. Extend the Clinical Data Repository to enable the selective replacement of the paper patient record with electronic information. (S1,2,10,11,12)

15. Implement an electronic admission to discharge planner in order to replace frequently used parts of the paper patient record. (S2,8)

16. Implement tools to support clinical audit, providing access to patient records and reporting on the effectiveness of clinical outcomes. (S14)

17. Implement a Nursing Acuity system that is integrated with Rostering and Human Resources information systems. (S8,13)

18. Develop and implement an internal Secondary care referrals system. (S5)

19. Implement a regional solution for document management of laboratory accreditation/process documents. (S14)

20. Complete the *Leader* HRMS, Payroll, Time & Attendance and Kiosk self-service implementations in WDHB and CMDHB. (S1,13)

21. Complete the *Leader* HRMS, Payroll and Time & Attendance implementations for ADHB. Implement the Kiosk self-service functionality. (S1,13)

22. Select and Implement a new Pharmacy System for the region. (S6)

23. Implement electronic prescribing progressively across the DHBs. (S6)

4.6.   *Community and Ambulatory Services*

Overview

Care delivery outside the Primary or Secondary Health Care environments involves many different carers, organisations, and models of delivery. Complexity, coordination, and integration of care and information sharing are thus significant issues. Community and Ambulatory information systems are those that bridge the gaps between Primary and Secondary systems.

The workforce in this sector is unique in that there are a large number of untrained health care workers delivering care alongside registered practitioners. This creates unique workforce development and integration demands.

There are three distinct groups of clients within the Auckland region (percentages from 2001 Census):

- children (0-14 years) 22.9% of the population
- older people (65+ age group) 10% of the population
- the mainstream population (15-64) 67.1% of the population.

There are distinct groups of services that are delivered. Specialist services for older people (inpatient, therapies, home visits, and meals on wheels) are targeted at those clients with complex needs (see Appendix 4.12 Older People's Health). Treatment services for the mainstream and older groups (district nursing, wound care, palliative care, and post surgery) generally involve less caregivers and are more 'routine' in nature.

The key theme of child healthcare is "wellness" rather than "illness" (see Appendix 4.11 Child Health). The prime needs of Adolescents and young adults are sexual and reproductive health and these services are provided in the community by a mix of primary and secondary providers.

Hospital-based ambulatory services and mental health services are provided to all age groups.

The vision of a new direction for health care places greater emphasis on the role of the community and the involvement of a wide range of multidisciplinary professionals. The requirement is to strengthen support services to meet the increased need for community-based care, in particular to manage information sharing and coordination between community-based carers.

Who delivers part or all of the care to these clients, and who is the case manager/primary health care worker become issues with the emergence of PHOs and the rationalisation of the provision of secondary care services. It is highly unlikely that one information services model will fit all providers, so flexibility of support systems is the number one issue to address. The success of the Diabetes project at CMDHB has shown that systems can successfully sit in the middle of traditional secondary and primary systems. Having support systems able to provide a flexible platform for care delivery is vital to overall success.

Current and Planned Programmes

ADHB have an established system (HCC), which is now being deployed in ambulatory services. WDHB has implemented a similar system (CCS), which is being rolled out to all community services across WDHB and CMDHB.

Choosing which system to adopt as a regional solution is one of the more contentious areas of this RISSP. HCC is more functionally rich than CCS, but CCS is available on a more modern technology platform. Since WDHB's study and selection of CCS, ADHB have committed to upgrading HCC to a modern platform – this may be sufficient to cause WDHB to reassess its decision.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Establish Care co-coordination systems to provide a platform for Community and Ambulatory services to work from
* which are capable of exchanging information with existing Primary & Secondary care systems
* on a technology platform which will allow continuous improvements and enhancements
* which will meet the needs of a mobile workforce. (O1,2,10)

2. Develop systems capable of measuring and reporting Population Health outcomes for different population groups. (O14,15)

3. Improve and preserve proven functionality from existing clinical systems. (O1,2,7)

4. Integrate enhanced oral health strategies for the 0-5 years age group with existing child systems. (O3)

5. Support the ongoing investment in primary care information systems to enable the RISSP vision of improving care decisions through information interchange. (O12)

6. Collaborate with the Ministry of Health to support the national programmes. (O4,8,9,13)

7. Incrementally implement an integrated group of Child Health information systems, utilising modern information technology, which will
* Ensure that up-to-date and accurate information is available at every contact between a child and health services
* Provide the information necessary to know which children need services and positively contribute to improved health outcomes for children
* Collect information that is used to monitor interventions at the individual, community or population level to achieve the best possible child health
* Provide information to improve coordination between Child Health and Disability Support Service providers, between health providers, the funder and policy makers, and between the health sector and other sectors. (O5,6)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Confirm Community Care Coordination system requirements. (S1,3)

2. Measure the match of the two existing systems (*HCC* & *PiMS/SDM*) to the business requirements of Community Health, Mental Health, Disability Support, and Sexual Health services; select and implement a single regional solution. (S1,3)

3. Enable messaging to and from the school dental service system, *Exact Enterprise*. (S4)

4. Collaborate with the Ministry of Health to implement the National Immunisation Register System for 0-5's (NIRS) across the whole Auckland region. (S6)

5. Extend the *Kidslink* system to record the observations from the Well Child check across the region. (S7)

6. Implement *Kidslink* 0-5 year old Well Child checks across the whole Auckland region. (S7)

7. Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary Health Care and Secondary providers. (S3)

8. Collaborate with the Ministry of Health to implement the Meningococcal pilot across the whole Auckland region. (S6)

9. As part of wider NIRS program, collaborate with the Ministry of Health to implement school-based vaccinations. (S6)

10. Implement a single regional (Secondary and Tertiary Care) Patient Information System for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and to consolidate patient demographic details. (S1)

11. Pilot the use of broadband wireless technology in conjunction with the Community Care Coordination system and roll out across the region. (S1)

12. Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

- Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers
- a regional helpdesk and technical support capability
- an ASP model for delivering services. (S5)

13. Collaborate with the Ministry of Health to support the national screening programmes. (S6)

14. Develop regional sexual health epidemiological reporting system linking DHB and community clinical and laboratory systems. (S2)

15. Establish information system to monitor health outcome targets aligned to NZHIS on a DHB and regional basis. (S2)

4.7. *Māori Health*

Overview

The term "Māori Health" describes all services a DHB provides or funds that contribute to improving the health of Māori people.

Māori people comprise an estimated 11.6% of the Auckland regional population (2001 Census). As a population group Māori have, on average, the poorest health status of any group in New Zealand.

The Treaty of Waitangi guarantees to Māori a basic right to good health and enhanced quality of life, and therefore provides a fundamental framework for Māori development and health.

The Māori philosophy towards health is based on a wellness or holistic health model. For many Māori the major deficiency in modern health services is taha wairua (spiritual dimension).

Māori health models include whare tapa whā: where the four cornerstones (or sides) of Māori health are whānau (family health) tinana (physical health) hinengaro (mental health) and wairua (spiritual health).

The DHBs aim to improve Māori health and disability outcomes and reduce Māori health inequalities with a focus on better whānau health through

- Whānau, hapu, iwi and Māori community development
- Māori participation throughout the sector
- Effective health and service delivery
- Intersectoral service delivery; acknowledging the special relationship between Māori and the Crown under the Treaty of Waitangi.

The Māori Health services' role is to collaborate with local iwi, hapu, whānau and Māori communities to ensure Māori enjoy a comparable level of health status with non-Māori while preserving cultural concepts, values, and practices.

The services aim to

- establish and maintain processes to enable Māori to participate in, and contribute to, strategies for Māori health improvement
- continue to foster the development of Māori capacity for participating in the health and disability sector and for providing for the needs of Māori
- provide relevant information to Māori to facilitate their contribution and participation in health improvement and health care provision.

The diverse range of Māori health providers have a common base of values, relating to their community linkages (Whānau ngatanga), holistic models of care (Manaakitanga) and culturally appropriate services (Pono me te Tika). They are under-resourced in all areas, especially workforce development, technology use, funding and service coordination, yet they possess the potential to contribute significant gains in Māori health.

Current and Planned Programmes

Māori Health services are involved in the programmes described herein under

- Population and Public Health
- Primary Health Care
- Secondary and Tertiary Health
- Community and Ambulatory Services
- Mental Health
- Disability Support
- Child Health
- Older People's Health
- Chronic Care Management and Other Services.

These programmes recognise and incorporate the following Māori Health Information Strategies.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Ensure that health information about Māori patients is treated as a taonga, and that aggregated data and the resulting information and knowledge can be protected from inappropriate access. (O14,15,16)

2. Provide education and training for staff that collect and input patient demographics to help make accurate recording of ethnicity data routine at all points of data collection. (O15)

3. Develop Population Health databases that reflect, in the first instance, the health status of all people receiving services, and that will eventually reflect the health status of all Māori people in the region. Measure Population Health gain to show the DHBs are progressively reducing health inequalities for Māori people. (O1)

4. Support the development of a Child Health information structure, which supports inclusion of whānau dynamics within the health information framework. (O2,3,4)

5. Provide the ability to identify and continuously monitor high-risk Māori patients in the Auckland region, in particular those with chronic physical or mental diseases and the elderly. Monitor their health status and risk, provide assessment, care plans, and risk management in a continuum of care for each individual that improves health status or reduces progression or risk. (O4,12,13)

6. Assist the cultural learning of clinicians by ensuring that evidence-based decision support systems include tikanga (Māori custom, beliefs, and protocols) best practice standards. (O14,15)

7. Provide integrated information systems that allow "seamless" access to information and care coordination among Māori providers in Primary health care, Community and Ambulatory, Disability Support, and Mental Health services, and between those and Secondary services. (O5,6,7,8,9,10,11)

8. Provide a self-directed set of on-line learning tools around Māori health options, standards, and methodologies. Make this learning accessible to all workplaces where Māori people receive services, whether or not they are in DHB providers. Measure the impact of such learning as a Quality programme. (O15)

Information Objectives

Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Collaborate with the Ministry of Health to implement systems to provide reliable KPI data collection and reporting by Primary health care and by DHBs to

   * assess the level of need for Māori

   * assess the effectiveness of resources targeted to that need

   * measure Population Health status improvement for Māori. (S3)

2. Extend the *Kidslink* system to record the observations from the Well Child check across the region. (S4)

3. Implement *Kidslink* reporting of child immunisation rates. (S4)

4. Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary Health Care and Secondary providers. (S4,5)

5. Implement improved Electronic Discharge Summaries and referral status messaging across ADHB and WDHB. (S7)

6. Provide accredited Primary caregiver access to information held by DHB, community and private investigative and diagnostic services, and to patient information and Health Event Summaries held by other caregivers and services. (S7)

7. Define, develop, and implement further Health Event Summaries such as inpatient and outpatient clinical notes, specialist reports, problem lists, medications, allergies. (S7)

8. Implement a single regional (Secondary and Tertiary Care) Patient Information System for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and to consolidate patient demographic details. (S7)

9. Define Community and Ambulatory, Disability, and Mental Health information system requirements, including Primary Health Care connectivity; select and implement a single regional solution. (S7)

10. Complete the planned CMDHB project for IS enablement of care coordination between Primary health care, Secondary, and NGO Mental Health providers, and rollout a regional solution including PHOs. (S7)

11. Extend the use of the regional electronic services directory to all three DHBs and most PHOs, and secure access with single signon and one password for all three DHBs and most PHOs to the national Health Practitioner Index. (S7)

12. Develop and implement a system that attracts a significant number of defined high-risk patients to interact with their care plan using web or telephony. (S5)

13. Implement a web-based Population Health Education service, including advice on smoking, weight, exercise, diet, and alcohol. (S5)

14. Further develop the regional Electronic Decision Support system to include tikanga information (Māori custom, beliefs, and protocols) within the guidelines to support best practice. (S1,6)

15. Implement electronic training programmes at multiple access points including to mobile devices, targeted at

- staff that collect and input patient demographics
- all staff who provide services to Māori people

to increase knowledge of Māori health options, standards, and methodologies, and to ensure accurate recording of ethnicity data. (S1,2,6,8)

16. Establish a consistent set of security tools across applications/systems that adequately protect individuals' (patients/staff) information against inappropriate use. (S1)

4.8. Pacific Health

Overview

Pacific Health covers all services a DHB provides or funds that contribute to improving the health of Pacific people.

Pacific people comprise an estimated 14% of the Auckland regional population (2001 Census). It is widely recognised that the current health status of Pacific people is poor in comparison with other ethnic groups in New Zealand. Pacific people have clearly identifiable health issues, many of which are preventable.

Pacific Health can be seen as divided into three distinct areas:

- those services provided by Pacific people for Pacific people within a Pacific governance structure (e.g. services such as Langimalie Healthcare providing a range of Primary Health Care services to the Tongan community).
- those services provided by mainstream organisations targeted to Pacific populations at a regional level (e.g. the Pacific Island Heartbeat Programme provided by the National Heart Foundation to Pacific communities, and Pacific support units in hospitals).
- those services provided by mainstream organisations targeted at Pacific people within DHBs (e.g. faleola Pacific Mental Health services).

The overarching objective of the government's Pacific Health Strategy, as well as that of the DHBs, is to improve the health status of Pacific people. The aim of the Pacific Health service is to

- Reduce health disparities between Pacific and non-Pacific people
- Improve Pacific people's access to preventative and Primary Health Care services
- Improve health outcomes and thereby health status of the Pacific population
- Reduce inappropriate admissions of Pacific people
- Improve the effectiveness of services contracted for and delivered to Pacific people.

Pacific Health services need information technology support to

- develop and establish evidence-based models of service delivery that demonstrate improved outcomes for Pacific people with complex and chronic conditions
- develop and implement a chronic disease prevention strategy for Pacific people at risk of diabetes, cardiovascular and respiratory diseases
- develop partnerships with Pacific communities, churches, NGOs, Pacific providers and intersectoral agencies to maximise resources for health gain
- ensure all Pacific providers have adequate infrastructure, management and business systems, information technology and clinical technology capacity
- reduce health inequalities for Pacific children and young people, in particular by initiatives that impact in the areas of: immunisation, oral health, motor vehicle accidents and injury, suicide, teenage pregnancies, alcohol and drug related hospital admissions, and smoking.

Current and Planned Programmes

Pacific Health services are involved in the programmes described herein under
- Population and Public Health
- Primary Health Care
- Secondary and Tertiary Health
- Community and Ambulatory Services
- Mental Health
- Disability Support
- Child Health
- Older People's Health
- Chronic Care Management and Other Services.

These programmes recognise and incorporate the following Pacific Health Information Strategies.

Information Strategies

Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Develop a network of consistent and compatible information systems and infrastructure to support analysis and enable providers to access coherent and consistent information, which relate cultural, social, and economic data and medical process to patient outcome as well as effective, comprehensive needs based health planning and contracting. (O10)

2. Use information systems to improve linkages between health service providers (primary, secondary and NGO) and provide the ability to follow individual Pacific people in their interface with different parts of the health system. (O5,6,7,9,11)

3. Provide access to a national authenticated provider services directory for efficiently identifying other providers for information sharing and for secure identification and authentication of providers. (O5)

4. Support Pacific service development strategies by ensuring Pacific providers in the primary and NGO sectors have adequate information technology and information systems capacity. (O4)

5. Support Pacific Workforce Development strategies by identifying Pacific people in the DHB workforce and recording their clinical, cultural, and linguistic competencies. (O3)

6. Provide tools and training for Primary health care and Secondary care providers to maintain ethnicity information within the National Health Index. (O14)

7. Implement Information Management and Reporting processes that will extract information held in existing operational systems to

- Identify disparity on a population basis (e.g. mortality rates in general and in relation to specific illnesses such as cardio-vascular disease, diabetes, and cancer). National information should be translated to DHB-specific information.

- Identify the incidence and prevalence of specific types of disease in Pacific people.

- Identify service utilisation; have the capacity to be used as an element in predicting behaviour in accessing services, and highlight service gaps that represent access problems with health status implications for Pacific people.

- Measure effectiveness in addition to delivery of health services to Pacific people. Have the capacity to measure change and attempt to link change (e.g. in incidence/prevalence or increase or decrease in access) to intervention, both in positive or negative change, or lack of change. (O10)

8. Capture and code the information needed to identify health risks for Pacific people. Enable information and resources to be targeted to patients with highest needs, where there is potential to respond to Primary and Secondary prevention programmes. (O9)

9. Promote targeting of multi-lingual health promotion material for Pacific people by healthcare providers. (O8,12)

10. Provide an evidence based methodology to allow providers to measure and act on clinical outcomes for Pacific people. (O13)

11. Support cultural competency training and development programmes for non-Pacific providers to assist them in caring for Pacific people. (O13,14)

12. Implement the National Child Health Information Strategy, which incorporates collection, collation, and analysis of young Pacific people's health status and outcomes. (O1,2,9)

13. Record all child immunisations to allow measurement of immunisation rates. (O2)

14. Record all Well Child observations to predict the risk of future ill health and provide appropriate interventions   (O1)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Extend the *Kidslink* system to record the observations from the Well Child check across the region. (S12,14)

2. Implement *Kidslink* reporting of child immunisation rates. (S12,13)

3. Implement a common regional Human Resources Information System that records staffs' ethnicity, and their clinical, cultural, and linguistic competencies. (S5)

4. Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

- Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers

- a regional helpdesk and technical support capability

- an ASP model for delivering services. (S4)

5. Extend the use of the regional electronic services directory to all three DHBs and most PHOs, and secure access with single signon and one password for all three DHBs and most PHOs to the national Health Practitioner Index. (S2,3)

6. Define Community and Ambulatory, Disability, and Mental Health information system requirements, including Primary health care connectivity; select and implement a single regional solution. (S2)

7. Complete the planned CMDHB project for IS enablement of care coordination between Primary Health Care, Secondary, and NGO Mental Health providers, and rollout a regional solution including PHOs. (S2)

8. Implement a web-based Population Health Education service, allowing people to access useful health information in different Pacific languages, including advice on smoking, weight, exercise, diet, and alcohol. (S9)

9. Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary health care and Secondary providers. (S2,8,12)

10. Collaborate with the Ministry of Health to implement systems to provide reliable KPI data collection and reporting by Primary health care and by DHBs to

- assess the level of need for Pacific people
- assess the effectiveness of resources targeted to that need
- measure Population Health status improvement for Pacific people. (S1,7)

11. Implement a single regional (Secondary and Tertiary Care) Patient Information System for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and to consolidate patient demographic details. (S2)

12. Implement and promote a regional Help Line service for patients to obtain information and advice by phone. (S9)

13. Further develop the regional Electronic Decision Support system to include Pacific cultural information within the guidelines to support best practice. (S10,11)

14. Implement electronic training programmes at multiple access points including to mobile devices, targeted at

- staff that collect and input patient demographics
- all staff who provide services to Pacific people

    to increase their knowledge of Pacific cultural values, and to ensure accurate recording of ethnicity data. (S6,11)

4.9. *Mental Health*

Overview

Mental illness is a major cause of disability. It is the third most common cause of disability in industrialised countries, rating after cancer and heart disease, but above respiratory disease.

The DHBs strategic priorities for Mental Health services in the Auckland region are:

- improved access to services and equity in access (develop more specialist services, collaboration)
- improved service quality (develop the workforce, evaluation and monitoring)
- improved integration between linked services (work regionally, links with primary care to expand services)
- increased stakeholder participation in planning and service development, including development of mental health networks
- improved information to guide funding decisions (identify needs and distribution within Auckland, establish use of services, identify prevalence of mental illness for Māori and Pacific people).

The technology needs of Mental Health providers are similar to those of community workers and this priority area has traditionally been under serviced by technology support, in part due to the concerns over privacy and access to mental health information.

There is a need to

- develop integrated information systems across mental health and drug and alcohol services to identify people using multiple services, the services they use and outcomes
- obtain meaningful information from current national collections such as MHINC and CCPS and ensure regular, useful reporting of this information (including the intended and actual use of mental health and drug and alcohol funding)
- support national initiatives to establish the prevalence rates of mental disorders among Māori and among Pacific people
- evaluate new and existing models of service delivery seeking evidence of effectiveness
- support national initiatives to develop outcome measures for mental health and develop capacity to measure outcomes at both an individual and service level.

Current and Planned Programmes

There is a strong drive to improve the regional coordination of Mental Health Services. A regional Director of Mental Health has been appointed, and he is focussed on working with the four northern DHBs to develop regional Mental Health strategies that will be implemented by the DHBs and other mental health organisations in the region. A regional coalition of Mental Health stakeholders was established in October 2003 to guide the development and implementation of this regional strategy.

The Ministry of Health has requested Mental Health services to develop and implement a single mental health record within each DHB. With the closer cooperation and integration of Mental Health services in the region, it is generally believed that this objective should be addressed by a uniform or integrated solution across ADHB, CMDHB, and WDHB. This will link NGO, Community, Primary Health Care, and Secondary providers, and include patients and an increasingly mobile workforce. The Ministry of Health will publish a national Mental Health Information Strategy in October 2004.

WDHB are in the process of developing a new approach and structure as part of the regional mental health development.

ADHB uses, and have for a few years, a system called HCC, supplied by Intrahealth, for both administration and clinical mental health information. The system provides an electronic Mental Health record and there is no additional paper file for Mental Health information in ADHB. The clinicians and managers are happy with the functionality that the system provides, although an upgrade of the technology is required to bring the solution into line with the ADHB technology standards. Budget has been set aside for this upgrade in FY02/03 and a proposal from Intrahealth for this upgrade is being considered.

Waitemata and Counties Manukau currently use the *PIMS* solution for the patient administration side of Mental Health. This solution does not provide for electronic clinical notes. The WDHB Community and Ambulatory service is adopting a new system that will be considered for adoption by the Mental Health service.

A pilot project to trial greater electronic sharing of information between the DHB provider arm services and NGOs is under way in Counties Manukau DHB.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Adopt a shared solution for the management of Mental Health patients and their clinical information to ensure that

- The care for patients can be planned and delivered in a coordinated manner
- The quality of care can be improved consistently
- The handover of the responsibility of care is seamless between Mental Health care providers including NGO
- The risk to providers and patients related to misinformation or incompleteness of the clinical record can be minimised. (O1,2,7)

2. Improve the exchange of information with non-DHB Mental Health care providers such as NGOs to support the continuity of care and ensure handover information is timely and complete. (O2,3,4)

3. Establish a consistent reporting framework that will improve the ability to provide outcomes and benchmarking reports, and monitor contracts and performance. (O1)

4. Support investment in primary care information systems to enable the RISSP vision of improving care decisions through information interchange. (O3,5)

5. Ensure that (subject to privacy policies) patients' GPs are provided with all relevant health information. (O6,7)

6. Cooperate with the Ministry of Health to implement the national Mental Health Information Strategy. (O8)

Information System Objectives

1. Initiate a project sponsored by the Regional Director of Mental Health to select a regional mental health information system. This project will be supported by a reference group with representatives of the regional Coalition of Mental Health Providers (DHB, NGO, GP, etc.). The selected system will

    - Preserve the desired functionality of the current investment and build on this basis to provide a complete solution

    - Integrate appropriately and share relevant information with the core patient and clinical systems used by other services in the DHBs, to create an end-to-end view of the care provided to an individual patient including links to systems within physical health where appropriate

    - Enable electronic exchange of relevant information with other mental health care providers such as NGOs

    - Enhance service delivery at the point of care in a consistent manner, irrespective whether the service is provided in the home, the community or the hospital

    - Meet the needs of a mobile workforce

    - Provide integral regional reports

    - Benefit from continuous improvements and enhancements related to ongoing investment of the vendor in the lifecycle of the product

    - Stay up to date with evolving technology standards

    - Meet legislative and contractual requirements related to Reporting, the provisioning of data to national data collections (MHINC) and the NZ Health Information Privacy Code. (S1,3)

2. Implement the selected regional Mental Health system in all of the three DHBs and integrate it with all external Mental Health care providers. (S1,2)

3. Pilot the use of broadband wireless technology in conjunction with the Community Care Coordination system and roll out across the region. (S2,4)

4. Implement an interim solution that will allow authorised Mental Health workers to check whether a specific patient (based on use of his/her NHI number only and subject to informed patient consent) is currently being treated by another Mental Health care provider in the region. (S2)

5. Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

    - Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers

    - a regional helpdesk and technical support capability

    - an ASP model for delivering services. (S4)

6. Report all Health Event Summaries to patients' GPs unless a patient or their advocate specifically requests otherwise. (S5)

7. Establish a consistent set of security tools across applications/systems that adequately protect individuals (patients/staff) information against inappropriate use. (S1,5)

8. Cooperate with the Ministry of Health to implement national mental health information projects such as

- MH-SMART (Mental Health Standard Measures of Assessment and Recovery): a coordinated approach to the implementation of consumer outcome measurement into routine clinical practice

- MH-INC: Ongoing data quality improvement at both a local and at a national level

- The development of the consumer electronic health record (S6)

4.10. Disability Support

Overview

A disability is a physical, sensory, neurological, intellectual or age-related condition (or a combination of these) that has been diagnosed and will last more than six months.

Data from the NZ Disability Surveys (NZDS) and the 1996 Census show that approximately 702,000 people in New Zealand were living with disability in 1996-97; almost 20% of the population. Fifteen percent of these people had a severe disability requiring assistance on a continuous or daily basis. Approximately 23% of people with a disability were aged 65 or more years (see Appendix 4.12 Older People's Health).

Disabled people access both support services and curative services. Services may be delivered in the home (e.g. personal care, meal preparation) or in Secondary care facilities (e.g. Otara Spinal Unit).

Disability Support services aim to promote a person's quality of life and enable community participation and maximum independence. Services should create linkages that address a person's needs holistically, in an environment most appropriate to the person with a disability. Disability support services should ensure that people with impairments have control over their own lives. Support options must be flexible, responsive and needs based. They must focus on the person and where relevant, their family and whānau , and enable people to make real decisions about their own lives.

DHBs require information to support the *National Disability Strategy* by

- creating a quality assessment and service delivery system that is centred on disabled people, ensures their participation in assessment and service delivery, has invisible borders and is easy to access
- improving the quality of relevant disability information collected, analysed and used, including regular national surveys of activity limitation.

Current and Planned Programmes

Current information services are focussed on the *SCID* Needs Assessment and Service Coordination (NASC) system, which is used by the three DHBs. The three key functions of NASC are:

- Needs Assessment: determining the current abilities, resources, goals and needs of a client with a disability and identifying which of those needs are the most important
- Service Coordination: identifying, planning and reviewing the package of services required to meet the prioritised assessed needs and goals of the client and, where appropriate, their family/whānau and carers
- Budget Management: managing cost effective packages of services within an indicative budget, as determined by the funder, for an identified population.

Care coordination systems requirements for Disability Support Services are similar to those for Community and Ambulatory services, so the current plan is to adopt the same regional system (see Appendix 4.6 Community and Ambulatory Services). The DHBs are assessing and redesigning their Community and Disability business processes in the light of recent changes in responsibility for funding such services; ongoing information services requirements will be clearer when these assessments are complete.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Develop a regional resource map of services being delivered to people with physical and mental disabilities. (O4,8)

2. Establish Care co-coordination systems to provide a platform for Disability Support services to work from, which are capable of exchanging information with existing Primary & Secondary care systems and with disabled clients. (O3,4,5)

3. Provide the above systems on a technology platform that will allow continuous improvements and enhancements, that is easily integrated with other relevant patient and clinical systems, and that meets the needs of a mobile workforce. (O6)

4. Present information in a way that assists disabled people to navigate their way through the system. (O4)

5. Provide information in a medium that addresses the person's disability and their need for information e.g. a blind person may require information in an oral form; patients may need more detailed information about medication they are prescribed or what they should do if they get certain symptoms. (O4)

6. Support ongoing investment in Primary health care information systems to enable the RISSP vision of improving care decisions through information interchange. (O7)

7. Develop systems capable of measuring and reporting Population Health outcomes for different population groups. (O1)

8. Improve the exchange of information with non-DHB Disability Support providers such as NGOs, residential care providers and GPs to support the continuity of care and ensure handover information is timely and complete. (O2,4)

9. Establish a consistent reporting framework that will improve the ability to provide outcomes and benchmarking reports, and monitor contracts and performance. (O1,4)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Enhance SCID system enhanced to provide regional view of usage, including inclusion of Geo-coding to provide population view. (S7,9)

2. Enhance SCID system to allow interchange of information with rest homes and other Disability Support providers. (S8)

3. Implement a single regional (Secondary and Tertiary Care) Patient Information System for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and to consolidate patient demographic details. (S2)

4. Confirm Disability Support Care Coordination system requirements. (S1,2,4,5,8,9)

5. Measure the match of the two existing systems (*HCC* & *PiMS/SDM*) to the business requirements of Disability Support, Community Health, Mental Health, and Sexual Health services; select and implement a single regional solution. (S2)

6. Pilot the use of broadband wireless tablet technology in conjunction with the Disability Support Care Coordination system and roll out across the region. (S3)

7. Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

- Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers

- a regional helpdesk and technical support capability

- an ASP model for delivering services. (S6)

8. Extend the use of the regional electronic services directory to all three DHBs and most PHOs, and secure access with single signon and one password for all three DHBs and most PHOs to the national Health Practitioner Index. (S1)

4.11. Child Health

Overview

Within the Primary Health Care and Secondary care environments, there are home and community based services that provide specialist care to children. These services form the link between the traditional Secondary and Primary environments and focus on care coordination and providing a continuum of care.

The School Based Dental Service provides the bulk of non-specialist child Oral Health services to the population. Specialist dental services are delivered within the Secondary care and private practice environments. The 0-5 year's age group have been identified as a priority area for Oral Health. Establishing good dental practice with the children and their caregivers at this early age can lead to fewer Oral Health issues during their school years.

Child health services are a key initiative, listed as priorities at both government and DHB strategic levels. The child health strategy is focussed on improved care coordination, ensuring that up-to-date and accurate information is available at every contact between a child and health services. The DHBs' Child Health strategies are to

- implement the National Child Health Information Strategy that incorporates collection, collation and analysis of data
- improve the health status of children and young people by having a greater focus on health promotion, prevention and early intervention
- ensure that all services are accessible, acceptable and appropriate for children, young people and families/whānau
- improve coordination and access to health services for those children or young people with high or complex needs or who are vulnerable
- improve the quality of children and young people's health services through monitoring, evaluation, workforce development, research and education.

Currently Child Health is a long procession of handover of care from provider to provider with consequential deficiencies in the effectiveness and efficiency of care. A key objective for Child Health is the ability to provide a consolidated and coordinated view of all interactions a child may have with multiple health services. This includes interactions with some NGO organisations, such as Plunket.

Systems need to be able to consolidate information within the traditional Secondary/Tertiary environments and exchange information with other providers' systems. Establishing an integrated care platform will allow different service delivery models to evolve, whilst still supporting the consolidated view of information.

Current and Planned Programmes

CMDHB has invested heavily in developing *Kidslink*; Well Child and immunisation programmes are rolled out across the DHB. WDHB has implemented *Kidslink* in its western (Waitakere City) area and plans to extend coverage to the north (North Shore City and Rodney District). Progress to date has been largely medically focussed and targeted at immunisation. While *Kidslink* records that a Well Child Check was done, it does nothing about sharing the critical early childhood indicators that are collected in the course of the Well Child check. An impetus to implement the Well Child Framework will likely drive a change of focus to a more holistic view of child health.

ADHB has the *CHAMP* clinical information system deployed in its Child Paediatrics, Child Community Health and Mental Health services.

The National Immunisation Register (NIR) is a computerised information system that will hold the immunisation details of NZ children (0-19 years).

The NIR will support GPs, nurses and vaccinators by providing accurate, accessible data on a child's immunisation history. It will assist health providers in recalling individuals overdue for immunisation and will be a useful tool in reaching children of highly mobile families.

In terms of coverage, the NIR will be able to provide information on regional and national immunisation rates. Unlike many other countries, New Zealand currently has no way of accurately assessing its immunisation coverage.

The NIR software will be trialled with CMDHB and WDHB then rolled out on a staged basis throughout New Zealand, working with regional groupings of DHBs.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Develop a child-health information infrastructure, including clear data definition, consistent data collection standards, appropriate data sharing protocols, and provider education and development. (O4)

2. Incrementally implement an integrated group of Child Health information systems, utilising modern information technology, which will

- Ensure that up-to-date and accurate information is available at every contact between a child and health services

- Provide the information necessary to know which children need services and positively contribute to improved health outcomes for children

- Collect information that is used to monitor interventions at the individual, community or population level to achieve the best possible child health

- Provide information to improve coordination between Child Health and Disability Support Service providers, between health providers, the funder and policy makers, and between the health sector and other sectors. (O3,4,7)

3. Integrate enhanced oral health strategies for the 0-5 years age group with existing child systems. (O8)

4. Record all Well Child observations to predict the risk of future ill health and provide appropriate interventions. (O2)

5. Record all child immunisations to allow measurement of immunisation rates. (O9)

6. Implement the National Child Health Information Strategy, which incorporates collection, collation, and analysis of young people's health status and outcomes. (O1,5,6)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Collaborate with the Ministry of Health to implement the National Immunisation Register System for 0-5's (NIRS) across the whole Auckland region. (S6)

2. Extend the *Kidslink* system to record the observations from the Well Child check across the region. (S4)

3. Implement *Kidslink* 0-5 year old Well Child checks across the whole Auckland region. (S2)

4. Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary health care and Secondary providers (S1,2)

5. Collaborate with the Ministry of Health to implement the Meningococcal pilot across the whole Auckland region. (S6)

6. As part of wider NIRS program, collaborate with the Ministry of Health to implement school-based vaccinations. (S6)

7. Implement a single regional (Secondary and Tertiary Care) Patient Information System for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and to consolidate patient demographic details. (S2)

8. Enable messaging to and from the school dental service system. (S3)

9. Implement *Kidslink* reporting of child immunisation rates. (S5)

4.12. Older People's Health

Overview

Older people (those aged 65 and over) form a large and growing part of the Auckland regional community. Older people are mostly well and independent. A minority are frail and vulnerable and require high levels of care and support, usually during the last few years of their lives or as a result of chronic illness or disability that may have been present for many years. Older people are high users of health and disability support services, with per capita expenditure increasing with advancing age. While older people may be healthier for longer in the future, demand for health and support services is likely to increase because of the rapid growth in the number and proportion of older people.

From 1 October 2003, the DHBs have full responsibility for health and disability support services for older people. This includes providing

- Hospital Services
- Home health care and other community based services
- Assessment, treatment, and rehabilitation (A, T & R)
- Needs assessment and service coordination (NASC)
- Aged residential care
- Carer support and respite care
- Environmental support
- Disability information and advice services

The Ministry of Health has recently published an initial draft of the *Health of Older People Strategy*. This strategy aims to ensure that older people will receive a flexible, timely and coordinated service that provides them and their carers, family and whānau with a wider range of support options.

The strategy is to provide an integrated continuum of care approach; allowing older people to have easy access to the right kind of care in the right place and from the right provider.

Older adults want more information about what is happening to them and about services. They want more choices, they want to stay at home, and they need help for caregivers. Māori and Pacific older adults want culturally appropriate service providers who understand their needs.

Information services for Older People's care need to focus on coordinated care: integration and better communication between health professionals, and health professionals and families.

Information Strategies

Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Provide the ability to identify and continuously monitor high-risk older people in the Auckland region, in particular those with chronic physical or mental diseases. Monitor their health status and risk, provide assessment, care plans, and risk management in a continuum of care for each individual that improves health status or reduces progression or risk. (O1,6,7,8,9)

2. Establish care co-coordination systems capable of providing a platform for Disability Support, Community and Ambulatory, and Mental Health services to work from, which are capable of exchanging information with existing Primary & Secondary care systems. Provide the systems on a technology platform which will allow continuous improvements and enhancements and which will meet the needs of a mobile workforce. (O2,3,4)

3. Provide integrated information systems to improve the exchange of information with non-DHB providers such as NGOs, residential care providers and GPs to support the continuity of care and ensure handover information is timely and complete. (O1,2,3,12)

4. Use information technology to engage the population in greater self-management such as by providing lifestyle advice (e.g. smoking cessation, nutrition, weight optimisation, and exercise) to patients with or at risk of disease, and to track their compliance with advice, as part of a personalised care plan. (O8)

5. Promote targeting of multi-lingual health promotion material to older people by healthcare providers. (O9,10)

6. Support cultural competency training and development programmes for providers to assist them in caring for Māori and Pacific people. (O11)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Implement and improve the Integrated Care Server (ICS) programmes (Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary health care and Secondary providers. (S1,3)

2. Define Community and Ambulatory, Disability, and Mental Health information system requirements, including Primary Health Care connectivity; select and implement a single regional solution. (S2,3)

3. Complete the planned CMDHB project for IS enablement of care coordination between Primary health care, Secondary, and NGO Mental Health providers, and rollout a regional solution including PHOs. (S2,3)

4. Provide Community and Ambulatory services (e.g. District Nurses) with tools to provide Primary health care clinicians with electronic notes about services provided to the clinician's patients. (S2,3)

5. Support the development and implementation of standards that allow Primary health care clinicians to refer patients electronically to Community and Ambulatory services, particularly district nursing. (S1,2,3)

6. Enhance SCID system enhanced to provide regional view of usage, including inclusion of Geo-coding to provide population view. (S1)

7. Enhance SCID system to allow interchange of information with rest homes and other disability providers. (S1)

8. Develop and implement a system that attracts a significant number of defined high-risk patients to interact with their care plan using web or telephony. (S1,4)

9. Implement a web-based Population Health Education service, allowing people to access useful health information in different languages, including advice on smoking, weight, exercise, diet, and alcohol. (S1,5)

10. Implement and promote a regional Help Line service for patients to obtain information and advice by phone. (S5)

11. Further develop the regional Electronic Decision Support system to include cultural information within the guidelines to support best practice. (S6)

12. Extend the use of the regional electronic services directory to all three DHBs and most PHOs, and secure access with single signon and one password for all three DHBs and most PHOs to the national Health Practitioner Index. (S3)

4.13. Chronic Care Management and Other Services

Overview

One of the consequences of advances in medical science and technology is that people are now living longer. Changing mortality patterns mean that people aged 65 and over constitute an increasingly large number and proportion of the population. Today, this age group accounts for approximately one in eight persons, or 13 percent of the population. In 2030, when the large baby boom cohort has entered old age, one in five persons are expected to be in this age group. One consequence of the aging of the population is an increase in the incidence and prevalence of chronic conditions.

Chronic conditions, defined as illnesses that last longer than 3 months and are not self-limiting, are now the leading cause of illness, disability, and death. About 44 percent of those with a chronic illness have more than one such condition, and the likelihood of having two or more chronic conditions increases steadily with age.

Unlike much acute episodic care, effective care of the chronically ill is a collaborative process, involving

- the definition of clinical problems in terms that both patients and providers understand
- joint development of a care plan with goals, targets, and implementation strategies
- a wide variety of health care practitioners over a sustained period of time
- provision of self-management training and support services
- active, sustained follow-up using visits, telephone calls, e-mail, and Web-based monitoring and decision support programs.

Chronic Care Management is recognised as a priority by each of the three DHBs. Programmes are being put in place to reduce the incidence and impact of diabetes, cardiovascular and respiratory diseases by ensuring care that is more effective for people with those diseases.

The aim is to develop an integrated system of healthcare by

- reducing barriers to access to primary and specialist care
- enhancing health promotion and prevention and informed lifestyle choices
- developing models for delivering a continuum of care
- working with Maori to develop a range of health and disability support services

This requires consistent use of information to identify and effectively monitor patients and families with high risk factors for specific disease states to provide appropriate advice and treatment.

Current and Planned Programmes

The Chronic Care Management (CCM) system implemented at CMDHB on the Integrated Care Server (ICS) comprises the integration of the Orion *Soprano* Clinical Workflow (SCF) system and Enigma *Predict* risk assessment and decision support system. While *Predict* is used specifically for assessment and decision support, the ICS provides more longitudinal patient management, and is a tool for assisting the establishment of patients on medical therapy according to guidelines.

At September 2003 there were 30 GP practices and Middlemore hospital emergency care connected, and four diseases, diabetes, CVD, CHF and COPD, although *Predict* is in use for CVD only.

Information Strategies

Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Provide the ability to identify and continuously monitor high-risk patients in the Auckland region, in particular those with chronic physical or mental diseases and the elderly. Monitor their health status and risk, provide assessment, care plans, and risk management in a continuum of care for each individual that improves health status or reduces progression or risk. Track and report improvement in population health status and risk, by

- Structured data capture of patient clinical and lifestyle observations

- Risk assessment for patients with diabetes, heart and respiratory diseases (particularly Cardio-vascular Disease, Congestive Heart Failure , Chronic Obstructive Pulmonary Disease), cancer and chronic mental diseases

- Provision of electronic clinical decision support advice to clinicians

- Provision of individual health status and personalised clinical and lifestyle advice to patients

- Provision of a personalised care plan for patients with targets for health status improvement

- Structured data capture in a longitudinal electronic record of each health event including observations, interventions, test results, medications and advice, and electronic exchange of health event summaries between Community and Ambulatory, Primary, and Secondary caregivers for each patient

- Reporting and feedback to caregivers and their organisations on the effectiveness of the care provided in terms of patient and population health status improvement including effectiveness of chronic care management and risk management for Māori, Pacific and socio-economically deprived sectors of the population. (O1)

2. Support the health seeking behaviour of the population (e.g. use of multiple providers) by providing information systems that

- track both enrolled provider and alternate providers for patients

- share information between all stakeholders (patient, relevant providers and Secondary care and the funders)

- are outward facing, with key clinical information accessible by all providers having contact with the patient

- are linked to disease management programme information. (O1,2,3)

3. Provide a step forward in true integrated care of people with chronic diseases by tracking the community groups that may be helpful (such as the DSM nurses, the Hawaiiki programme). Provide an easily accessible and regularly updated list of such resources, along with referral criteria, services offered, skills, and governance, to Primary, Secondary, and Community and Ambulatory carers. Link this information into the Integrated Care Server. (O3,4)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary health care and Secondary providers.

- Complete the integration of *Predict* into the Chronic Care Management System (CCM) for clinical decision support
- Complete the rollout of CCM at CMDHB PHOs
- Begin implementation of CCM at WDHB PHOs and ADHB PHOs
- Extend the *Predict* concepts to provide primary assessment for 5 other conditions
- Include *Terranova* pregnancy screening for diabetes in ICS workflow
- Extend the *ICS* functionality to deliver and implement a regional integrated system for enabling the information requirements of the Care Plus programme and for the elderly. (S1)

2. Extend the *Éclair* regional laboratory result reporting system to provide accredited Primary, Secondary and Tertiary caregiver access to

- all Auckland region DHB laboratory and radiology test results reports
- all community and private laboratory and radiology test results reports. (S2)

3. Extend the use of the regional electronic services directory to all three DHBs and most PHOs, and secure access with single signon and one password for all three DHBs and most PHOs to the national Health Practitioner Index. (S2,3)

4. Further develop the ICS into a more comprehensive database to assist Secondary carers with the care of those who require the greatest amount of health resource (e.g. complex heart failure patients). (S3)

4.14. Support Functions

Overview

Support Functions are the operational activities of governance, management, and administration of the DHBs.

DHBs are expected to build and maintain capability, particularly in terms of human resources, organisational systems and processes, responsiveness and managing relationships with providers. The DHBs must develop an enhanced and sustainable organisational and workforce planning capability to streamline care and reduce infrastructure costs.

The health sector requires a long-term sustainable funding model. The high cost capital assets need to be managed to provide a replacement/enhancement programme to maximise service delivery.

The DHBs have to manage a very tight cash flow (with the flow dependent on monthly phasing) and have to take into account

- inflationary pressures
- bank risk/covenant containment/renegotiations
- capital programme (risk and funding availability)
- achieving efficiency objectives built into the financial plan
- demand driven expenditure risk exposure
- lack of full recognition through revenue of increased depreciation and interest costs
- dependency on capital injection(s) for ongoing viability.

The identification of a path to break-even over the next three years is a significant challenge for ADHB. The projected *Statement of Financial Performance* identifies significant gaps between the forecast deficit for each year and the maximum level of deficit support that the Crown has indicated it is willing to provide. Regional alignment of purchasing and materials management processes is one of a number of initiatives aimed at containing costs.

The DHBs need to ensure that current service information is accessible to both consumers and providers. Improved service access and continuity can be achieved by the use of an electronic services directory that allows "seamless" access to information among Primary providers and between Primary and Secondary services.

Current and Planned Programmes

At present all three DHB use the *Oracle* set of products to support the Finance and Materials Management Functions. Originally all three also had the intention to extend this *Oracle* implementation to include HRMS and Payroll.

The initial implementation of *Oracle Payroll* in WDHB showed that the product did not meet the complex requirements associated with a DHB payroll and as a result, the implementation was not completed. Instead, the existing *Leader* Payroll solution was maintained and enhanced.

Since then CMDHB and WDHB have adopted a strategy to implement/upgrade the *Leader* HR and Payroll solution. These implementations are well underway.

Based on the WDHB experience, ADHB have also revised their business solutions strategy to ensure the DHBs move to a consistent regional solution. As a result, ADHB are currently developing a business case for the implementation of the *Leader* HR and Payroll solution.

ADHB are also developing a business case for the implementation of an online learning and assessment capability. This will allow staff to freely access training materials and when appropriate complete online assessments.

CMDHB and WDHB are extensively using the self-service purchasing functionality provided by *Oracle*. ADHB purchasing officers use this functionality and the intention is to roll it out to a wider audience.

All three organisations use different Rostering systems that are in different stages of maturity. CMDHB is in the process of integrating the Rostering system with the Payroll system. In ADHB and WDHB, this interface is manual.

As systems are interfaced and integrated and more information is available, it is critical that access to information is facilitated but restricted to properly identified health care providers. Implementation of the care continuum is premised on a directory of the services available from other providers and a mechanism to facilitate appropriate access to those services. Up-to-date information on all services will be readily available through an electronic directory, initially for all providers and then in a format designed by consumers for consumers.

Information Strategies

Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Provide common and cost-efficient regional shared service systems for
- Financial systems including management of inter-district flows
- Clinical costing including decision support
- Purchasing and materials management
- Funding and planning
- Asset management
- New facilities
- Capital planning
- Document management
- HR and payroll. (O1,2,3,4,5,6,7,8,9,10,11,12,14,15)

2. Establish an integrated Business Intelligence function which develops and delivers an Information Management strategy, including
- developing and reporting on DHB KPIs such as Population Health status and gain, service access, reducing inequalities, health disparities, chronic disease incidence, referral utilisation, service delivery effectiveness
- clinical and casemix costing
- decision support reporting
- audit and financial reporting
- clinical audit and utilisation reporting
- needs analysis
- epidemiological population profiling
- enterprise document management
- data storage, archiving and destruction
- clinical informatics
- reporting at various levels such as primary, secondary, district and regional
- Ministry of Health and other statutory reporting.

The ability to cost, analyse and report on clinical, financial and volume data is contingent on

- Appropriate fields implemented into transactional systems
- Appropriate processes to collect information and ensure data quality
- Mechanisms to extract the data from transactional systems and store in a common place
- Standard terminology, data definitions and costing standards to facilitate inter-DHB reporting and analysis
- Appropriate privacy and security policies and procedures. (O13)

Information Objectives

Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Complete the *Leader* HRMS, Payroll, Time & Attendance and Kiosk self-service implementations in WDHB and CMDHB. (S1)

2. Complete the *Leader* HRMS, Payroll and Time & Attendance implementations for ADHB. Implement the Kiosk self-service functionality. (S1)

3. Implement a scalable online learning and assessment capability in ADHB that can be extended to support the region. (S1)

4. Rollout self-service purchasing. (S1)

5. Evaluate and implement/roll-out rostering solutions. (S1)

6. Subject to the direction set by the regional shared services; move to a standard chart of accounts. (S1)

7. Implement a regionally consistent system for clinical costing and decision support. (S1)

8. Implement a document management system to manage non-clinical images and that is capable of meeting Library needs. (S1)

9. Determine and meet the requirements for full information on inter-district flows. (S1)

10. Implement a regionally consistent asset management system. (S1)

11. Implement commonly based decision support systems to allow sharing and benchmarking of information. (S1)

12. Set up Business Intelligence unit
- Define meta-data
- Establish data sources
- Collect and warehouse data
- Structure and order data
- Provide end-user desktop analysis, reporting and modelling tools. (S2)

13. Collaborate with the Ministry of Health to provide systems to capture, collate, store and report PHO performance information. (S1)

14. Collaborate with the Ministry of Health to ensure timely development of a CBF warehouse, and access by PHOs and DHBs to relevant data in it. (S1)

4.15. Technology and Infrastructure

Overview

Technology and Infrastructure refers to the equipment, systems, and processes that provide the IT networking, operations, and applications environment necessary to support the DHBs' clinical and business Information Management strategies.

A key strategic problem for the DHBs is making the Secondary health sector cost efficient and effective. Each seeks to reduce operating costs through the elimination of duplicated processes or those that do not add value to patients or the organisation. The three DHBs have embarked on building programmes to replace obsolete facilities with modern amenities. Information services play a key role in supporting the changed healthcare and business processes introduced with the new facilities. Information services themselves have a significant cost for the DHBs, so their rationalisation will contribute to the DHBs ongoing financial viability.

Primary Health Care will have a key role in many integration initiatives and in finding new ways to deliver health care that will shift the focus from hospitals. Development of effective communication and information links among Primary Health Care service providers and between Primary and Secondary providers may require a level of investment that is beyond the resources of some providers.

The RISSP is founded on fundamental principles of privacy and security underpinning all of the information sharing and access initiatives. The technology and infrastructure provided must support these principles.

Current and Planned Programmes

Primary Care

Traditionally the development of information technology strategies in the primary sector has been driven by Vendors, IPAs, and more recently PHOs. It is fair to conclude that to date these strategies have been scattered and mostly driven by specific commercial interests or economic constraints.

As a result, there is a wide diversity in the level of automation and type and versions of systems used by General Practitioners. Additionally, IS training of GPs et al has been inadequate and inconsistent.

Appendix 9 (Primary Health Care GP Systems Stock Take), includes a brief summary of some key indicators of the current IT capability in the Primary Health Care.

DHBs

With the implementation of a shared services business unit between Auckland Hospital, Starship Children's Hospital, Green Lane Hospital, and National Women's Hospital, ADHB has aligned the information infrastructure between the 4 hospitals.

healthAlliance has a programme of work underway (Project Fusion) to align the core infrastructure between Waitemata DHB and Counties Manakau DHB.

In the meantime, the three DHBs are also aligned in various technology areas either due to previous cooperation or because of using similar solution selection processes and criteria.

Appendix 10 (DHB Information Systems Alignment Matrix) includes a matrix of core information systems across the three DHBs to show the current state of alignment. The matrix also provides an indication of the proposed future alignment for these systems, based on the agreed Strategic Principles for Architecture.

Information Strategies

Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

Primary Care

1. Support ongoing investment in primary care information systems to enable the RISSP vision of improving care decisions through information interchange as shown in Appendix 9 (Primary Health Care GP Systems Stock Take). (O1)

DHBs

2. Provide a robust, reliable, resilient, fast, responsive, permanent, and secure IT infrastructure. (O2,5,6,7)

3. Continuously improve technology cost-efficiency. (O3)

4. Ensure the reliability and future readability of archived information. (O4)

Information Objectives

Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

Primary Care

1. Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

- Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers
- a regional helpdesk and technical support capability
- an ASP model for delivering services. (S1)

DHBs

2. Complete the current infrastructure improvement projects and develop a regional plan to go forward. (S2)

3. Implement commodity hardware and open source software where these are proven and justified to reduce IT and IS costs. (S3)

4. Implement a process for monitoring the readability of historical archived media. (S4)

5. Establish a consistent set of security tools across applications/systems that adequately protect individuals (patients/staff) information against inappropriate use. (S2)

6. Develop a Regional Enterprise Architecture Standards document listing the specific standards applicable to hardware, software, networking, database management, and messaging. (S2)

7. Provide desktop, mobile, and remote access devices to meet clinical and business needs within funding limitations. (S2)

8. Implement the IT infrastructure required to support major facility developments such as

- WDHB Waitakere Hospital
- ADHB Building Programme
- CMDHB Manukau site (S2)

4.16. Information Services Organisation

Overview

The DHBs will continue to develop shared management service arrangements in order to focus financial resources on providing clinical care. Information Technology, Systems, and Management are seen as functions that can be cost-effectively provided as shared services.

A shared Information Services Organisation is required to develop and deliver applications and technologies which support and enable business strategies, and which minimise cost through convergence, collaboration, standardisation, rationalisation, and component reduction.

Current and Planned Programmes

Information services are currently provided to Counties Manukau and Waitemata DHBs by healthAlliance. ADHB has an internal information services capability.

On 7 October 2003, the Regional Shared Services project was officially launched, with the intention of designing a new regional shared service for the three Auckland DHBs. The project will transfer and amalgamate all information services functions currently existing in the three Auckland DHBs into a single regional shared service organisation.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Provide an optimum organisational structure to meet the clinical and business Information Systems strategies, objectives and service requirements of the region's DHBs and Primary and NGO Healthcare providers.

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Provide the following IT/IS/IM functions for the Auckland regional DHBs
- Strategy Support
- Vendor relationship management
- Help Desk Services (24*7*365)
- Customer service and account management
- Infrastructure planning, implementation and support
- Desktop support
- Applications planning, implementation and support
- Project management
- IT Training
- IT Procurement
- Systems Administration
- Database Administration
- Service Coordination
- Specialist networks, voice, server, desktop support
- Business Analysis
- Software development
- Software configuration, scripting & packaging
- Software release management and testing.

2. Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

-   Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers

-   a regional helpdesk and technical support capability

-   an ASP model for delivering services.

4.17. Quality and Safety

Overview

The DHBs are committed to improving the quality and safety of health care services through

- multidisciplinary teams
- holistic practice
- client centred care
- improved communication and integration
- evidence based guidelines
- community consultation.

DHB senior management wish to develop a culture of transparency and openness ('no blame' and 'no fear'), and support health professionals to demonstrate leadership in setting standards, to value innovation and excellence, and to be credentialed for their areas of competence.

There is a requirement therefore for a health system where all provider organisations

- meet statutory and accreditation requirements
- develop quality improvement plans
- set quality targets, and are recognised for their achievement.

Information technology can contribute to establishing and maintaining a quality programme; systematic and continuous improvement to health and disability support services aimed at providing a system where

- clinicians have all the relevant information available to make an informed decision about a patient's diagnosis, management, progress, and the ability (where possible) to reduce the chance of poor health occurring again
- care is safe and timely
- people are correctly identified and do not waste time giving the same information over and over again
- clinicians learn from their mistakes
- clinicians are competent and compassionate
- the system is fair
- care is coordinated
- clinicians understand people's needs, treat them as equal, and are aware of the Health and Disability Code of Rights.

Current and Planned Programmes

Development and implementation of Quality Plans, and accreditation by Quality Health New Zealand.

Complaints and incidents recording systems, AIMS at WDHB, CIMS at CMDHB.

Information Strategies
Note the reference in brackets after each strategy e.g. "(O1)" refers to the Information Objectives in this section that contribute to that strategy.

1. Identify and convert to exclusive electronic form those parts of the permanent patient record currently held on paper that are required frequently at the point of care (e.g. results reports, referrals from GPs or within Secondary care, medication lists, disease coding). (O7,8)

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2. Measure, track, and report on incidents and adverse events in a regionally consistent manner. Provide regional benchmarking and comparison for use in the continuous improvement of clinical outcomes. (O1,19)

3. Provide electronic decision support alerts and advice to clinicians to enhance care. Issues include
   - drug allergies
   - drug conflicts
   - contra-indicated laboratory and radiology tests
   - recognition of child abuse. (O5,6)

4. Provide a consistent evidence based methodology so that the DHBs can measure and act on clinical outcomes. (O5,6,18)

5. Make use of clinical pathways and guidelines to assist DHBs in achieving best practice. (O6)

6. Provide information on regional workforce skills to enable staff with the right qualifications and competencies to be deployed in the right places. (O3)

7. Develop quality improvement and risk management plans, to achieve Certification, to meet standards for accreditation, credentialling, and for quality audit, evaluation and monitoring. (O4)

8. Improve the quality of Primary Health Care delivery by
   - Providing primary caregiver access to investigative and diagnostic reports, and to information held by other caregivers and services
   - simplifying and automating referral processes, and providing electives scoring results electronically, reducing the need for FSA
   - providing diagnostic results electronically, and avoiding unnecessary orders by providing access to electronic results ordered by other caregivers
   - increasing the range of services directly accessible to credentialed GPs
   - development of integrated information systems that allow "seamless" access to information among primary providers and between primary and secondary services. (O5,7,9,11)

9. Improve service access and continuity through use of an electronic services directory. (O9)

10. Improve the quality of people's enrolment and capitation information, and the quality of payments to contracted providers. (O22,23)

11. Measure and report on Population Health status improvements through implementation of Primary health care clinical quality KPIs. (O10)

12. Identify Population Health risks and target information and resources to people with highest needs and potential to respond to Primary and Secondary prevention programmes. (O10)

13. Provide people with access to help lines, to their records, and to relevant information such as test results. (O13,14)

14. Use information technology to enhance the knowledge of clinicians. (O4,5,6,16)

15. Provide greater access to electronic patient information for clinicians at multiple points of care. (O17)

16. Use information technology to allow people access to useful health information. (O12)

17. Ensure that the Privacy and Security principles in the RISSP are applied to all information systems. (O20,21)

18. Reduce waste and improve utilisation and safety of pharmacy, laboratory, and radiology by implementing electronic prescribing and electronic ordering of laboratory and radiology tests. (O2,15)

Information Objectives
Note the reference in brackets after each objective e.g. "(S1)" refers to the Information Strategies in this section that guide that objective.

1. Implement a complete incidents and adverse event measurement, reporting, and benchmarking system. (S2)

2. Implement CPOE (Computerised Physician Order Entry) and electronic prescribing progressively across the DHBs. (S18)

3. Implement a common regional Human Resources information system. (S6)

4. Develop and implement systems to
- achieve Certification
- support compliance with quality improvement plans, accreditation and credentialling standards, and quality audit, evaluation and monitoring
- mitigate risk. (S7,15)

5. Complete the electronic decision support and electronic referral pilot project for elective services at CMDHB in partnership with the Ministry of Health and Procare, and explore the possibility of rolling out a regional implementation of electronic referral and electronic decision support for all services to all three DHBs and most regional PHOs. (S3,4,8,15)

6. Further develop the Electronic Decision Support system to implement clinical pathways and guidelines to support best practice. (S3,4,5,15)

7. Extend the regional result reporting system to become a regional Clinical Data Repository for DHBs, community laboratories and other community diagnostic services, with access by authenticated caregivers. (S1,8)

8. Extend the Clinical Data Repository to enable the selective replacement of the paper patient record with electronic information. (S1)

9. Extend the use of the regional electronic services directory to all three DHBs and most PHOs, and secure access with single signon and one password for all three DHBs and most PHOs to the national Health Practitioner Index. (S8,9)

10. Collaborate with the Ministry of Health to implement systems to provide reliable KPI data collection and reporting by Primary health care and by DHBs to
- assess the level of need for Māori and Pacific peoples and others
- assess the effectiveness of resources targeted to that need
- measure Population Health status improvement for Māori and Pacific peoples and others. (S11,12)

11. Develop and implement standardised Risk Assessment tools in both DHBs and PHOs across the region. (S8)

12. Implement a web-based Population Health Education service, allowing people to access useful health information in different languages, including advice on smoking, weight, exercise, diet, and alcohol. (S16)

13. Implement a system for secure two-way electronic communication with patients. (S13)

14. Implement and promote a regional Help Line service for people to obtain information and advice by phone. (S13)

15. Select a regional Pharmacy system and implement progressively across the DHBs. (S18)

16. Implement targeted electronic CME training at multiple access points including to mobile devices. (S14)

17. Implement information access at multiple points of care, including desktop, remote, and mobile. (S15)

18. Implement tools to support clinical audit, providing access to patient records and reporting on the effectiveness of clinical outcomes. (S4)

19. Implement a system to record and review use of restraint. (S2)

20. Establish a consistent set of security tools across applications/systems that adequately protect individuals (patients/staff) information against inappropriate use. (S17)

21. Create a regional Privacy Assessment Framework for information systems. (S17)

22. Collaborate with the Ministry of Health to provide systems to capture, collate, store and report PHO performance information. (S10)

23. Collaborate with the Ministry of Health to ensure timely development of a CBF warehouse, and access by PHOs and DHBs to relevant data in it. (S10)

5. TRANSITION PLAN

5.1. Consolidated Strategies

Following is a list of strategies consolidated from the topics in Appendix 4 (Current State/Future State Analysis).

1. **Measure and monitor population health status**

    - Establish an integrated Business Intelligence function that develops and delivers a regional Information Management strategy.
    - Develop a network of consistent and compatible systems and infrastructure to support analysis of information. Enable access to coherent and consistent information that relates cultural, social, and economic data and health care process to health outcomes.
    - Capture and code the information needed to identify Population Health risks and provide the means to create a risk profile of the enrolled population.
    - Support the management of public health and civil defence emergencies.

2. **Improve equity of access to healthcare services**

    - Capture and code the information needed to identify health risks for high-need populations, in particular Māori, Pacific, and low-income people. Enable information and resources to be targeted to people with highest needs, where there is potential to respond to primary and secondary prevention programmes.
    - Improve the quality and auditability of people's enrolment and capitation information.
    - Provide education and training for staff that collect and input people's demographics to help make accurate recording of ethnicity data routine at all points of data collection.
    - Support service development strategies by ensuring Māori and Pacific providers in the primary and NGO sectors have adequate information technology and information systems capacity.
    - Support cultural competency training and development programmes for providers to assist them in caring for the needs of diverse populations, in particular Māori and Pacific people.
    - Provide information to people in a medium that does not impede their ability to access health services.

3. **Improve the safety and quality of care**

    - Provide the ability to identify and continuously monitor high-risk people in the Auckland region, in particular those with chronic physical or mental illnesses and the elderly. Monitor their health status and risk, provide assessment, care plans, and risk management in a continuum of care for each individual that improves health status, or reduces progression or risk.
    - Identify and convert to exclusive electronic form those parts of the permanent patient record currently held on paper that are required frequently at the point of care (e.g. results reports, referrals from GPs or within Secondary care, medication lists, disease coding).
    - Provide and populate a DHB Clinical Data Repository to facilitate decision support, information sharing, information analysis, patient access to information, and privacy.

- Implement a single regional (Secondary and Tertiary Care) Patient Information System for patient registration & referral management, inpatients, outpatients, ECC and records tracking, and to consolidate people's demographic details.

- Enhance the capability and integration of clinical resource planning systems such as acute demand management, outpatient scheduling, booking, and acuity. Provide information on regional workforce skills to enable staff with the right qualifications and competencies to be deployed in the right places

- Provide an evidence based methodology to allow providers to measure and act on clinical outcomes.

- Develop quality improvement and risk management plans, to achieve Certification, to meet standards for accreditation, credentialling, and for quality audit, evaluation and monitoring.

- Ensure that the Privacy and Security principles in the RISSP are applied to all information systems.

- Ensure the ability to retrieve archived information in the context in which it was stored.

4. **Involve people in their healthcare**

- Use information technology to engage the population in greater self-management such as by providing lifestyle advice (e.g. smoking cessation, nutrition, weight optimisation, and exercise) to people with or at risk of disease, and track their compliance with advice, as part of a personalised care plan.

- Use information technology to allow people access to useful health information.

- Use information technology to enhance public participation in health services planning.

- Promote targeting of multi-lingual health promotion material by healthcare providers.

- Provide information to people in a medium that addresses their ability to access and assimilate it.

5. **Enable the Primary Care Strategy**

- Provide accredited Primary caregiver access to information held by DHB, community and private investigative and diagnostic services, and to patient information and Health Event Summaries held by other caregivers and services.

- Leverage the historical investment in Secondary information technology to provide affordable, current state information services to Primary Health Care.

- Collaborate with the Ministry of Health to provide Primary caregivers with fast, timely, and accurate access to and ability to update the NHI.

- Develop capabilities and systems for monitoring, reporting, and forecasting Primary Health Care expenditure, utilisation, outcomes, and Population Health status.

6. **Co-ordinate care across the community (including NGO), Primary and Secondary healthcare sectors**

   - Establish Care co-coordination systems to provide a platform for Community and Ambulatory, Disability Support, and Mental Health services to work from, which are capable of exchanging information with existing Primary & Secondary care systems and with clients. Use technology that allows continuous improvements and enhancements, and which meets the needs of a mobile workforce.

   - Use information held by Primary Health Caregivers to improve the management of people in the Secondary setting.

   - Collaborate with the Ministry of Health to support national programmes.

7. **Enable Integrated Care**

   - Provide integrated information systems that allow "seamless" access to information, and care coordination among Primary Health Care providers and between Primary Health Care and Secondary services.

   - Extend the established Integrated Care and Decision Support systems to incorporate a wider range of conditions.

   - Improve the efficiency and effectiveness of the referral process by implementing an Electronic Referrals system for both external referrers (e.g. GPs, Community) and for internal referrals between specialists. Incorporate hospital discharges and follow-up.

   - Support the Ministry of Health to implement the National Child Health Information Strategy.

   - Collaborate with the Ministry of Health to provide access to a national authenticated provider services directory for efficiently identifying other providers for information sharing and for secure identification and authentication of providers.

8. **Avoid duplication and waste to reduce the costs of existing care delivery**

   - Reduce waste and improve utilisation of pharmacy, laboratory, and radiology by implementing electronic prescribing and electronic ordering of laboratory and radiology tests.

   - Provide common and cost-efficient regional shared service systems for corporate functions.

   - Continuously improve technology cost-efficiency.

9. **Consolidate and strengthen the performance, robustness, security, and scalability of existing clinical systems**

   - Provide an optimum organisational structure to meet the clinical and business Information Systems strategies, objectives and service requirements of the region's DHBs and Primary and NGO Healthcare providers.

   - Provide a robust, reliable, resilient, fast, responsive, permanent, and secure IT infrastructure that allows continuous improvements and enhancements, that is easily integrated with other relevant patient and clinical systems, and that meets the needs of a mobile workforce.

   - Adopt common systems across the DHBs. Consolidate, upgrade, and improve usage of existing secondary and tertiary care systems to meet changing clinical and business needs.

5.2. *Consolidated Objectives*

Following is a list of objectives consolidated from the topics in Appendix 4 (Current State/Future State Analysis). The table shows where an Objective appears in various topics, e.g. "Acuity System" is Objective 18 in Topic "Collaboration", and Objective 17 in Topic "Secondary and Tertiary Health".

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Acuity System	Select and implement a regional solution for Bed Allocation & Acuity	O18			O17												
Acute Demand	Rollout out CMDHB's Acute Demand Management solution to ADHB and WDHB in cooperation with primary care		O10	O7	O7	O7	O3	O9			O4	O1	O1				

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Business Intelligence and Population Health	Develop an integrated Business Intelligence function, and systems to develop and deliver a regional Information Management strategy for Population Health reporting, casemix, and decision support reporting Implement DHB/PHO Population Health status monitoring and risk profiling systems to assess needs, access, and outcomes (including ethnicity specific indicators)	O32	O11, 12, 13, 14, 15, 17	O5, 16, 28, 29		O14, 15	O1, 3	O2, 10	O1	O1	O9	O6		O7, 9, 11, 12			O1, 10, 22, 23
Chart of Accounts	Implement a standard chart of accounts													O6			
Chronic Care Management	Implement and enhance a consistent and integrated regional chronic care management solution incorporating clinical decision support tools and allowing people to access their own information	O8	O9, 10	O7, 11		O7	O4	O9				O1	O1, 4				

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Clinical Audit	Implement tools to support Clinical Audit, including providing access to patient records, capturing additional clinical information, and reporting on clinical outcomes and the effectiveness of clinical processes				O16												O4, 18

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Clinical Data Repository and Clinical Notes	Develop and publish a regional Clinical Data Repository architecture that will allow logical integration of patient records and clinical images. Implement in stages to enable delivery of Key Projects such as Chronic Care Management, Mental Health, and Community, Ambulatory and Disability systems. Implement a standard Clinical Notes (clinical forms & database solution) to allow clinicians to capture specific clinical data, integrated with Patient Administration, Clinical Data Repository, and Concerto	O9, 19, 22		O8, 21	O2, 11, 13, 14, 15		O7					O4	O2				O7, 8, 18
Clinical Guidelines	Implement and enhance a regional consistent/integrated clinical evidence based guidelines solutions (including tracking of outcomes)	O8, 21	O9, 10	O7, 10, 17, 23		O7	O4, 14	O9, 13			O4	O1, 11	O1, O4				O6

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Clinical Reference Texts (Primary Care Access)	Acquire regional access rights to online reference texts (e.g. MDConsult, Clinical Evidence, Medline) and make them available to Primary Health Care, Secondary Health, and Community/NGO clinicians			O23													
Clinical Workstation	Extend the scope and use of the Concerto clinical workstation to provide secure and seamless access to clinical information. Ensure access at point of care including mobile and bedside			O26	O9, 10												O17

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Community, Ambulatory and Disability Support	Implement a regionally integrated Community, Ambulatory, and Disability Support system, optimising coordination and integration wherever possible. Support a mobile workforce providing community-based care to all age groups across the continuum, with an emphasis on children, the elderly and other high risk/disadvantaged populations	O23	O10	O7, 12, 21, 22	O4	O1, 2, 7, 11	O4, 9	O6, 7, 9	O3	O1, 2, 4, 5, 6	O4	O1, 2	O1				
CPAC scoring	Select and implement a regional elective surgery scoring system (CPAC)	O27		O8	O3												
Cultural Information	Make relevant cultural information available to clinicians (Primary Health Care, Secondary, Community) to assist them in caring for People with different cultures						O14	O13				O11					

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Disability Needs Assessment	Enhance Disability Needs Assessment system including geo coding and integration across providers to support NASC teams									O1, 2		O6, 7					
Document / Process Management	Implement a regional document and process management system to share processes and support quality improvement and certification	O34			O19									O8			O4
e-Prescribing	Implement an e-Prescribing system that delivers the right medication to patients, reduces medication errors and the overall cost of pharmaceuticals	O29		O18	O23												O2
e-Referrals	Implement a regional electronic referrals solution (for both internal & external referrals), including decision support features, Waiting List status updates, and online booking for First Specialist Assessment	O27, 28	O9	O2, 9, 17, 19, 22	O3, 12, 18		O5					O5					O5

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Funding Management	Implement systems to manage and monitor new funding flows which will be implemented with PBFF and CBF			O5, 16, 28, 29										O9, 13, 14			O22, 23
GP-Patient information	Provide a mechanism for DHBs to access PHO records to determine the current GP and contact details for a patient			O20													
Health Event Summaries	Implement a regional repository of all clinical Health Event Summaries (including discharge summaries) across Primary, Community, outpatient, and inpatient care. Allow clinicians and patients to access relevant information		O9, 11, 12, 13, 14, 15	O2, 3, 4, 8	O13, 15		O5, 6, 7		O6								
HRMS and Payroll	Complete the CMDHB and WDHB implementations, and implement the Leader HRMS & Payroll system including self-service kiosk at ADHB	O2			O20, 21			O3						O1, 2			O3

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Incidents Tracking	Select and implement a regional solution to measure, track and report incidents and adverse events. Record and review use of restraints	O25															O1, 19
Management of Assets	Select and effectively implement an asset management system, in conjunction with a programme of asset valuation and assessment, to provide for ongoing sustainable replacement of equipment				O8									O10			
Mental Health	Select and implement a regional Mental Health System. Create a single mental health patient record accessible by patients; coordinate care between Primary Health Care, Community organisations and Secondary care providers. Incorporate clinical decision support tools and support a mobile workforce	O23	O9	O12, 13	O4	O2	O9, 10	O6, 7	O1, 2, 4	O5		O2, 3					

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
National Immunisation Register	Assist the Ministry of Health to implement the National Immunisation Register (NIR) to support improved immunisation rates and the Meningococcal campaign.	O3	O4, 5	O7		O4, 8, 9	O4	O9			O1, 4, 5, 6						
National Mental Health Projects	Cooperate with the Ministry of Health to implement national mental health information projects such as MH-SMART, MH-INC, and development of the consumer electronic health record.								O8								
National Screening Programmes	Collaborate with the Ministry of Health as required to support the national screening programmes		O6			O13											
NHI Access and Quality	Work with the Ministry of Health to improve quality of NHI data, including improvement of Primary Health Care's ability to access and update the NHI data, and the collection of accurate ethnicity data			O20, 24, 25			O15	O14									

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Online Learning	Implement a regional Online Learning capability	O26					O15	O14						O3			O16
Order Entry	Select and implement a regional Computerised Physician Order Entry (CPOE) system, incorporating clinical decision support tools			O18	O5												O2
Outpatient Scheduling (ADHB)	Replace ADHB *PHS* with the WDHB and CMDHB *PiMS* Outpatient Scheduling solution to provide a regionally consistent scheduling solution	O14															
Patient Access	Pilot/implement systems that allow clinicians to share data with patients and give people the ability to contribute to their record and care plans		O1, 9, 10	O7, 11		O7	O4, 12	O9			O4	O1, 8	O1				O13
Patient Administration System (ADHB)	Implement a single consistent regional Patient Management System and improve quality of data collection (including ethnicity)	O7, 20			O6	O10	O8	O11		O3	O7						

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Patient Information	Implement and promote a regional website and help line for people to access useful health information (ensure needs of various cultures / languages / disabilities are met)	O30	O2, 9				O13	O8, 12				O9, 10					O12, 13, 14
Pharmacy	Implement a new regional Pharmacy System	O4			O22												O15
Primary Health Care Information Services	Allow easier and cheaper access to information technology for Primary and Community/NGO Health Care providers by exploring the possibility of facilitating a shared information services capability			O6, 24, 27		O11, 12		O4	O3, 5	O7					O1	O2	
Primary Health Care Prescribing	Implement a Primary Health Care prescription and pharmacy processing solution that tells the prescriber that the drugs have been collected			O14, 24													

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Privacy and Security	Establish a consistent set of security tools across applications/systems that adequately protect individuals (patients/staff) information against inappropriate use						O16		O7						O5		O20, 21
Public Health Alerts	Implement a regional geographic public health /epidemic alert system to assess and manage epidemics and civil defence emergencies		O8, 11, 12														
Radiology Management System	Select and implement a regional DHB Radiology Management System	O31															
Risk Management Tools	Select and implement regional risk assessment and management tools	O8		O10									O1				O11
Rostering	Implement a consistent and integrated regional Rostering system	O33												O5			
Self-Service Purchasing	Implement *Oracle* self service purchasing													O4			

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
Service Directory	Implement a regional health service directory across DHBs and PHOs (and integrate with National Provider Index when this becomes available)	O15		O15			O11	O5		O8		O12	O3				O9
Standard Infrastructure	Provide a robust, reliable, resilient, fast, responsive, secure, and standardised IT infrastructure to deliver the clinical and business Information Management strategies in this RISSP at minimal cost														O2, 3, 4, 6, 7, 8		
Survey Systems	Develop information systems to enhance public participation in planning such as web based survey systems		O16														
System Alignment (DHB)	Align / standardise core DHB applications to reduce cost (e.g. NBRS, Coding, Colposcopy, IDAS, Report writing, Retinal Screening, Patient tracking, Helpdesk, blood bank, etc.)	O1-34		O1	O1												

Objective	Description	Collaboration	Population and Public Health	Primary Health Care	Secondary and Tertiary Health	Community and Ambulatory Services	Maori Health	Pacific Health	Mental Health	Disability Support	Child Health	Older Peoples Health	Chronic care & Other	Corporate Functions	Technology & Infrastructure	IS Organisation	Quality & Safety
System Support	Provide a comprehensive IS/IT support service that meets the agreed service levels at minimum cost															O1	
System Upgrades	Maintain the currency of systems with version changes so that they remain clinically relevant and supportable			O1	O1												
Well Child	Implement and enhance the Well Child information systems across the region, including the school dental service	O3	O3, 7, 10	O7		O3, 5, 6, 7	O2, 3, 4	O1, 2, 9			O2, 3, 4, 8, 9						

5.3. Key Projects

Listed below are the Key Projects - derived from the Consolidated Objectives, selected and ranked by the combined RISSP Reference Groups. Each has been assigned to one of the investment portfolios.

(BUS) Business Systems used to manage and operate the DHB

1. HRMS and Payroll
2. Self-service Purchasing
3. Service Directory
4. Rostering
5. Management of Assets

(CLI) Patient and Clinical Systems for primary and secondary/tertiary healthcare, including Integrated Care and integration of Primary Care and NGO systems

1. Chronic Care Management
2. Well Child
3. Clinical Repository
4. Clinical Workstation
5. Health Event Summary
6. Mental Health
7. Community, Ambulatory and Disability Support
8. e-Referrals
9. Pharmacy
10. Order Entry
11. e-Prescribing
12. Clinical Audit
13. Clinical Reference Texts (Primary Care Access)
14. Outpatient Scheduling (ADHB)
15. Patient Administration System (ADHB)

(FUN) Funding and Performance Systems for the DHB purchasing arms

1. Business Intelligence and Population Health
2. Public Health Alerts

(INF) Infrastructure the information technology required to support application systems

1. Standard Infrastructure
2. System Upgrades
3. Primary Health Care Information Services
4. Privacy and Security
5. System Support

(NAT) National Projects where implementation is mandated by Ministry of Health

1. National Immunisation Register

2. NHI Access and Quality

3. National Screening Programmes

4. National Mental Health Projects

Detailed descriptions of the Key Projects may be found in Appendix 6 (Project Definitions).

5.4. Risk/Value Matrix

The Risk/Value Matrix is a tool adopted by ADHB to graphically display the relative merits of IS projects.

- "Weight" is the weighting applied to a particular "RISK" or "VALUE" number.
- "RISK" and "VALUE" are numbers assigned to the Risk/Value assessments found in Appendix 6 (Project Definitions), where "LOW" is blank, "MED" is 1 and "HIGH" is 2.
- "100% Risk" and "100% Value" are the RISK and VALUE numbers multiplied by the weightings, summed, and adjusted to make the graph (below) more readible.
- "Cost" is the estimated project cost in thousands of dollars.

When applied to the Priority Objectives, the results are as follows:

		VALUE			RISK				Value/Risk Matrix		
Weight		45%	25%	30%	15%	25%	40%	20%			
Abbreviation	Objective	Rank in priority objectives	Patient outcomes	Financial performance	Lack of project definition	Dependencies	Process change	Business resource impact	100% Value	100% Risk	Cost
BUS	Business Intelligence and Population Health	2	-	1	2	1	1	1	0.50	0.68	4000
CCM	Chronic Care Management	2	2	1	1	2	1	1	0.75	0.73	1400
AUD	Clinical Audit	-	1	-	-	1	2	1	0.03	0.73	330
CDR	Clinical Data Repository and Clinical Notes	2	2	2	2	1	-	-	0.90	0.38	3000
TXT	Clinical Reference Texts (Primary Health Care Access)	-	-	-	-	-	-	-	0.01	0.10	125
CWS	Clinical Workstation	2	1	-	-	-	-	-	0.48	0.10	325
CAD	Community, Ambulatory, and Disability Support	2	2	2	-	1	2	1	0.90	0.73	1350
EPR	e-Prescribing	2	2	2	1	1	2	1	0.90	0.80	3000
ERF	e-Referrals	2	2	2	-	1	1	1	0.90	0.53	1000
HES	Health Event Summaries	2	2	2	-	-	-	1	0.90	0.20	750
HRM	HRMS and Payroll	2	-	2	-	1	1	-	0.65	0.43	3300
ASS	Management of Assets	-	-	1	2	1	-	1	0.05	0.48	300
MEN	Mental Health	2	2	2	1	2	2	1	0.90	0.93	3000
NIR	National Immunisation Register	2	2	2	-	2	1	1	0.90	0.65	10
NMH	National Mental Health Projects	-	1	-	2	1	1	-	0.03	0.58	10
NSP	National Screening Programmes	-	1	-	2	1	-	-	0.03	0.38	10

		VALUE			RISK				Value/Risk Matrix		
Weight		45%	25%	30%	15%	25%	40%	20%			
Abbreviation	Objective	Rank in priority objectives	Patient outcomes	Financial performance	Lack of project definition	Dependencies	Process change	Business resource impact	100% Value	100% Risk	Cost
NHI	NHI Access and Quality	1	1	-	1	1	-	-	0.25	0.30	10
CPO	Order Entry	1	2	2	-	-	2	1	0.68	0.60	1500
OUT	Outpatient Scheduling (ADHB)	2	-	-	-	-	-	-	0.35	0.10	2000
PMS	Patient Administration System (ADHB)	2	1	1	-	1	1	1	0.63	0.53	4000
PHA	Pharmacy	1	1	1	-	-	-	-	0.40	0.10	1100
PRI	Primary Health Care Information Services	1	1	-	-	2	1	1	0.25	0.65	100
PRV	Privacy and Security	-	1	-	-	-	1	1	0.03	0.40	90
PUB	Public Health Alerts	-	1	-	1	1	-	-	0.03	0.30	55
ROS	Rostering	-	-	1	-	-	2	2	0.05	0.70	1500
PUR	Self-Service Purchasing	1	-	1	-	-	-	-	0.28	0.10	1000
DIR	Service Directory	1	-	-	-	2	-	-	0.13	0.35	130
INF	Standard Infrastructure	2	-	2	1	-	-	-	0.65	0.18	10000
SUP	System Support	2	-	2	-	-	-	-	0.65	0.10	10
UPG	System Upgrades	1	1	-	-	-	-	-	0.25	0.10	1800
WEL	Well Child	2	2	-	-	2	1	1	0.60	0.65	630

Risk/Value Graph

This shows the above table graphically (the size of each project is proportional to its cost). Normally one would concentrate on implementing the "high value/low risk" projects, i.e. those in the bottom right quadrant.
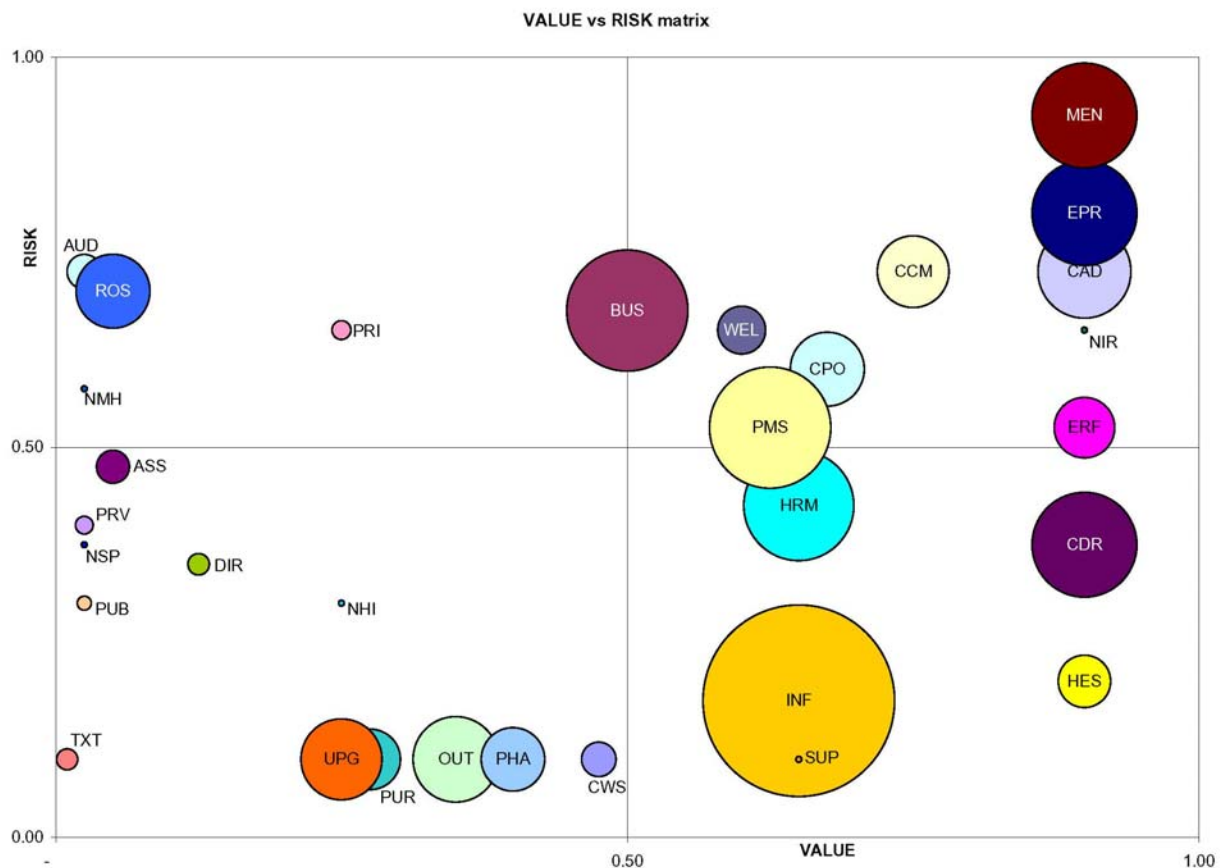
VALUE vs RISK matrix

5.5. *Programme of Work*

The following table shows the proposed timeframes and estimated capital requirements for implementing the Key Projects. The staggered timeframes reflect the different starting positions of each DHB. Costs are estimates based on the current understanding of project scope and deliverables. They are provided here to allow Information Services to "bid" for allocations in the capital budgeting round.

The Key Projects are shown here in the order that they were ranked by the Reference Groups.

	Key Project	ADHB				CMDHB				WDHB				Grand Total
		04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	
BUS	1 HRMS and Payroll	800000	0	0	800000	0	0	0	0	0	0	0	0	800000
	2 Self-Service Purchasing	0	1000000	0	1000000	0	0	0	0	0	0	0	0	1000000
	3 Service Directory	43000	0	0	43000	43000	0	0	43000	0	44000	0	44000	130000
	4 Rostering	0	900000	0	900000	0	0	300000	300000	0	0	300000	300000	1500000
	5 Management of Assets	0	0	100000	100000	0	0	100000	100000	0	0	100000	100000	300000
	BUS Total	843000	1900000	100000	2843000	43000	0	400000	443000	0	44000	400000	444000	3730000
CLI	1 Chronic Care Management	167000	300000	0	467000	167000	300000	0	467000	166000	300000	0	466000	1400000
	2 Well Child	0	210000	0	210000	0	210000	0	210000	0	210000	0	210000	630000
	3 Clinical Data Repository	333000	333000	334000	1000000	333000	333000	334000	1000000	333000	333000	334000	1000000	3000000

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Key Project	ADHB				CMDHB				WDHB				Grand Total
	04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	
4 Clinical Workstation	108000	0	0	108000	108000	0	0	108000	109000	0	0	109000	325000
5 Health Event Summaries	250000	0	0	250000	250000	0	0	250000	0	250000	0	250000	750000
6 Mental Health	0	0	1000000	1000000	750000	250000	0	1000000	0	250000	750000	1000000	3000000
7 Community, Ambulatory, and Disability Support	0	0	0	0	0	1000000	0	1000000	350000	0	0	350000	1350000
8 e-Referrals	333000	0	0	333000	333000	0	0	333000	0	334000	0	334000	1000000
9 Pharmacy	0	0	0	0	0	600000	0	600000	0	500000	0	500000	1100000
10 Order Entry	0	500000	0	500000	0	500000	0	500000	0	0	500000	500000	1500000
11 e-Prescribing	1000000	0	0	1000000	0	1000000	0	1000000	0	0	1000000	1000000	3000000
12 Clinical Audit	110000	0	0	110000	0	0	110000	110000	110000	0	0	110000	330000
13 Clinical Reference Texts (Primary Health Care Access)	42000	0	0	42000	42000	0	0	42000	0	41000	0	41000	125000
14 Outpatient Scheduling (ADHB)	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Patient Administration System (ADHB)	2000000	2000000	0	4000000	0	0	0	0	0	0	0	0	4000000

Key Project			ADHB				CMDHB				WDHB				
			04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	Grand Total
		CLI Total	4343000	3343000	1334000	9020000	1983000	4193000	444000	6620000	1068000	2218000	2584000	5870000	21510000
FUN	1	Business Intelligence and Population Health	444000	444000	445000	1333000	444000	444000	445000	1333000	0	667000	667000	1334000	4000000
	2	Public Health Alerts	19000	0	0	19000	0	0	18000	18000	0	18000	0	18000	55000
		FUN Total	463000	444000	445000	1352000	444000	444000	463000	1351000	0	685000	667000	1352000	4055000
INF	1	Standard Infrastructure	3800000	4300000	5800000	13900000	2200000	2200000	2200000	6600000	2200000	2200000	2200000	6600000	27100000
	2	System Upgrades	200000	200000	200000	600000	200000	200000	200000	600000	200000	200000	200000	600000	1800000
	3	Primary Care Information Services	35000	0	0	35000	35000	0	0	35000	0	0	0	0	70000
	4	Privacy and Security	10000	10000	10000	30000	10000	10000	10000	30000	10000	10000	10000	30000	90000
	5	System Support	0	0	0	0	0	0	0	0	0	0	0	0	0
		INF Total	4045000	4510000	6010000	14565000	2445000	2410000	2410000	7265000	2410000	2410000	2410000	7230000	29060000
NAT	1	National Immunisation Register	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	NHI Access and Quality	0	0	0	0	0	0	0	0	0	0	0	0	0

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Key Project	ADHB				CMDHB				WDHB				Grand Total
	04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	
3 National Screening Programmes	0	0	0	0	0	0	0	0	0	0	0	0	0
4 National Mental Health Projects	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	9694000	10197000	7889000	27780000	4915000	7047000	3717000	15679000	3478000	5357000	6061000	14896000	58355000

5.6. *Operational Costs*

The following table shows the estimated incremental increase in operational costs associated with implementing the Programme of Work. Corresponding cost savings have not been quantified; that will be done as part of the business case process.

	Key Project		ADHB				CMDHB				WDHB				
			04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	Grand Total
BUS	1	HRMS and Payroll	409000	409000	409000	1227000	0	0	0	0	0	0	0	0	1227000
	2	Self-Service Purchasing	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	Service Directory	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	Rostering	0	13000	13000	26000	0	0	13000	13000	0	0	13000	13000	52000
	5	Management of Assets	0	0	17000	17000	0	0	17000	17000	0	0	17000	17000	51000
		BUS Total	409000	422000	439000	1270000	0	0	30000	30000	0	0	30000	30000	1330000
CLI	1	Chronic Care Management	127666	127667	127667	383000	127666	127667	127667	383000	127666	127667	127667	383000	1149000
	2	Well Child	0	27000	27000	54000	0	27000	27000	54000	0	27000	27000	54000	162000
	3	Clinical Data Repository	163000	163000	163000	489000	163000	163000	163000	489000	163000	163000	163000	489000	1467000
	4	Clinical Workstation	21000	21000	21000	63000	21000	21000	21000	63000	21000	21000	21000	63000	189000
	5	Health Event Summaries	59000	59000	59000	177000	59000	59000	59000	177000	0	59000	59000	118000	472000

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Key Project			ADHB				CMDHB				WDHB				Grand Total
			04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	
6	Mental Health		0	0	213000	213000	213000	213000	213000	639000	0	213000	213000	426000	1278000
7	Community, Ambulatory, and Disability Support		0	0	0	0	0	222000	222000	444000	222000	222000	222000	666000	1110000
8	e-Referrals		112000	112000	112000	336000	112000	112000	112000	336000	0	112000	112000	224000	896000
9	Pharmacy		0	0	0	0	0	70000	70000	140000	0	70000	70000	140000	280000
10	Order Entry		0	72000	72000	144000	0	72000	72000	144000	0	0	72000	72000	360000
11	e-Prescribing		200000	200000	200000	600000	0	200000	200000	400000	0	0	200000	200000	1200000
12	Clinical Audit		47000	47000	47000	141000	0	0	47000	47000	47000	47000	47000	141000	329000
13	Clinical Reference Texts (Primary Health Care Access)		7000	7000	7000	21000	7000	7000	7000	21000	0	7000	7000	14000	56000
14	Outpatient Scheduling (ADHB)		0	0	0	0	0	0	0	0	0	0	0	0	0
15	Patient Administration System (ADHB)		0	0	0	0	0	0	0	0	0	0	0	0	0
	CLI Total		736666	835667	1048667	2621000	702666	1293667	1340667	3337000	580666	1068667	1340667	2990000	8948000
FUN	1	Business Intelligence and Population Health	317000	317000	317000	951000	317000	317000	317000	951000	0	317000	317000	634000	2536000

	Key Project		ADHB				CMDHB				WDHB				
			04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	Grand Total
	2	Public Health Alerts	6000	6000	6000	18000	0	0	6000	6000	0	6000	6000	12000	36000
		FUN Total	323000	323000	323000	969000	317000	317000	323000	957000	0	323000	323000	646000	2572000
INF	1	Standard Infrastructure	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	System Upgrades	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	Primary Care Information Services	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	Privacy and Security	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	System Support	0	0	0	0	0	0	0	0	0	0	0	0	0
		INF Total	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT	1	National Immunisation Register	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	NHI Access and Quality	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	National Screening Programmes	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	National Mental Health Projects	0	0	0	0	0	0	0	0	0	0	0	0	0

Key Project	ADHB				CMDHB				WDHB				Grand Total
	04/05	05/06	06/07	ADHB Total	04/05	05/06	06/07	CMDHB Total	04/05	05/06	06/07	WDHB Total	
NAT Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1468666	1580667	1810667	4860000	1019666	1610667	1693667	4324000	580666	1391667	1693667	3666000	12850000

5.7. Capital Planning

The Programme of Work represents an indicative Information Services capital budget for the Auckland region. The projects are divided into capital portfolios (or "envelopes"), allowing a balance of investment in key business areas in line with the priorities set out in the RISSP. This avoids the problem of trying to compare and rank projects that have nothing in common.

The envelopes are:

National Projects where implementation is mandated by Ministry of Health

Patient and Clinical Systems for primary and secondary/tertiary healthcare, including Integrated Care and integration of Primary and Community/NGO Health Care systems

Funding and Performance Systems for the DHB purchasing arms

Business Systems used to manage and operate the DHB

Infrastructure the information technology required to support application systems

Latent Demand funding for ongoing development of non-strategic initiatives, i.e. projects that have business priority but have not been included in the Regional ISSP.

DHBs will need to add a provision for Latent Demand projects when drawing up their individual capital budgets.

Each DHB will develop its budget within its own internal budgeting processes. The costs given in the Programme of Work are estimates only, which may be used to "bid" for capital budgets; each Key Project will be subject to its own business case, which will incorporate costs that are more accurate. The business case for any project will include all implementation and ongoing operational costs.

Information Services projects are, depending on their cost, subject to local, regional, or national approval.

It may be that some projects are partially funded by sources external to the DHBs such as FoRST and the Health IT Consortium, and possibly the Ministry of Health.

5.8. Organisational Commitment

Implementation of the RISSP will be a collaborative effort, involving Information Services, management, and clinical staff. Success will require organisational commitment to:

- recognition and acceptance of the need for information services collaboration between DHBs, and the accompanying reduction in autonomy
- taking ongoing ownership of, and accepting accountability for, realising the benefits, providing support, training, integrity, and optimum usage of systems
- compliance with a privacy framework of agreed policies and processes
- providing sufficient operational funding for Information Services to provide acceptable system support and service
- the focus on reducing the total costs of ownership of information technology by Information Services
- selection and implementation of software being driven by changes to and standardisation of business processes
- adherence to business processes by management and clinicians at all levels
- engagement of Primary and Community/NGO Health Care providers, and other stakeholders in the projects that affect them

5.9. Key Risks and Issues

- Some initiatives are not directly linked to health outcomes or financial performance in the short term, but are required to provide a health system that is financially viable in the long term. Benefits are difficult to quantify, so project sponsorship and business buy-in may be difficult to achieve.
- The implementation of electronic clinical decision support systems will require clinical agreement on decision support rules and best practice guidelines.
- Lack of integrity in, and inconsistent use of, the NHI number will hamper linking of information to provide people with a continuum of care.
- Practice Management System vendors lack capacity to respond satisfactorily to multiple software changes required by MoH, DHBs, PHOs, ACC, Pharmac, and other agencies.
- Inadequate operational resourcing for ongoing support of new capital developments may hinder implementation of the RISSP.
- Lack of compliance with the RISSP principles may result in the selection of additional systems, thus adding to the component count and therefore to integration and support costs.
- There are concerns about stakeholders' capacity to cope with the required level of change within a limited period. Progress will depend on willingness by clinicians and others to change behaviour for new processes such as electronic service order management.
- The implementation of more sophisticated integrated care and care coordination programmes increases the reliance on information technology and the potential impact of any failures.
- Many Primary and Community/NGO Health Care providers will need to make further investment in information technology if they are to participate in integrated care programmes. It may be necessary to provide incentives for them to do so.

- Primary and Community/NGO Health Care providers will need to allow Secondary Health clinicians access to their data.
- The diversity of Primary Health Care, Community, and NGO providers makes it difficult to engage them at the outset of Key Projects that they are involved in.
- There are privacy and security risks in relation to sharing confidential information about people.
- Little emphasis has been placed over the years on the ability to retrieve archived information in the context within which it was stored.

5.10. Risk Mitigation

- A Regional IS Governance Group (including Primary and Community /NGO Health Care representatives) will oversee the progress of strategic projects, and monitor achievement of business case benefits for project sponsors.
- A Regional IS Operational Group will provide a mechanism for the three DHBs to reach agreement on operational issues related to common systems
- An IS committee in each DHB will ensure business ownership of systems and processes, and communication with the regional governance function.
- Strong partnerships between clinicians, managers and IS, and close relationships with Clinical Boards and key members of the Primary and Community/NGO Health Care sectors will ensure early stakeholder buy-in to the Key Projects.
- Common processes will be instituted for budget setting, business case review and approval, and delegated authority.
- Close collaboration with the Ministry of Health, Health Information Standards Organisation, and software vendors will ensure alignment of activity and adherence to national standards.
- A regional Privacy Advisory Group will advise on privacy protection measures and risks.
- An integrated archiving policy will be developed as part of the implementation of new systems.

5.11. Expected Outcomes

The anticipated outcomes of the RISSP are

- Strategic Alignment of information services direction across the region
- Improved Health Outcomes through the sharing of relevant information, and the adoption of regional standards and systems to improve quality and productivity for patients and clinicians
- Financial savings through joint purchasing and pooled utilisation of capital; single instance systems providing cost efficiency and lowering the total cost of ownership of information technology
- Improved service via integrated, aligned systems that provide more effective support and performance of clinical and business systems

5.12. Expected Benefits

Health Outcomes

- Improved health outcomes as care is better coordinated through high-quality information exchange
- People are able to take more responsibility for their health because they have better access to accurate information
- Chronic disease risk is identified early and mitigated through Chronic Care Management programmes
- Improved access to Elective services from electronic referrals and decision support
- Improved equity of access for high-need populations, in particular Māori, Pacific, and low-income people, because more accurate information about them is available
- Long term improvements in population health status as

  people are provided with a continuum of care

  chronic disease risk is identified early and managed

  healthy lifestyle advice is targeted and tracked at those with or at risk

  incidence of child disease is reduced by consistently high immunisation and Well Child checks

Financial

- Reduced duplication of health services through improved care co-ordination
- Reduction in the number of acute admissions and reduced use of complex secondary and tertiary care as a result of integrated care programmes
- Reduced wastage and reduction in the cost of correcting harm through electronic service ordering
- Improved consistency of reporting to support benchmarking and improve planning
- Better facilitation of resource sharing between DHBs from HR and Asset Management programmes
- Economies of scale gained with a single regional Patient Management System
- Reduced operational cost of information services through rationalisation and standardisation
- Reduced system training and orientation costs through standardisation of systems

Quality and Safety

- Improved clinical decision making through access to evidence-based electronic decision support services
- Electronic service order management (including electronic prescribing) drives responsibility for people's care back to the ordering clinician
- Standard clinical processes can be supported by common systems
- Continuum of care for people is facilitated by easier transfer of information from clinician to clinician

6. PROJECT DEFINITIONS

6.1.1. Introduction

Each Key Project is defined in this section. The definitions are intended to give an overview of the project, with the scope known as at the time of RISSP development. There will be a separate process of project scoping, analysis, and design when the projects are initiated. Similarly, costs are estimates only, based on the knowledge and experience of the Core Team. Incremental operational costs are based on the estimated number of extra people required to support the project after its implementation. People costs have been estimated at $70K per annum for IS people, $50K for others. Maintenance costs are estimated at 20% of the capital costs for hardware and software.

Each Key Project is subject to business case approval at each DHB; these Project Definitions will be input to the business case documentation.

6.1.2. Business Intelligence and Population Health

Funding Envelope	Funding and Performance Systems
Overview	Develop an integrated Business Intelligence function, and systems to develop and deliver a regional Information Management strategy for Population Health reporting, casemix, and decision support reporting.
	Implement DHB/PHO Population Health status monitoring and risk profiling systems to assess needs, access, and outcomes (including ethnicity specific indicators).
Background	Assessing the health of populations and planning services according to need are among the DHBs' core functions. The information required to support these functions has received relatively little attention. Health assessments to date have been based on data provided by legacy systems such as NMDS and NZHIS reporting requirements, rather than on an evaluation of DHB functional requirements.
	Each DHB has a department that does casemix and decision support reporting. These have grown out of the HHS environment and are largely secondary care based. They need to be developed to meet the requirements of the Funder, and broader DHB Population Health requirements.
Drivers	The DHBs have a statutory duty to develop the capacity and infrastructure to assess the health of the people of Auckland and plan services to meet that need.
	The emphasis is on Population Health (health promotion, disease and injury prevention), and Primary Health Care. Whatever the levels of future funding, there is a need to ensure that the health system is working, and funding is applied, in the most efficient and effective ways, and that effort is focussed on those areas with the most potential for

gain.

The DHBs' need quality Population Health information to

- build the research base and analytical expertise about population health and wellbeing (including primary sector, clinical governance, costing systems, health needs, and demographic information) to assist in planning and surveillance

- supply demographic, epidemiological, service use data and outcome information to allow the DHBs to set explicit local health goals and targets (aligned to the New Zealand Health Strategy), and monitor progress

- analyse the demographics of the population of regional Auckland to understand the future profile of the Auckland region covering ethnicity, age structure, population growth, and other indicative factors, all of which will be linked to morbidity and mortality data

- undertake a Health Needs Assessment for the region incorporating the demographic characteristics, health status, availability, and access of services, identification and prioritisation of need areas in the local community; improve, promote and protect the health of Aucklanders

- provide systems to measure positive and negative health indicators, assess health needs, and prioritise and allocate resources to match health and disability service needs.

Deliverables	- Develop a regional Information Management strategy - Provide a standardised and integrated reporting framework across the region - Develop data collection tools and processes - Implement a Data Warehouse with reporting and analysis tools - Develop an initial population health monitoring system covering the top 10 KPIs - Develop a regional sexual health epidemiological reporting system
Scope	- Provide an integrated Business Intelligence function, which develops and delivers an Information Management strategy - Integrate Population Health surveillance, monitoring and reporting into DHB and PHO systems

- Develop a regional sexual health epidemiological reporting system linking DHB and community clinical and laboratory systems

- Establish information systems to monitor health outcome targets aligned to NZHIS on a DHB and regional basis

- Establish systems to monitor accessibility of services

- Develop Population Health reporting capability for outpatient, laboratory, pharmacy, and radiology systems

- Monitor the output and collaborate with the Ministry of Health to support the implementation of affordable recommendations of the PHO Enrolment Taskforce (aka CBF Improvement Project)

- Collaborate with the Ministry of Health to provide systems to capture, collate, store and report PHO performance information

- Collaborate with the Ministry of Health to ensure timely development of a CBF warehouse, and access by PHOs and DHBs to relevant data in it

- Implement a regionally consistent system for clinical costing and decision support

- Determine and meet the requirements for full information on inter-district flows

- Implement commonly based decision support systems to allow sharing and benchmarking of information

- Select and implement a regional standard scheduled and ad hoc reporting tool

- Collaborate with the Ministry of Health to implement systems to provide reliable KPI data collection and reporting by Primary health care and by DHBs to

  - assess the level of need for Maori and Pacific peoples and others

  - assess the effectiveness of resources targeted to that need

  - measure Population Health status improvement for Maori and Pacific peoples and others.

Business Process Change	- Develop an IM strategy and function
	- Develop KPIs
	- Data capture, organisation
	- Analysis and reporting
	- Benchmarking

	• Access and Privacy
Implementation Resource Requirements	• Project manager
	• Health information analysts
	• Technical staff – DBA and data warehousing
Incremental Operational Resource Requirements	• 1.5 FTE Business support people per DHB
	• 1.5 FTE Information Services people regionally
Linkages to other Key Projects	• Population Health Status
	• Central region DHBs' TAS organisation has developed data dictionaries
	• GPSurv system
Benefits	• Provides the ability to measure and analyse the health of populations
	• Accurate information on Population Health will help to protect DHB funding streams
Issues	Benefits are long term and need to be quantified, so project sponsorship and business buy-in may be difficult to achieve.
	The ability to cost, analyse and report on clinical, financial and volume data is contingent on
	• appropriate fields implemented into transactional systems (including in Primary Health Care)
	• appropriate processes to collect information and ensure data quality (including in Primary Health Care)
	• mechanisms to extract the data from transactional systems and store in a common place
	• standard terminology, data definitions and costing standards to facilitate inter-DHB reporting and analysis
	• appropriate privacy and security policies and procedures being in place.
Capital Cost Estimates	• Software Licenses 250,000
	• Implementation Resources 1,500,000
	• Software/Development 1,750,000
	• Server Hardware 250,000
	• Project Overheads 250,000

Total				4,000,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	450,000
	• Business Support Resources	400,000
	• IT Support Resources	100,000
	Total	950,000

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	444,000	317,000
		06	444,000	317,000
		07	445,000	317,000
	CMDHB	05	444,000	317,000
		06	444,000	317,000
		07	445,000	317,000
	WDHB	05		
		06	667,000	317,000
		07	667,000	317,000

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	High
		Dependencies/3rd parties	Med
	Magnitude	Process Change	Med
		Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	Low
Contribution to Financial Performance	Med

6.1.3. <u>**Chronic Care Management**</u>

Funding Envelope	Patient and Clinical Systems

Overview	Implement and enhance a consistent and integrated regional chronic care management solution incorporating clinical decision support tools and allowing people to access their own information.

Background	One of the consequences of advances in medical science and technology is that people are now living longer. Changing mortality patterns mean that people aged 65 and over constitute an increasingly large number and proportion of the population. Today, this age group accounts for approximately one in eight persons, or 13 percent of the population. In 2030, when the large baby boom cohort has entered old age, one in five persons are expected to be in this age group. One consequence of the aging of the population is an increase in the incidence and prevalence of chronic conditions.
	Chronic conditions, defined as illnesses that last longer than 3 months and are not self-limiting, are now the leading cause of illness, disability, and death. About 44 percent of those with a chronic illness have more than one such condition, and the likelihood of having two or more chronic conditions increases steadily with age.
	Unlike much acute episodic care, effective care of the chronically ill is a collaborative process, involving

- the definition of clinical problems in terms that both patients and providers understand

- joint development of a care plan with goals, targets, and implementation strategies

- a wide variety of health care practitioners over a sustained period of time

- provision of self-management training and support services

- active, sustained follow-up using visits, telephone calls, e-mail, and Web-based monitoring and decision support programs.

The Chronic Care Management (CCM) system implemented at CMDHB on the Integrated Care Server (ICS) comprises the integration of the Orion *Soprano* Clinical Workflow (SCF) system and Enigma *Predict* risk assessment and decision support system. While *Predict* is used specifically for assessment and decision support, the ICS provides more longitudinal patient management, and is a tool for assisting the establishment of people on medical therapy according to guidelines.

By September 2003, 30 GP practices and Middlemore hospital emergency care were connected. Four diseases were being managed: diabetes, CVD, CHF and COPD. *Predict* was in use for CVD only.

Drivers	Chronic Care Management is recognised as a priority by each of the three DHBs. Programmes are being put in place to reduce the incidence and impact of diabetes, cardiovascular and respiratory diseases by ensuring care that is more effective for people with those diseases.

The aim is to develop an integrated system of healthcare by

- reducing barriers to access to primary and specialist care

- enhancing health promotion and prevention and informed lifestyle choices

- developing models for delivering a continuum of care

- working with Maori to develop a range of health and disability support services

This requires consistent use of information to identify and effectively monitor people and families with high risk factors for specific disease states to provide appropriate advice and treatment.

Deliverables Consistent integrated Chronic Care Management solution incorporating clinical decision support tools implemented across the region.

Scope Implement and improve the Integrated Care Server (ICS) programmes (*Kidslink* Well Child and immunisation, National Immunisation Register System, Chronic Care Management, Acute Demand Management, Care Coordination) as a regional integrated system networked to Community and Ambulatory, Primary health care and Secondary providers:

- complete the integration of *Predict* into the Chronic Care Management System (CCM) for clinical decision support

- complete the rollout of CCM at CMDHB PHOs

- begin implementation of CCM at WDHB PHOs and ADHB PHOs

- extend the *Predict* concepts to provide primary assessment for 5 other conditions

- include *Terranova* pregnancy screening for diabetes in ICS workflow

- extend the *ICS* functionality to deliver and implement a regional integrated system for enabling the information requirements of the Care Plus programme and for the elderly.

Collaboration with the Ministry on of Health on the CPAC scoring/"CABG" project, with priority given to CVD and diabetes.

Completing the integration of Chronic Care patient information with Secondary and Primary Health Care providers.

Patient facing systems – people interacting with their care plans.

Business Process Change	- Care coordination between Secondary, Primary, and Community - Shift of care delivery from Secondary to Primary and Community
Implementation Resource Requirements	- Implementation Resources 2.0 FTE (PM + analyst) - Software Development - Clinical support resource to liaise with GPs 1.0 FTE
Incremental Operational Resource Requirements	- Clinical support resource to liaise with GPs 1.5 FTE regionally - IT support resource 1.0 FTE regionally
Linkages to other Key Projects	Clinical Data Repository
Benefits	- Supports a Population Health view - Community and people focused - Provides access to best-practice decision support to improve quality of care - Reduction in acute admissions - Provides connections between health and non-health agencies - Structured information exchanged as people move around the system - Co-operation among clinicians through sharing of information in a structured, useable form - Improved chronic disease rates

| **Issues** | · Confusion over the role and purpose of CCM and the business process change required |
| | · Other programmes such as *Prompt* erroneously perceived as an alternative to CCM and implemented in preference to CCM |

Capital Cost Estimates		
	· Software Licenses	100,000
	· Implementation Resources	190,000
	· Software/Development	540,000
	· Server Hardware	50,000
	· Project Overheads	20,000
	· Further integration	500,000
	Total	1,400,000

Incremental Operational Cost Estimates **(excludes depreciation)**		
	· Software/hardware Maintenance	238,000
	· Business Support Resources	75,000
	· IT Support Resources	70,000
	Total	383,000

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	167,000	127,667
		06	300,000	127,667
		07	0	127,667
	CMDHB	05	167,000	127,667
		06	300,000	127,667
		07	0	127,667
	WDHB	05	166,000	127,667
		06	300,000	127,667
		07	0	127,667

Risk Assessment			*Level of Risk*
	Complexity	Lack of Project Definition	Med
		Dependencies/3rd parties	High
	Magnitude	Process Change	Med
		Business Resources	Med

Value Assessment		*Level of Value*

Ranking within Priority Objectives	High
Contribution to Health Outcomes	High
Contribution to Financial Performance	Med

6.1.4. <u>Clinical Audit</u>

Funding Envelope	Patient and Clinical Systems
Overview	Implement tools to support Clinical Audit, including providing access to patient records, capturing additional clinical information, and reporting on clinical outcomes and the effectiveness of clinical processes.
Background	Clinical Audit is an essential component of the quality assurance process and is an activity in which all clinicians should participate. Standardised tools for Clinical Audit promote consistency and ease of use for clinicians. This encourages sharing of knowledge and results, to improve quality of care and patient satisfaction across the continuum of care. Clinical Audit tools will also allow clinicians and managers to measure, track and report incidents and adverse events in a regionally consistent manner. This will contribute to continuous improvement of clinical outcomes by providing regional benchmarking and comparison.
Drivers	DHB senior management wish to develop a culture of transparency and openness ('no blame' and 'no fear'), and support health professionals to demonstrate leadership in setting standards, to value innovation and excellence, and to be credentialed for their areas of competence.
	There is a requirement therefore for a health system where all provider organisations
	• meet statutory and accreditation requirements
	• develop quality improvement plans
	• set quality targets, and are recognised for their achievement.
	Information services can support these drivers by developing and maintaining quality audit, evaluation and monitoring systems.
Deliverables	Clinical Audit Tools and processes providing information about treatment and outcomes to provide evidence of best practice.
Scope	Implement tools to support clinical audit, providing access to patient records and reporting on the effectiveness of clinical outcomes.
	Develop and implement systems to
	• achieve Certification

	• support compliance with quality improvement plans, accreditation and credentialling standards, and quality audit, evaluation and monitoring	
	• mitigate risk.	
Business Process Change	• Capture more data	
	• Process to evaluate and act on reports	
	• Process to inform the guidelines	
Implementation Resource Requirements	• Software search and select	
	• New hardware	
	• Implementation Resources (Project Manager + 0.5 FTE IS Analyst + 0.2 FTE Clinical Analyst for 6 months)	
Incremental Operational Resource Requirements	• 1.5 FTE Clinical Audit administrator regionally	
	• 0.3 FTE Information Services support regionally	
Linkages to other Key Projects	• Clinical Data Repository	
	• Clinical guidelines	
	• Disease management	
Benefits	• Patient care is based on continuous quality improvement	
	• Better co-operation among clinicians by sharing of knowledge and transparency of actions and outcome	
	• Evidence based decision-making	
	• Improved health outcomes	
	• Potential cost savings from replacement of existing systems	
Issues	• Selection and implementation of tools must be driven by a change and standardisation in business process	
	• WDHB has selected an Orion solution and will implement in 03-04	
	• Clinician buy-in may be difficult to achieve	
Capital Cost Estimates	• Software Licenses	100,000
	• Implementation Resources	60,000
	• Software/Development	100,000

• Server Hardware		50,000
• Project Overheads		20,000
Total		330,000

Incremental Operational Cost Estimates **(excludes depreciation)**	• Software/hardware Maintenance	40,000
	• Business Support Resources	75,000
	• IT Support Resources	25,000
	Total	140,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	110,000	47,000
		06	0	47,000
		07	0	47,000
	CMDHB	05	0	0
		06	0	0
		07	110,000	47,000
	WDHB	05	110,000	47,000
		06	0	47,000
		07	0	47,000

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	Med
Magnitude	Process Change	High
	Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	Low
Contribution to Health Outcomes	Med
Contribution to Financial Performance	Low

6.1.5. **Clinical Data Repository and Clinical Notes**

Funding Envelope	Patient and Clinical Systems
Overview	Develop and publish a regional Clinical Data Repository architecture that will allow logical integration of patient records and clinical images. Implement in stages to enable delivery of Key Projects such as Chronic Care Management, Mental Health, and Community, Ambulatory and Disability systems.
	Implement a standard Clinical Notes (clinical forms & database solution) to allow clinicians to capture specific clinical data, integrated with Patient Administration, Clinical Data Repository, and Concerto
Background	Data is currently held in a number of different repositories, and the number of repositories has been dramatically increasing over recent years. CMDHB alone estimates that its data is held in over 200 different applications.
	Maintaining multiple repositories is expensive and ineffective; furthermore, it precludes privacy and patient access to information. Some Practice Management Systems already operate based on a Clinical Data Repository within the PMS.
	The concept of a single Clinical Data Repository exposed through a Health Information Portal for New Zealand was widely debated during the course of the WAVE project, and was abandoned in favour of increased information sharing between multiple Clinical Data Repositories using improved messaging systems such as XML.
	The Clinical Data Repository discussed herein is not a new data store; rather, it is an interface allowing access to existing data in various stores. The integrated Clinical Data Repository will logically combine the many disparate databases, and will be linked to a Data Warehouse to provide the KPI reporting required to measure Population Health status gains and to manage the priority targeting of limited resources. IT infrastructure will be rationalised to provide more cost efficient IT operations.
	The Clinical Data Repository is a crucial component required to implement Health Event Summaries and e-Referrals.
Drivers	Each DHB recognises the importance of integrating service delivery between Primary Health Care, Secondary care, and Community services. Effective sharing of information is essential to providing people with continuums of care.
	The WAVE Report encourages hospitals to implement clinical data repositories or an integrated clinical interface within three years.

Deliverables	• Define architecture for a logical CDR taking into account existing and future data stores
	• Define key APIs for storing and retrieving records; provide a generic "broker" service to store and access information
	• Make modifications to existing data stores to meet the architecture requirements
	• Develop the components of CDR necessary to enable care coordination and Disease Management
	• Provide a Clinical Image storage solution
	• Provide a Clinical Notes solution
	• Provide an Admission to Discharge Planner solution
Scope	Secondary, and integration with Primary and Community through Health Event Summaries and the extended Clinical Workstation.
	Provide all outpatient, inpatient, and investigative event summaries to people's Primary caregivers and allow them access to event details held in Secondary systems.
	Provide secure access to the CDR for people to access their own "Patient Health Summaries" (subset of Health Event Summaries).
	Extend the *Éclair* regional laboratory result reporting system to provide accredited Primary, Secondary and Tertiary caregiver access to
	• all Auckland region DHB laboratory and radiology test results reports
	• all community and private laboratory and radiology test results reports.
	Hold all structured clinical results, observations, and images, including access to clinical photographic and other images e.g. ECGs, Holter Tests. Include an index to those components of the patient record that are held on paper.
	Implement electronic capture of non-clinical documents from other organisations (DHBs, specialists) and store them in the Clinical Data Repository.
	Implement further messages for GPs such as radiology results, outpatient clinics, and other inpatient notes.
	Extend the Clinical Data Repository to enable the selective replacement of the paper patient record with electronic information.
	Identify potential data stores for documents that are not currently stored electronically.

Business Process Change	• Ability to make care decisions from a longitudinal patient view and to hand over care to other caregivers in a coordinated fashion
	• Storage of information in a shared environment so that it may be exchanged with multiple parties involved in a person's care
Implementation Resource Requirements	• Systems architect consultant
	• Technical analysts
	• Developer
	• Project manager
	• Clinical champion
	• Project analyst
	• DBA
	• Report developer
Incremental Operational Resource Requirements	• DBA 1.0 FTE regionally
	• 1.0 FTE Report developer regionally
	• Functional applications support 2.0 FTE regionally
	• No additional business resources (system will directly support clinicians and will expect their direct personal involvement – the same effort as currently put in to departmental databases)
Linkages to other Key Projects	• Clinical Workstation
	• Clinical Audit
	• Community and Disability
	• Disease Management
	• eReferrals
	• Health Event Summary
	• Order Entry
	• Privacy and Security
Benefits	• Community and people focused; selected information available and recorded in the community setting through the Community system linkage
	• Connections between health and non-health agencies
	• Building a longitudinal patient record
	• Structured information exchanged as people move around the system
	• Coded information in the repository can be used to

drive decision support and ensure decision-making is evidence based

- Improved patient privacy because of the ability to secure a single repository more easily than a multitude of applications

- Reduction in the number of investigations ordered when recent relevant results are available

- Co-operation among clinicians through sharing of information in a structured, useable form

- Reduced acute admissions

- Reduced duplicate tests

- Improved chronic disease rates

- Potential cost savings from replacement of existing systems

Issues	
	• Lack of understanding of the potentially complementary relationships between existing data stores
	• Need to research, prototype, and design, various user-interface techniques to ensure that the technology is fast and intuitive for a wide range of clinical use
	• Need to research various business processes to ensure point of care capture of information rather than transcribing information captured by other means

Capital Cost Estimates		
	• Architecture and Design	400,000
	• Software Licenses	200,000
	• Implementation Resources	1,100,000
	• Software/Development	1,100,000
	• Server Hardware	150,000
	• Project Overheads	50,000
	Total	3,000,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	210,000
	• Business Support Resources	0
	• IT Support Resources	280,000
	Total	490,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost

ADHB	05	333,000	163,000
	06	333,000	163,000
	07	334,000	163,000
CMDHB	05	333,000	163,000
	06	333,000	163,000
	07	334,000	163,000
WDHB	05	333,000	163,000
	06	333,000	163,000
	07	334,000	163,000

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	High
	Dependencies/3rd parties	Med
Magnitude	Process Change	Low
	Business Resources	Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	High
Contribution to Financial Performance	High

6.1.6. Clinical Reference Texts (Primary Health Care Access)

Funding Envelope	Patient and Clinical Systems
Overview	Acquire regional access rights to online reference texts (e.g. *MDConsult, Clinical Evidence, Medline*) and make them available to Primary Health Care, Secondary Health, and Community/NGO clinicians.
Background	Hospital Clinicians have had the benefit of access to a number of subscribed electronic journals and reference texts because of the purchasing power of the hospital. Historically these have not been available to Primary Health Care clinicians.
	There is an opportunity to leverage the combined purchasing power of the three DHBs to make these reference works available to Primary Health Care clinicians.
Drivers	The DHBs are committed to improving the quality and safety of health care services through
	• multidisciplinary teams
	• holistic practice
	• client centred care
	• improved communication and integration
	• evidence based guidelines
	• community consultation.
	Making access to evidence-based best practice material available to all clinicians involved in a person's care will contribute to this goal.
Deliverables	Regional access rights to online reference texts.
Scope	Portal development for access by Primary Health Care clinicians.
Business Process Change	Nil
Implementation Resource Requirements	• Contract negotiator 0.1 FTE
	• Portal developer, set up connectivity (extranet) 0.4 FTE

Nil

Linkages to other Key Projects	Service Directory.		

Benefits	• Contribution to evidence-based decision making
	• Primary Health Care clinicians have better access to up to date information

Issues	• Funding and payment of subscription fees
	• Willingness of content providers to negotiate terms

Capital Cost Estimates	• Non IT Costs (reference fees)	100,000
	• Implementation Resources	20,000
	• Software/Development	0
	• Server Hardware	0
	• Project Overheads	5,000
	Total	125,000

Incremental Operational Cost Estimates	• Software/hardware Maintenance	20,000
	• Business Support Resources	0
(excludes depreciation)	• IT Support Resources	0
	Total	20,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	42,000	7,000
		06	0	7,000
		07	0	7,000
	CMDHB	05	42,000	7,000
		06	0	7,000
		07	0	7,000
	WDHB	05	0	0
		06	41,000	7,000

		07	0	7,000

Risk Assessment

			Level of Risk
Complexity	Lack of Project Definition		Low
	Dependencies/3rd parties		Low
Magnitude	Process Change		Low
	Business Resources		Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	Low
Contribution to Health Outcomes	Low
Contribution to Financial Performance	Low

6.1.7. **Clinical Workstation**

Funding Envelope	Patient and Clinical Systems
Overview	Extend the scope and use of the Concerto clinical workstation to provide secure and seamless access to clinical information. Ensure access at point of care including mobile and bedside.
Background	The three DHBs have used the Concerto clinical workstation to provide relatively seamless access to patient information from multiple applications within the hospitals. This single interface to multiple best of breed systems approach has increased acceptance of technology while reducing training costs.
	This technology can now be extended along two dimensions: increasing the range of information that is presented (CDR project) within the clinical workstation and extending the range and number of clinicians able to access information through the workstation.
	Both these extensions require increased use of the security features within Concerto and an increased focus on using the workstation from mobile technology.
	CMDHB have allowed Primary Health Care access to patient information through the Clinical Workstation, subject to certain security constraints.
Drivers	The DHBs wish to improve integration and interaction between sectors and across disciplines. One contribution to achieving this is to make relevant patient information readily available at point of care. This includes exposing details of health events in the Secondary sector to clinicians in the Primary Health Care sector.
Deliverables	- Mobile Clinical Workstation - Access to Clinical Data Repository and Health Event Summaries for Primary Health Care - Extend the reach of the current CWS by adding access to existing systems
Scope	Provide desktop, mobile, and remote access devices to meet clinical and business needs within funding limitations and subject to appropriate security constraints.
Business Process Change	Access to electronic information rather than paper.

Implementation Resource Requirements	• Vendor software development • Project analyst 0.5 FTE • Project management 0.5 FTE
Incremental Operational Resource Requirements	• Business nil • Information Services support 0.2 FTE
Linkages to other Key Projects	• Clinical Data Repository • Order Entry • e-Prescribing
Benefits	• Seamless access for clinicians to information held in multiple systems • Ability to connect to other health and non-health agencies
Issues	Privacy concerns.

Capital Cost Estimates		
	• Software Licenses	0
	• Implementation Resources	70,000
	• Software/Development	250,000
	• Server Hardware	0
	• Project Overheads	5,000
	Total	325,000

Incremental Operational Cost Estimates **(excludes depreciation)**		
	• Software/hardware Maintenance	50,000
	• Business Support Resources	0
	• IT Support Resources	14,000
	Total	64,000

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	108,000	21,000
		06	0	21,000
		07	0	21,000
	CMDHB	05	108,000	21,000
		06	0	21,000

WDHB	07	0	21,000
	05	109,000	21,000
	06	0	21,000
	07	0	21,000

Risk Assessment

			Level of Risk
Complexity	Lack of Project Definition		Low
	Dependencies/3rd parties		Low
Magnitude	Process Change		Low
	Business Resources		Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	Med
Contribution to Financial Performance	Low

6.1.8. Community, Ambulatory, and Disability Support

Funding Envelope	Patient and Clinical Systems
Overview	Implement a regionally integrated Community, Ambulatory and Disability Support system, optimising coordination and integration wherever possible.
	Support a mobile workforce providing community-based care to all age groups across the continuum, with an emphasis on children, the elderly and other high risk/disadvantaged populations.
Background	Care delivery outside the Primary or Secondary Health Care environments involves many different carers, organisations, and models of delivery. Complexity, co-ordination, and integration of care and information sharing are thus significant issues. Community and Ambulatory information systems are those that bridge the gaps between Primary and Secondary systems.
	The workforce in this sector is unique in that there are a large number of untrained health care workers delivering care alongside registered practitioners. This creates unique workforce development and integration demands.
	Who delivers part or all of the care to these clients, and who is the case manager/primary health care worker become issues with the emergence of PHOs and the rationalisation of the provision of Secondary care services. It is highly unlikely that one information services model will fit all providers, so flexibility of support systems is the number one issue to address. The success of the Diabetes project at CMDHB has shown that systems can successfully sit in the middle of traditional secondary and primary systems. Having support systems able to provide a flexible platform for care delivery is vital to overall success.
Drivers	The vision of a new direction for health care places greater emphasis on the role of the community and the involvement of a wide range of multidisciplinary professionals. The requirement is to strengthen support services to meet the increased need for community-based care, in particular to manage information sharing and coordination between community-based carers.
Deliverables	Community Care Coordination System

Scope	• Confirm Community Care Co-Ordination system requirements
	• Measure the match of the two existing systems (*HCC* & *PiMS/SDM*) to the business requirements of Community Health, Mental Health, Disability Support, and Sexual Health services; select and implement a single regional solution
	• Provide Community and Ambulatory Services (e.g. District Nurses) with tools to provide Primary health care clinicians with electronic notes about services provided to the clinician's patients
	• Support the development and implementation of standards that allow Primary health care clinicians to refer people electronically to Community and Ambulatory services, particularly District Nursing
Business Process Change	A new way of providing services to clients based on a shared care plan, which coordinates multiple caregivers.
Implementation Resource Requirements	• Research & Design mobile technology
	• Software
	• Software Development
	• Hardware
	• Implementation Resources
	• Project analysis
	• Project mgr
	• Training
Incremental Operational Resource Requirements	• Business/clinical administrator 3.0 FTE regionally
	• IT support 2.0 FTE regionally
Linkages to other Key Projects	• Clinical Data Repository
	• Mental Health
Benefits	• Provides the means for clinicians in unrelated organisations to share patient information
	• Allows coordination of care between Primary, Secondary, and Community
	• Some cost saving from more efficient scheduling of resources

Issues	
	• Disagreement over service ownership between Secondary and PHOs risks impacting business process change
	• ADHB have an established system (HCC) WDHB has implemented a similar (but different) system (CCS). A decision needs to be made on the way forward
	• HCC is more functionally rich than CCS, but CCS is available on a more modern technology platform. Since WDHB's study and selection of CCS, ADHB have committed to upgrading HCC to a modern platform – this may be sufficient to cause WDHB to reassess its decision

Capital Cost Estimates		
	• Research & Prototype	200,000
	• Software Licenses	150,000
	• Implementation Resources	250,000
	• Software/Development	200,000
	• Server Hardware	75,000
	• Other Hardware	450,000
	• Project Overheads	25,000
	Note if this project requires ADHB to replace HCC then it will require an additional 1M	
	Total	1,350,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	375,000
	• Business Support Resources	150,000
	• IT Support Resources	140,000
	Total	665,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0
		06	1,000,000	222,000
		07	0	222,000
	WDHB	05	350,000	222,000
		06	0	222,000

07	0	222,000

Risk Assessment

			Level of Risk
Complexity	Lack of Project Definition		Low
	Dependencies/3rd parties		Med
Magnitude	Process Change		High
	Business Resources		Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	High
Contribution to Financial Performance	High

6.1.9. e-Prescribing

Funding Envelope	Patient and Clinical Systems
Overview	Implement an e-Prescribing system that delivers the right medication to people, reduces medication errors and the overall cost of pharmaceuticals.
Background	The flow of medication order data from clinicians to Pharmacies is currently based on printed forms, physically transported (often by patients), and manually entered into Pharmacy Information Systems. Information on the medications actually dispensed is stored in the Pharmacy Information Systems but is not returned to the clinician.
	There is virtually no integration of Medicine information between Primary and Secondary sectors.
	The implementation of an e-Prescribing system will use IT to provide electronic ordering system, decision support alerts and advice to clinicians, all of which can help to avoid incidents and adverse events such as drug allergies, drug conflicts and reduce overall pharmaceutical costs.
Drivers	The drive for improved quality and safety of care, combined with that for decreasing waste, together suggest a need for systems to support effective, efficient, and safe drug use throughout the prescribing process.
Deliverables	An e-Prescribing system that is intuitive and user-friendly for clinicians.
Scope	• Select and effectively implement an e-Prescribing system building on previous completed proof of concept work (completed in 2002 at CMDHB) to improve patient safety, reduce medication errors and reduce cost of wasted pharmaceuticals through duplicate ordering and lack of information sharing across the sector
	• Ensure that e-Prescribing is linked to CPOE for radiology, pharmacy and other allied health ordering by clinicians
	• Ensure that e-Prescribing contributes Health Event Summaries to the regional Clinical Data Repository
	• Examine the feasibility of implementing electronic (or barcoded) Primary health care prescriptions, and electronic processing by pharmacists which inform prescribers that the drugs have been collected

	• Collaborate with the Ministry of Health to provide Primary health care clinicians with access to adverse reactions data as maintained and provided by the NHI Medical Warning System (and currently available to hospital-based I.T. systems)
Business Process Change	• Use of electronic information and tools • Nurse ordering and administration of drugs • Clinicians acting on decision support advice
Implementation Resource Requirements	• Define requirements and examine options • Select Software • New Hardware • Implementation Resources (Clinical Project manager, champion, analysts; Information Services Project Manager, analysts, technical and support)
Incremental Operational Resource Requirements	• Clinical administrator 1.0 FTE over region • Information Services support 1.0 FTE region
Linkages to other Key Projects	• Order Entry • Health Event Summaries • The MINISTRY OF HEALTH e-Laboratory and e-Pharmacy projects • CMDHB and Otago DHB proof of concept work
Benefits	• Clinician efficiency (doctors, nurses and pharmacists) • Improved tracking of pharmaceutical ordering • Reduce pharmaceutical spend and improve information exchange and reporting between prescribers and dispensers (combined with e-decision support) to reduce waste and improve utilisation of pharmacy resources • Decision making is evidence based • Medication information available at admission and discharge/referral • Medication information and strategy available at admission and discharge/referral • Potential cost savings through reduced adverse drug events and reduced waste

Issues	
	• Lessons from Counties Manukau and Otago Projects
	• Software development and costs
	• Linkages to existing systems
	• Clinician acceptance and buy in
	• Lack of legislation to support electronic signatures for e-Prescribing
	• Potential to reduce costs (circa 1,000,000) through partnership with Health Innovations ICT Research Consortium -costing assumes this, so software development costs have been reduced

Capital Cost Estimates		
	• Requirements definition	50,000
	• Software Licenses	400,000
	• Implementation Resources	400,000
	• Software/Development	1,000,000
	• Server Hardware	100,000
	• Other hardware	900,000
	• Project Overheads	150,000
	Total	3,000,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	480,000
	• Business Support Resources	50,000
	• IT Support Resources	70,000
	Total	600,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	1,000,000	200,000
		06	0	200,000
		07	0	200,000
	CMDHB	05	0	0
		06	1,000,000	200,000
		07	0	200,000
	WDHB	05	0	0
		06	0	0
		07	1,000,000	200,000

Risk Assessment

Level of Risk

	Complexity	Lack of Project Definition	Med
		Dependencies/3rd parties	Med
	Magnitude	Process Change	High
		Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	High
Contribution to Financial Performance	High

6.1.10.e-Referrals

Funding Envelope	Patient and Clinical Systems
Overview	Implement a regional electronic referrals solution (for both internal & external referrals), including decision support features, Waiting List status updates, and online booking for First Specialist Assessment.
Background	CMDHB has developed a primitive electronic referrals system that will receive and acknowledge Electronic Referral messages, then format and print them. CMDHB and WDHB have the ability to send electronic acknowledgment of referrals back to providers.
	The plans are to follow this initial implementation with increasing levels of sophistication. The next phase is being undertaken as a joint project with Ministry of Health. It will involve referral templates for multiple elective conditions, routed to the *Predict* decision support engine, which has been populated with assessment criteria for these conditions, based on national guidelines but edited by local clinicians to suit local conditions. Based on assessment of the referral, providers will be given treatment advice and/or confirmation of acceptance of the referral.
	Beyond this will be a further phase where referrals that meet the assessment criteria within *Predict* are offered appointments or a choice of appointments.
Drivers	Electronic requests for assistance, referrals, consultation advice, and discharge communications are seen by the DHBs as enablers of integration between Primary Health Care, Community and Ambulatory, and Secondary care providers. Such integration is necessary to manage acute demand, and to serve people with high and complex needs effectively. There is a need to achieve the national minimum standards of a maximum six-month waiting time for First Specialist Assessment and a maximum six-month waiting time for operation for high priority procedures.
	The WAVE report recommends that DHBs should implement connectivity between hospital and other providers, including electronic exchange of Referral Letters and Discharge Summaries and other useful information (e.g. emergency department attendance notifications), within two years.

Deliverables	• Joint CMDHB/Lakes DHB/Ministry of Health Project covering five elective conditions completed by 31 July 2004
	• Generic e-Referral template with processes for entry of decision support rules
Scope	• Implement a regional e-Referral process between Primary Health Care providers and Secondary services, which includes decision support features, waiting list status updates, and online booking for First Specialist Assessments
	• Develop integrated systems and processes for management of specialist referrals, and hospital discharges and follow-up e.g. simplify and automate referral and acknowledgement standards and processes, provide electives scoring results and referring advice and guidance electronically
	• Complete the electronic decision support and electronic referral pilot project for elective services at CMDHB in partnership with the Ministry of Health and Procare, and explore the possibility of rolling out a regional implementation of electronic referral and electronic decision support for all services to all three DHBs and most regional PHOs
	• Support the development and implementation of standards that allow Primary Health Care clinicians to refer people electronically to Community and Ambulatory services, particularly District Nursing
	• Develop and implement an internal Secondary care referrals system
	• Select and implement a regional elective surgery scoring system
Business Process Change	• Onus for data quality moves to the referrer
	• Development and use of referral guidelines for different services
	• Development and use of decision support rules
Implementation Resource Requirements	• Research & Prototype - CDA (HL7 v3 XML) Message constructs
	• Software (Practice Management Systems, Clinical Data Repository, Health Event Summary Database, *Predict* Decision support, Service Directory)
	• Software Development
	• Implementation Resources (Primary and Secondary)

Incremental Operational Resource Requirements	• Business (clinical) support 1.0 FTE per DHB • IT support 1.0 FTE regionally	
Linkages to other Key Projects	• Health Event Summaries (electronic referrals are Health Event Summaries) • Clinical Data Repository • Service Directory • Order Entry	
Benefits	• Improved timeliness of sending/receiving referrals • Reduction of lost referrals and duplicated information • Legible referrals • Improved reporting timeliness and accuracy regarding FSAs and other DHB/Ministry of Health requirements • Information available for people regarding their referral status • Efficiency gains from reduction in paperwork and time saving	
Issues	• An assumption is that *PiMS* will be adopted by ADHB and will thus become the regional Patient Management System • *PiMS* ability to support a regional instance • Degree to which Auckland regional DHB requirements align with Ministry of Health requirements.	
Capital Cost Estimates	• Research & Prototype • Software Licenses • Implementation Resources • Software/Development • Server Hardware • Project Overheads ***Total***	100,000 100,000 300,000 400,000 50,000 50,000 1,000,000
Incremental Operational Cost Estimates (excludes depreciation)	• Software/hardware Maintenance • Business Support Resources • IT Support Resources	110,000 150,000 75,000

Total				335,000

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	333,000	112,000
		06	0	112,000
		07	0	112,000
	CMDHB	05	333,000	112,000
		06	0	112,000
		07	0	112,000
	WDHB	05	0	0
		06	333,000	112,000
		07	0	112,000

Risk Assessment

			Level of Risk
Complexity	Lack of Project Definition		Low
	Dependencies/3rd parties		Med
Magnitude	Process Change		Med
	Business Resources		Med

Value Assessment

		Level of Value
Ranking within Priority Objectives		High
Contribution to Health Outcomes		High
Contribution to Financial Performance		High

6.1.11. Health Event Summaries

Funding Envelope	Patient and Clinical Systems

Overview	Implement a regional repository of all clinical Health Event Summaries (including discharge summaries) across Primary, Community, outpatient, and inpatient care. Allow clinicians and patients to access relevant information.

Background	A large amount of information is gathered during the course of an episode of care. It is inappropriate for all this information to be shared as the costs and risks of too much information are significant. Furthermore, people have the right to elect that certain information is not shared.
	This issue was widely discussed during WAVE in the Electronic Health Records Workstream, and the concept of a Health Event Summary database (HES) was proposed. It does not include information for which the patient has exercised their rights to privacy and generally only contains a subset of the clinical observations, which are perceived to be relevant going forward.
	All HESs for DHB patients will reside in a single HES database. Any provider who has responsibility of care for a patient will have the ability to access to all of the information within the HES database. Information will be grouped into clinical units and individual access to each clinical unit of information by a provider will be logged so that patients and other providers will be able to see who has accessed what part of a record.
	Secondary Care services are increasingly aware of the value of HESs from experience with Electronic Discharge Summaries, where hospital staff benefit from having information readily available if a patient re-presents. What is lacking is population of the HES with information from both Primary and Community workers. Much of this information can be populated from information accompanying electronic referrals, however to provide an accurate picture of episodes of care, it will require Primary Health Care to adopt the philosophy of discharge summaries. It is not expected that this will be accomplished with the timeframe contemplated by this document.
	Unlike many Primary Health Care systems, the HES database will be available 24x7.

Drivers	Service delivery must have a strong focus on the person, so that service provision is well integrated, co-ordinated and culturally appropriate. "Continuums of care" are being developed to ensure that there is a link between Primary Health Care, Secondary, and Tertiary services. Electronic requests for assistance, referrals, consultation advice, and discharge communications are seen as enablers of integration.
Deliverables	Regional repository of all clinical health event summaries
Scope	• Implement a HES Database in accordance with the recommendations of the WAVE Report, recognising the work of the WAVE EHR workstream • Provide all outpatient, inpatient, and investigative event summaries to people's Primary caregivers and allow them access to event details held in Secondary systems • Define, develop, and implement further Health Event Summaries such as inpatient and outpatient clinical notes, specialist reports, problem lists, medications, allergies • Allow secure Web-based access by people to their own Patient Health Summaries
Business Process Change	• Defining the Health Event Summaries • Processes to create Health Event Summaries and provide secure access to them by Primary and Secondary caregivers
Implementation Resource Requirements	• Clinical analyst • Technical analyst • Project manager • DBA • Application support • Technical support
Incremental Operational Resource Requirements	• Clinical Administration 0.2 FTEs per DHB • Information Services support 0.2 FTE per DBA plus 0.2 FTE other support regionally
Linkages to other Key Projects	• Clinical Data Repository • e-Referrals

Benefits	
	• Better co-operation among clinicians by sharing of knowledge and transparency of actions and outcome
	• Community and people focused; selected information available and recorded in the community setting through the Community system linkage
	• Connections between health and non-health agencies
	• Building a longitudinal patient record
	• Structured information exchanged as person moves around the system
	• Reduction in the number of investigations ordered when recent relevant results are available

Issues	Privacy concerns around primary care access

Capital Cost Estimates		
	• Software Licenses	50,000
	• Implementation Resources	150,000
	• Software/Development	520,000
	• Server Hardware	25,000
	• Project Overheads	5,000
	Total	750,000

Incremental Operational Cost Estimates **(excludes depreciation)**		
	• Software/hardware Maintenance	119,000
	• Business Support Resources	30,000
	• IT Support Resources	28,000
	Total	177,000

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	250,000	59,000
		06	0	59,000
		07	0	59,000
	CMDHB	05	250,000	59,000
		06	0	59,000
		07	0	59,000
	WDHB	05	0	0
		06	250,000	59,000
		07	0	59,000

Risk Assessment

Level of Risk

Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	Low
Magnitude	Process Change	Low
	Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	High
Contribution to Financial Performance	High

6.1.12.<u>**HRMS and Payroll**</u>

Funding Envelope	Business Systems
Overview	Complete the CMDHB and WDHB implementations, and implement the *Leader* HRMS & Payroll system including self-service kiosk at ADHB.
Background	At present all three DHB use the *Oracle* set of products to support the Finance and Materials Management Functions. Originally all three also had the intention to extend this *Oracle* implementation to include HRMS and Payroll.
	The initial implementation of *Oracle Payroll* in WDHB showed that the product did not meet the complex requirements associated with a DHB payroll and as a result, the implementation was not completed. Instead, the existing *Leader* Payroll solution was maintained and enhanced.
	Since then CMDHB and WDHB have adopted a strategy to implement/upgrade the *Leader* HR and Payroll solution. These implementations are well underway.
	Based on the WDHB experience, ADHB have also revised their business solutions strategy to ensure the DHBs move to a consistent regional solution. As a result, ADHB are currently developing a business case for the implementation of the *Leader* HR and Payroll solution.
	ADHB are also developing a business case for the implementation of an online learning and assessment capability. This will allow staff to freely access training materials and when appropriate complete online assessments.
Drivers	DHBs are expected to build and maintain capability, particularly in terms of human resources, organisational systems and processes, responsiveness and managing relationships with providers.
Deliverables	• *Leader* HRMS, Payroll, Time and Attendance and Kiosk self service implementations completed in WDHB and CMDHB
	• *Leader* HRMS, Payroll and Time and Attendance and Kiosk self service functionality implemented at ADHB
	• A scalable online learning and assessment capability implemented at ADHB
	• Online learning and assessment capability extended to support the region

Scope	- Complete the *Leader* HRMS, Payroll, Time & Attendance and Kiosk self-service implementations in WDHB and CMDHB - Complete the *Leader* HRMS, Payroll and Time & Attendance implementations for ADHB. Implement the Kiosk self-service functionality - Record all staff ethnicity, clinical, cultural, and linguistic competencies - Coverage of all DHB staff; HRMS may be extended to Primary Health Care staff
Business Process Change	Use of electronic rather than manual processes Use of new HR processes e.g. time and attendance effects all staff
Implementation Resource Requirements	- Vendor Software - Vendors Implementation Consulting Services - HR and Payroll Staff - Information Services technical staff
Incremental Operational Resource Requirements	- Business administrator 0.5 FTE per DHB - Information Services support 0.2 FTE regionally
Linkages to other Key Projects	Rostering
Benefits	- Human Resource needs are anticipated - Efficiency gains in HR processes - Attention paid to cultural competence - Potential cost savings through retirement of existing systems, staff cost efficiencies, improved leave management (4.5M annually)
Issues	- Private/Public split concerns over combined Primary/Secondary HR system - Unable to manage RMOs between DHBs if ADHB implement on a separate instance - Ability of the HR Information system to hold cultural competency information - ADHB have budgeted $2.5M in 03/04 year

Capital Cost Estimates		
	• Software Licenses	300,000
	• Implementation Resources	500,000
	• Software/Development	800,000
	• Server Hardware	500,000
	• Project Overheads	1,200,000
	Total	3,300,000

Note that $2.5M was allocated in the 03/04 year for ADHB

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	320,000
	• Business Support Resources	75,000
	• IT Support Resources	14,000
	Total	409,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	800,000	409,000
		06	0	409,000
		07	0	409,000
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	Low
		Dependencies/3rd parties	Med
	Magnitude	Process Change	Med
		Business Resources	Low

Value Assessment

		Level of Value
	Ranking within Priority Objectives	High
	Contribution to Health Outcomes	Low
	Contribution to Financial Performance	High

6.1.13.Management of Assets

Funding Envelope	Business and Clinical Systems
Overview	Select and effectively implement an asset management system, in conjunction with a programme of asset valuation and assessment, to provide for ongoing sustainable replacement of equipment.
Background	The health sector requires a long-term sustainable funding model. The high cost capital assets need to be managed to provide a replacement/enhancement programme to maximise service delivery.
Drivers	Managing a very tight cash flow (with the flow dependent on monthly phasing) including • inflationary pressures • bank risk/covenant containment/renegotiations • capital programme (risk and funding availability) • achieving efficiency objectives built into the financial plan • demand driven expenditure risk exposure • lack of full recognition through revenue of increased depreciation and interest costs • dependency on capital injection(s) for ongoing viability.
Deliverables	Asset Management System
Scope	• Implement an asset management system, which provides for ongoing sustainable replacement of equipment • Applies to Secondary and Tertiary facilities • Potential to provide as a service to Primary Health Care providers
Business Process Change	Automation of existing processes.
Implementation Resource Requirements	• New hardware • Information Services Project Manager plus Analyst for 6 months (1.0 FTE)
Incremental Operational	• Uses existing asset management people

Resource Requirements	• 0.2 FTE Information Services support person regionally

Linkages to other Key Projects	Business Intelligence

Benefits	• Recognising and maximising asset redeployment opportunities
	• Ability to manage cash flow as a result of better asset planning
	• Integration across multiple facilities and ability to exchange assets between DHBS
	• Better financial planning because needs are anticipated
	• Potential cost savings from replacement of existing systems
Issues	• This initiative is not directly linked to health outcomes and financial performance in the short term, but is required to provide a health system that is financially viable in the long term
	• Project definition is not clear

Capital Cost Estimates	• Software Licenses	130,000
	• Implementation Resources	70,000
	• Software/Development	0
	• Server Hardware	50,000
	• Project Overheads	50,000
	Total	300,000

Incremental Operational Cost Estimates	• Software/hardware Maintenance	36,000
	• Business Support Resources	0
(excludes depreciation)	• IT Support Resources	15,000
	Total	51,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	0	0
		07	100,000	17,000
	CMDHB	05	0	0
		06	0	0

	WDHB	07	100,000	17,000
		05	0	0
		06	0	0
		07	100,000	17,000

Risk Assessment

			Level of Risk
Complexity	Lack of Project Definition		High
	Dependencies/3rd parties		Med
Magnitude	Process Change		Low
	Business Resources		Med

**Value
Assessment**

	Level of Value
Ranking within Priority Objectives	Low
Contribution to Health Outcomes	Low
Contribution to Financial Performance	Med

6.1.14.<u>Mental Health</u>

Funding Envelope	Patient and Clinical Systems
Overview	Select and implement a regional Mental Health System. Create a single mental health patient record accessible by patients; coordinate care between Primary Health Care, Community organisations, and Secondary care providers; incorporate clinical decision support tools and support a mobile workforce.
Background	The technology needs of Mental Health Providers are similar to those of community workers and this priority area has traditionally been under serviced by technology support, in part due to the concerns over privacy and access to mental health information.

There is a need to

- develop integrated information systems across mental health and drug and alcohol services to identify people using multiple services, the services they use and outcomes

- obtain meaningful information from current national collections such as MHINC and CCPS and ensure regular, useful reporting of this information (including the intended and actual use of mental health and drug and alcohol funding)

- support national initiatives to establish the prevalence rates of mental disorders among Maori and among Pacific people

- evaluate new and existing models of service delivery seeking evidence of effectiveness

- support national initiatives to develop outcome measures for mental health and develop capacity to measure outcomes at both an individual and service level.

Drivers	The DHBs strategic priorities for Mental Health services in the Auckland region are:

- Improved access to services and equity in access (develop more specialist services, collaboration)

- Improved service quality (develop the workforce, evaluation and monitoring)

- Improved integration between linked services (work regionally, links with primary care to expand services)

- Increased stakeholder participation in planning and service development, including development of mental health networks

- Improved information to guide funding decisions (identify needs and distribution within Auckland, establish use of services, identify prevalence of mental illness for Maori and Pacific people.

Deliverables	Regional Mental Health System

Scope	Complete the planned CMDHB project for IS enablement of care coordination between Primary health care, Secondary, and NGO Mental Health providers, and rollout a regional solution including PHOs.

Implement an interim solution that will allow authorised Mental Health workers to check whether a specific patient (based on use of his/her NHI number only and subject to informed patient consent) is currently being treated by another Mental Health care provider in the region.

Select a regional mental health information system. The selected system will

- preserve the desired functionality of the current investment and build on this basis to provide a complete solution

- integrate appropriately and share relevant information with the core patient and clinical systems used by other services in the DHBs, to create an end-to-end view of the care provided to an individual patient including links to systems within physical health where appropriate

- enable electronic exchange of relevant information with other mental health care providers such as NGOs

- enhance service delivery at the point of care in a consistent manner, irrespective whether the service is provided in the home, the community or the hospital

- meet the needs of a mobile workforce

- provide integral regional reports

- benefit from continuous improvements and enhancements related to ongoing investment of the vendor in the lifecycle of the product

- stay up to date with evolving technology standards

- meet legislative and contractual requirements related to Reporting, the provisioning of data to national data collections (MHINC) and the NZ Health Information Privacy Code.

Business Process Change	Care-coordination between multiple caregivers sharing relevant information while preserving patient confidentiality
Implementation Resource Requirements	- Evaluation Resources - Software Vendor - Software Development - Server Hardware - Other Hardware (Mobile Devices) - Implementation Resources (Clinical Project manager, champion, analysts; Information Services Project Manager, analysts, technical and support)
Incremental Operational Resource Requirements	- Business nil - Information Services support 2.0 FTE regionally
Linkages to other Key Projects	- Community and Disability - Clinical Data Repository - Clinical Workstation - Health Event Summaries
Benefits	- The patient is the source of control - Potential cost saving from retirement of HCC or CCS - Attention paid to cultural competence - Better co-operation among clinicians by sharing of knowledge and transparency of actions and outcome - Community and people focused; selected information available and recorded in the community setting through the Community system linkage - Connections between health and non-health agencies - Building a longitudinal patient record

- Structured information exchanged as people move around the system

Issues	
	• Lack of agreement between DHBs on which system to use as a regional solution
	• Addressing the particular requirements for confidentiality
	• The three Mental Health services may take longer than expected to formulate and implement regional strategies and processes
	• Integration of the regional Mental Health system with patient and clinical systems may be complex and costly

Capital Cost Estimates		
	• Software Licenses	200,000
	• Implementation Resources	450,000
	• Software/Development	1,200,000
	• Server Hardware	100,000
	• Other Hardware	1,000,000
	• Project Overheads	50,000
	Total	3,000,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	500,000
	• Business Support Resources	0
	• IT Support Resources	140,000
	Total	640,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	0	0
		07	1,000,000	213,000
	CMDHB	05	750,000	213,000
		06	250,000	213,000
		07	0	213,000
	WDHB	05	0	213,000
		06	250,000	213,000
		07	750,000	213,000

Risk Assessment

			Level of Risk
Complexity		Lack of Project Definition	Med
		Dependencies/3rd parties	High
Magnitude		Process Change	High
		Business Resources	Med

Value Assessment

		Level of Value
Ranking within Priority Objectives		High
Contribution to Health Outcomes		High
Contribution to Financial Performance		High

6.1.15. <u>**National Immunisation Register**</u>

Funding Envelope	National Projects
Overview	Assist the Ministry of Health to implement the National Immunisation Register (NIR) to support improved immunisation rates and the Meningococcal campaign.
Background	The National Immunisation Register (NIR) is a computerised information system that will hold the immunisation details of NZ children (0-19 years).
	The NIR will support GPs, nurses and vaccinators by providing accurate, accessible data on a child's immunisation history. It will assist health providers in recalling individuals overdue for immunisation and will be a useful tool in reaching children of highly mobile families.
	In terms of coverage, the NIR will be able to provide information on regional and national immunisation rates. Unlike many other countries, New Zealand currently has no way of accurately assessing its immunisation coverage.
	The NIR software will be trialled with CMDHB and WDHB then rolled out on a staged basis throughout New Zealand, working with regional groupings of DHBs.
Drivers	The DHBs support the National Child Health Information Strategy, which incorporates collection, collation, and analysis of data, and includes the NIR.
Deliverables	• Establish an NIR implementation committee and project plan
	• Provide training for local health providers so they can effectively use the NIR
	• Undertake communications about the NIR with local populations, Maori, iwi, Pacific peoples, and other stakeholders
Scope	Collaborate with the Ministry of Health to implement a Meningococcal vaccination system, including the National Immunisation Register System for 0-5's (NIRS) and a school based vaccination system, across the whole Auckland region.
Business Process Change	• Locating and immunising all children
	• Liaison with schools, GPs, and agencies
	• Cold store supply chain with fixed deadlines
	• Intensive data capture and reporting

Implementation Resource Requirements	• Business project manager, school/GP liaison analysis, communications • Information Services project manager, hardware, liaison with Ministry of Health
Incremental Operational Resource Requirements	• Clinical administrator 1.0 FTE per DHB • Information Services support 0.2 FTE regionally
Linkages to other Key Projects	Well Child
Benefits	• Population Health status improvement • Reduction in care costs • Prevention of avoidable death and acute poor health
Issues	• Delays in completing the NIRS software • Perceived conflict between NIR project and Well Child initiatives • Satisfactory NIRS implementation funding for DHBs from the Ministry of Health • Completion of field testing and subsequent availability of Meningococcal vaccine to support the pilot
Capital Cost Estimates	This project will be funded by the Ministry of Health so no capital cost has been allocated in the RISSP.

	Total	0

Incremental Operational Cost Estimates **(excludes depreciation)**	This project will be funded by the Ministry of Health so no incremental operational cost has been allocated in the RISSP.

	Total	0

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0

	06	0	0
	07	0	0
WDHB	05	0	0
	06	0	0
	07	0	0

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	High
Magnitude	Process Change	Med
	Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	High
Contribution to Financial Performance	High

6.1.16. <u>**National Mental Health Projects**</u>

Funding Envelope	National Projects
Overview	Cooperate with the Ministry of Health to implement national mental health information projects such as MH-SMART, MH-INC, and development of the consumer electronic health record.
Background	The vision for the National Mental health Information Strategy is that it will bring about an enhancement of consumer/tangata whaiora recovery by resulting in Mental Health Information that

- Protects consumer privacy
- Is relevant
- Of high quality
- Is timely
- Easy to access
- Easy to use
- Is integrated locally and nationally
- Supports coordination
- Is relevant to Maori
- Is relevant to people from other cultures
- Supports good decision making processes

Key objectives of the strategy are to

- improve information and information systems that already exist to better meet sector requirements
- develop new projects to meet gaps in current information systems
- provide a framework so that all the various projects and data sets are part of an integrated information system.

Drivers	The purpose of the strategy is to

- Describe the role of information in the sector
- Indicate how it can be most effectively used
- Identify initiatives to improve information and its use
- Describe how initiatives will be of value to the Second National Mental Health Plan

- Describe how initiatives will be of value to consumer/tangata whaiora

- Describe how initiatives will be of value to Maori, Pacific Islanders and other cultures

- Identify the infrastructure requirements of providers to enable the strategy to be implemented

Deliverables	No specific IS deliverable recognised yet – some liaison with Ministry of Health and Primary Health Care is required.
Scope	MH-SMART (Mental Health Standard Measures of Assessment and Recovery) - a coordinated approach to the implementation of consumer outcome measurement into routine clinical practice. MHINC - Ongoing data quality improvement at both a local and at a national level - Mandatory collection of 'diagnosis' as of 1 July 2004 - Training being provided for coders and clinical staff on 'diagnosis' - Ongoing development of the DHB Service Profile based on MHINC data The development of the consumer electronic health record Facilitating continuity of care and good clinical management.
Business Process Change	N/A
Implementation Resource Requirements	N/A
Incremental Operational Resource Requirements	N/A
Linkages to other Key Projects	N/A
Benefits	Consumer outcome information can be used to support good clinical assessment processes as well as the review, monitoring and ongoing development of mental health services and as such is a key element in any quality improvement activity
Issues	The extent of DHB involvement required is not clear

Capital Cost Estimates	This project will be funded by the Ministry of Health so no capital cost has been allocated in the RISSP.		
	Total		0

Incremental Operational Cost Estimates (excludes depreciation)	This project will be funded by the Ministry of Health so no incremental operational cost has been allocated in the RISSP.		
	Total		

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

			Level of Risk
Complexity		Lack of Project Definition	High
		Dependencies/3rd parties	Med
Magnitude		Process Change	Med
		Business Resources	Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	Low
Contribution to Health Outcomes	Med
Contribution to Financial Performance	Low

6.1.17.<u>National Screening Programmes</u>

Funding Envelope	National Projects
Overview	Collaborate with the Ministry of Health as required to support the national screening programmes.
Background	Screening programmes aim to reduce the risk of developing or dying from a particular disease, even though they are not always a guarantee of prevention or cure to the individual. New Zealand operates two cancer-screening programmes: the National Cervical Screening Programme and BreastScreen Aotearoa.
	The National Screening Unit (NSU) is responsible for the national co-ordination and funding of these programmes and operates as a business unit within the Public Health Directorate of the Ministry of Health.
Drivers	The NSU strategic plan outlines a coordinated approach to reducing the burden of breast and cervical cancer through screening programmes in order to achieve two strategic outcomes - health improvement and reduced inequalities.
Deliverables	No specific IS deliverable recognised yet – some liaison with Ministry of Health and Primary Health Care is required.
Scope	N/A
Business Process Change	N/A
Implementation Resource Requirements	N/A
Incremental Operational Resource Requirements	N/A
Linkages to other Key Projects	N/A
Benefits	• Population health status improvement • Reduction in health inequalities
Issues	• The extent of DHB involvement required is not clear

Capital Cost Estimates	This project will be funded by the Ministry of Health so no capital cost has been allocated in the RISSP.		
	Total		0

Incremental Operational Cost Estimates (excludes depreciation)	This project will be funded by the Ministry of Health so no incremental operational cost has been allocated in the RISSP.		
	Total		

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	High
		Dependencies/3rd parties	Med
	Magnitude	Process Change	Low
		Business Resources	Low

Value Assessment

		Level of Value
	Ranking within Priority Objectives	Low
	Contribution to Health Outcomes	Med
	Contribution to Financial Performance	Low

6.**1.18**.<u>**NHI Access and Quality**</u>

Funding Envelope	National Projects
Overview	Work with the Ministry of Health to improve quality of NHI data, including improvement of Primary Health Care's ability to access and update the NHI data, and the collection of accurate ethnicity data.
Background	An NHI Upgrade Programme has been developed to improve and enhance the NHI and its overall architecture.

The NHI will become an enabling tool for population-based programmes, such as cervical screening and immunisation. It will also support the goals and objectives for primary healthcare, and will maintain and strengthen existing uses of the NHI that health and disability support services make in individually focusing their care, treatment and support.

Specifically, the NHI is needed to allow:

- services to be organised around defined populations *(enrolment)*

- capitation-based payments to be made, and managing the Crown's risks around overpayment *(funding and payments)*

- population-based programmes (such as screening) to contact the programme participants or the primary care providers that individuals are affiliated or enrolled with *(making contact)*

- providers, such as vaccinators, to identify where relevant clinical information about a person may be found, and providing a mechanism for facilitating access to that information *(associating clinical information to an individual)*.

The NHI Upgrade Programme is one of a series of initiatives being undertaken by NZHIS to create and improve information-sharing networks amongst health and disability support services.

Drivers	The ability to exchange information between parties in healthcare is vital for the improvement of health and disability support outcomes. This safe and secure sharing of information is also central to most modern health policies, including integrated care, disease management, screening, and case management. In New Zealand, these policies have most recently been expressed in documents such as The New Zealand Health Strategy, the Primary Health Care Strategy, the National Immunisation Strategy, and the policies of the national screening programmes. The NHI is central to allowing these policies to be implemented.

Deliverables	No specific IS deliverable recognised yet – some liaison with Ministry of Health and Primary Health Care is required.

Scope	Support the national strategy to provide secure online access to the NHI for accurate patient look-up and collaborate with the Ministry of Health to provide:

- training for staff who collect and input people's demographics to ensure accurate ethnicity data is recorded in the NHI

- a mechanism for Secondary care organisations to access PHO records to determine the current GP for an NHI number and the current contact details for that person

- Primary Health Care clinicians with access to adverse reactions data as maintained and provided by the NHI Medical Warning System (and currently available to hospital-based I.T. systems)

Business Process Change	N/A

Implementation Resource Requirements	N/A

Incremental Operational Resource Requirements	N/A

Linkages to other Key Projects	N/A

Benefits	

- Improving public awareness of the NHI and how it is used

- Enabling population health programmes to target services to key groups and individuals via their enrolled Primary Health Care provider

- Enabling providers to identify other services that may hold relevant clinical information about individuals.

- Increasing the ease with which DHBs involve their Primary Health Care providers in integrated care initiatives

- More efficient Population Health programmes

- More efficient participation in shared or integrated care activities

- Better access to clinical information that is relevant to the care of the patient

- Reduced compliance costs

- The ability to undertake e-health initiatives

Issues	The extent of DHB involvement required is not clear

Capital Cost Estimates	This project will be funded by the Ministry of Health so no capital cost has been allocated in the RISSP.

Total

Incremental Operational Cost Estimates **(excludes depreciation)**	This project will be funded by the Ministry of Health so no incremental operational cost has been allocated in the RISSP.

Total

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Med
	Dependencies/3rd parties	Med
Magnitude	Process Change	Low
	Business Resources	Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	Med
Contribution to Health Outcomes	Med
Contribution to Financial Performance	Low

6.1.19. <u>Order Entry</u>

Funding Envelope	Patient and Clinical Systems
Overview	Select and implement a regional (Primary, Secondary, Community) Computerised Physician Order Entry (CPOE) system, incorporating clinical decision support tools.
Background	CMDHB completed a successful Proof of Concept of e-Prescribing and limited laboratory order entry (for CVD screening of a defined inpatient adult population) in 2002, demonstrating that clinicians could successfully use both processes. This work requires development to full pilot then roll out across the region.
	The use of information technology will provide electronic decision support alerts and advice to clinicians, which can help to avoid incidents and adverse events such as drug allergies, drug conflicts, and contra-indicated laboratory and radiology tests.
	It is also important to reduce waste and improve utilisation of pharmacy, laboratory and radiology services by implementing electronic prescribing and electronic ordering of laboratory and radiology tests
Drivers	The DHBs' drive for improved quality and safety of care, combined with that for decreasing waste, together suggest a need for systems to support effective, efficient, and safe ordering of services from allied health professionals.
Deliverables	Regional CPOE system
Scope	• Implement electronic ordering by clinicians of radiology, laboratory, and other allied health orders as required • Implement ordering decision support to improve quality and reduce waste and duplication • Implement a solution that fully integrates orders and decision support across all support services and integrates with other relevant patient clinical information
Business Process Change	High degree of business process change Use of electronic tools Development, use, and maintenance of decision support rules

Implementation Resource Requirements	• Software • Hardware • Implementation Resources (Clinical Project manager, champion, analysts; Information Services Project Manager, analysts, technical and support)
Incremental Operational Resource Requirements	Nil (assuming additional resource already provided for e-prescribing)
Linkages to other Key Projects	• Clinical Data Repository • Clinical Workstation • e-Prescribing • Disease Management
Benefits	• Clinician efficiency (doctors, nurses and allied health professionals) • Improved tracking of laboratory and radiology ordering • Decision making is evidence based • Information from relevant tests available at admission and discharge/referral • Potential cost savings through reduced testing
Issues	• Clinical agreement on decision support rules • Linkages to existing systems

Capital Cost Estimates		
	• Software Licenses	100,000
	• Implementation Resources	400,000
	• Software/Development	875,000
	• Server Hardware	100,000
	• Project Overheads	25,000
	Total	1,500,000

Incremental Operational Cost Estimates **(excludes depreciation)**		
	• Software/hardware Maintenance	215,000
	• Business Support Resources	0
	• IT Support Resources	0
	Total	215,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	500,000	72,000
		07	0	72,000
	CMDHB	05	0	0
		06	500,000	72,000
		07	0	72,000
	WDHB	05	0	0
		06	0	0
		07	500,000	72,000

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	Low
		Dependencies/3rd parties	Low
	Magnitude	Process Change	High
		Business Resources	Med

Value Assessment

		Level of Value
	Ranking within Priority Objectives	Med
	Contribution to Health Outcomes	High
	Contribution to Financial Performance	High

6.1.20.Outpatient Scheduling (ADHB)

Funding Envelope	Patient and Clinical Systems
Overview	Replace ADHB *PHS* with the WDHB and CMDHB *PiMS* Outpatient Scheduling solution to provide a regionally consistent scheduling solution.
Background	*PHS* is an ADHB-developed solution, which would require considerable capital investment to bring in line with current outpatient scheduling requirements.
Drivers	The principle decision from ADHB to accept *PiMS* as the preferred Patient Administration System to replace *CMS/PHS* in due time.
Deliverables	*PiMS* Outpatient Scheduling installed and implemented in ADHB.
Scope	Community and hospital-based services.
Business Process Change	• Changes to data entry and reporting processes • Some re-engineering of referral processes • Completion of ADHB Change Programme processes
Implementation Resource Requirements	N/A
Incremental Operational Resource Requirements	N/A
Linkages to other Key Projects	Patient Administration System (ADHB)
Benefits	• Alignment of computer system with regional business processes • More accurate identification of people through a single repository of demographic details • Reduced cost of maintaining software
Issues	• Change management for patient administration staff • Ability of *PiMS* to support a regional instance

Capital Cost Estimates	Project implementation is currently planned and budgeted for 03-04 year so no costs are recorded for the expected timeframe of this RISSP	
	Total	0

Incremental Operational Cost Estimates (excludes depreciation)	• Software/hardware Maintenance	0
	• Business Support Resources	0
	• IT Support Resources	0
	Total	0

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

			Level of Risk
Complexity		Lack of Project Definition	Low
		Dependencies/3rd parties	Low
Magnitude		Process Change	Low
		Business Resources	Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	Med
Contribution to Financial Performance	Low

6.1.21. <u>Patient Administration System (ADHB)</u>

Funding Envelope	Patient and Clinical Systems
Overview	Implement a single consistent regional Patient Management System and improve quality of data collection (including ethnicity).
Background	*CMS* is an ADHB-developed solution, which requires considerable investment to keep in line with current requirements.
Drivers	The principle decision from ADHB to accept *PiMS* as the preferred Patient Administration System to replace *CMS/PHS* in due time.
Deliverables	• *PiMS* implemented at ADHB • Single regional instance of *PiMS*
Scope	• Implementation of current version of *PiMS* at ADHB • Migration of CMDHB and WDHB to current version • Implementation of a single regional instance of *PiMS*
Business Process Change	• Changes to data entry and reporting processes • Some re-engineering of referral processes • Completion of ADHB Change Programme processes
Implementation Resource Requirements	Not quantified, but major; will be determined by business case.
Incremental Operational Resource Requirements	Not quantified, but major; will be determined by business case.
Linkages to other Key Projects	• Outpatient Scheduling (ADHB) • Ministry of Health NHI Upgrade Programme
Benefits	• Alignment of computer system with regional business processes • More accurate identification of people through a single repository of demographic details • Reduced cost of maintaining software

Issues	• Development of a valid business case for ADHB to change Patient Administration System
	• Ability of *PiMS* to support a single instance

Capital Cost Estimates	• Software Licenses
	• Implementation Resources
	• Software/Development
	• Server Hardware
	• Project Overheads
	Total 4,000,000

Incremental Operational Cost Estimates **(excludes depreciation)**	• Software/hardware Maintenance
	• Business Support Resources
	• IT Support Resources
	Total

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	2,000,000	0
		06	2,000,000	0
		07	0	0
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	Med
Magnitude	Process Change	Med
	Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	Med

Contribution to Financial Performance   Med

6.1.22.Pharmacy

Funding Envelope	Patient and Clinical Systems
Overview	Implement a new DHB Pharmacy System.
Background	The pharmacy system at ADHB is no longer meeting business requirements and forces ADHB to be reliant on an external inventory supplier. ADHB therefore has an urgent need to replace the system. The other DHBs have agreed to make this a regional project, whereby the selected system will be implemented in all three.
Drivers	DHB management note unacceptable inefficiencies in the current Pharmacy system – the system prevents the introduction of improved business processes.
Deliverables	Regional Pharmacy system
Scope	• Implement packaged pharmacy information system
Business Process Change	• Inventory management will be bought in-house
Implementation Resource Requirements	• Business Project Manager, pharmacy managers • IS Project Manager, technical support • Vendor implementation support
Incremental Operational Resource Requirements	Nil (existing resources will be redeployed)
Linkages to other Key Projects	• e-Prescribing • Order Entry
Benefits	• Potential cost savings through replacement of legacy pharmacy systems and termination of external inventory management
Issues	• Change management for Pharmacy staff • ADHB implementation is planned and budgeted for the 03-04 year, so costs ($1.2M) do not appear here
Capital Cost Estimates	• Software Licenses 200,000

• Implementation Resources	400,000
• Software/Development	300,000
• Server Hardware	200,000
• Project Overheads	0
Total	1,100,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	140,000
	• Business Support Resources	0
	• IT Support Resources	0
	Total	140,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB (done)	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0
		06	600,000	70,000
		07	0	70,000
	WDHB	05	0	0
		06	500,000	70,000
		07	0	70,000

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	Low
		Dependencies/3rd parties	Low
	Magnitude	Process Change	Low
		Business Resources	Low

Value Assessment

		Level of Value
	Ranking within Priority Objectives	Med
	Contribution to Health Outcomes	Med
	Contribution to Financial Performance	Med

6.1.23.<u>**Primary Health Care Information Services**</u>

Funding Envelope	Infrastructure
Overview	Allow easier and cheaper access to information technology for Primary and Community/NGO Health Care providers by exploring the possibility of facilitating a shared information services capability.
Background	DHBs and Primary Health Care providers have a mutual interest in Population Health improvement. A key focus is providing a continuum of care and an integration of services for people, so DHBs and Primary Health Care providers need to exchange information about the shared care of their common patients.
	Primary Health Organisations (PHOs) are not-for-profit bodies funded by DHBs for the provision of a set of essential primary health care services to those people who are enrolled. Information strategies that support PHO establishment and sustainability are a priority.
	DHBs are responsible for funding and contracting services from Primary Health Care providers, however much of Primary Health Care will continue to retain a high degree of organisational independence and autonomy, which means that DHBs must only encourage, rather than dictate information strategies for Primary Health Care.
Drivers	Primary Health Care will have a key role in many integration initiatives and in finding new ways to deliver health care that will shift the focus from hospitals.
	Development of effective communication and information links among Primary Health Care service providers and between Primary and Secondary providers may require a level of investment that is beyond the resources of some providers.
Deliverables	- Strategy and operational plan for service provision: - structure and funding models - services to provide - interest within target market - Facilitate shared Information Services for Primary Health Care and NGO providers
Scope	Work with Primary, NGO, and residential caregivers to explore the possibility of providing them with appropriately supported, affordable information services. This could include offering services such as

- Combining purchase power and negotiate better rates with PMS vendors, software vendors and support providers

- a regional helpdesk and technical support capability

- an ASP model for delivering services.

Collaborate with the Ministry of Health to provide affordable access to secure high-speed electronic networks for information exchange.

Pilot the use of broadband wireless technology in conjunction with the Community Care Coordination system and roll out across the region.

Business Process Change	Formalisation of IS support structures for Primary Health Care and NGOs
Implementation Resource Requirements	Initially a Project Manager/analyst for six months: 0.1 FTE regionally
Incremental Operational Resource Requirements	Nil (existing resources will be used)
Linkages to other Key Projects	Nil

Benefits

- Smooth roll-out of regional initiatives such as disease management and Mental Health

- Assisting with the DHBs' provider development responsibilities

Issues

- Gaining buy-in from within DHBs and Primary Health Care

- Developing a sustainable and equitable funding model for the services

- Commercialisation of the service

Capital Cost Estimates

Software Licenses	0
Implementation Resources	100,000
Software/Development	0
Server Hardware	0
Project Overheads	0

Note that WDHB has allocated budget for this project in 03/04

	Total			100,000

Incremental Operational Cost Estimates **(excludes depreciation)**	• Software/hardware Maintenance		0
	• Business Support Resources		0
	• IT Support Resources		0
	Total		0

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	35,000	0
		06	0	0
		07	0	0
	CMDHB	05	35,000	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	Low
		Dependencies/3rd parties	High
	Magnitude	Process Change	Med
		Business Resources	Med

Value Assessment

		Level of Value
	Ranking within Priority Objectives	Med
	Contribution to Health Outcomes	Med
	Contribution to Financial Performance	Low

6.**1**.**24**.<u>**Privacy and Security**</u>

Funding Envelope	Infrastructure
Overview	Establish a consistent set of security tools across applications/systems that adequately protect individuals (patients/staff) information against inappropriate use.
Background	The RISSP is founded on fundamental principles of privacy and security underpinning all of the information sharing and access initiatives.
Drivers	**Privacy/Security Principles**

Reasonable measures will be put in place to ensure that people's information is managed in accordance with the guidelines provided by the Health Information Privacy Code and the NZ Privacy Act.

- The DHBs will support and adhere to the policies promulgated by the Ministry of Health's Privacy and Security project.

- Every DHB employee is responsible for ensuring that all personal information is captured, accessed, and used for the purpose for which the individual has provided it to the DHB.

- The (project) manager that implements (a change to) a registration of personal information is responsible for ensuring that a process is put in place to inform individuals of the purpose for that registration.

- The (project) manager that implements (a change to) a registration of personal information is responsible for ensuring that, as part of the project/change:

- A Privacy policy is developed based on the regional Privacy Assessment Framework. This will be done as early as possible to ensure that the recommendations can be taken into account in a timely fashion.

- "Reasonable" privacy protection measures will be developed in the context of the purpose of the information system. "Reasonable" means finding an appropriate balance between the interests of the individual, the practicality of the use of the system and the cost of implementing the measures.

- The privacy protection measures that are required based on the Privacy Policy are implemented in a timely fashion.

- All privacy policies will be submitted to, registered, and reviewed by a regional Privacy Advisory Group. This group's role is to advise the project team whether the privacy protection measures are deemed reasonable, given the purpose of the registration, and whether any privacy risks that may be associated to the registration are acceptable to the DHBs.

- If a system or project passes personal information to another system or project, the purpose of the system that passes the information on should be extended to include the purpose of the system that the information is passed to. Hence, any system that passes information to a regional or national repository automatically shares the purpose of that repository and consumers should be informed accordingly.

- Access to electronic personal information will be controlled and monitored, using access control, logging and audit tools to ensure users adhere to the agreed privacy protection measures. The level of access control will be determined as the part of the reasonable measures of privacy protection set out in the privacy policy.

- Unless there are specific and acceptable reasons not to, the generic guideline is that systems that give access to personal information will have "Role based and Individual based system security".

- Summaries of health events will be reported to patients' GPs unless a patient specifically requests otherwise. This principle will be widely communicated to the population.

Deliverables	
	- Regional Privacy Assessment Framework
	- Regional LDAP (linked to HPI)
	- Review critical applications against the PAF
	- Recommendations for application systems upgrades

Scope	Application of RISSP Privacy and Security Principles to existing systems and data stores.

Business Process Change	
	- Establish PAF and imbed into the normal day-to-day information services
	- User training on information rules
	- Sanctions on transgressions

Implementation Resource Requirements	• Analysts to review/assess systems: 1.0 FTE for six months • Technical resource to implement LDAP (already happening as part of ongoing infrastructure reviews and upgrades so no direct cost) • PAF by privacy officers
Incremental Operational Resource Requirements	Nil (existing resources will be used)
Linkages to other Key Projects	• Clinical Data Repository • Service Directory
Benefits	• Lessoning of potential legal liability
Issues	• Application Security requires significant business input to determine the granularity of control and the appropriate prevention and alerting rules • Senior management commitment to information privacy • Review and recommendations may suggest system changes that require business case

Capital Cost Estimates		
	• Software Licenses	0
	• Implementation Resources	90,000
	• Software/Development	0
	• Server Hardware	0
	• Project Overheads	0
	Total	90,000

Incremental Operational Cost Estimates **(excludes depreciation)**		
	• Software/hardware Maintenance	0
	• Business Support Resources	0
	• IT Support Resources	0
	Total	0

Implementation	**DHB**	**Timeframe**	**Capex Cost**	**Opex Cost**
	ADHB	05	10,000	0
		06	10,000	0

	07	10,000	0
CMDHB	05	10,000	0
	06	10,000	0
	07	10,000	0
WDHB	05	10,000	0
	06	10,000	0
	07	10,000	0

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	Low
Magnitude	Process Change	Med
	Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	Low
Contribution to Health Outcomes	Med
Contribution to Financial Performance	Low

6.1.25.<u>Public Health Alerts</u>

Funding Envelope	Funding and Performance
Overview	Implement a regional geographic public health/epidemic alert system to assess and manage epidemics and civil defence emergencies.
Background	Public Health services to support the management of public health and civil defence emergencies are delivered by the Auckland Regional Public Health Service (ARPHS), NGOs, and to some extent Local Government. These services, often delivered outside of the clinical setting, may use methods such as media based campaigns or regulatory controls of health hazards. ARPHS is part of the Auckland DHB and is supported by the ADHB IS department.
Drivers	ADHB's DSP requires that adequate communicable disease Risk Management systems are established and maintained.
Deliverables	- System to report potential health threats, where possible based on existing data stores (data mining) - New data sources added to the system over time
Scope	- Develop regional health hazard geographic information system - Integrate population health surveillance, monitoring and reporting into DHB and PHO systems - Develop regional sexual health epidemiological reporting system linking DHB and community clinical and laboratory systems - Public health data mining - In the future take info from other agencies such as Auckland City and Regional Councils
Business Process Change	Building communication networks with various agencies
Implementation Resource Requirements	Project manager/analyst/trainer for three months
Incremental Operational Resource Requirements	0.2 FTE Information Services support person regionally

Linkages to other Key Projects	
	• GPSurv
	• Hutt Valley DHB's Regional Health Surveillance System

Benefits	
	• Ability to monitor and predict Public Health issues
	• Potential long term benefits in service planning

Issues	
	• Status of GPSurv is unclear
	• Possibility of innovative funding mechanism, e.g. collaboration with University/software vendor

Capital Cost Estimates		
	• Software Licenses	20,000
	• Implementation Resources	30,000
	• Software/Development	0
	• Server Hardware	0
	• Project Overheads	5000
	Total	55,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	4,000
	• Business Support Resources	0
	• IT Support Resources	14,000
	Total	18,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	19,000	6,000
		06	0	6,000
		07	0	6,000
	CMDHB	05	0	0
		06	0	0
		07	18,000	6,000
	WDHB	05	0	0
		06	18,000	6,000
		07	0	6,000

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	Med
		Dependencies/3rd parties	Med

Magnitude	Process Change	Low
	Business Resources	Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	Low
Contribution to Health Outcomes	Med
Contribution to Financial Performance	Low

6.1.26. Rostering

Funding Envelope	Business Systems
Overview	Implement a consistent and integrated regional Rostering system.
Background	All three organisations use different Rostering systems, which are in different stages of maturity. CMDHB is in the process of integrating the Rostering system with the Payroll system. In ADHB and WDHB this interface is manual.
Drivers	The DHBs must develop an enhanced and sustainable organisational and workforce planning capability to streamline care and reduce infrastructure costs.
Deliverables	Common Rostering system
Scope	• Possibility of single-instance system • All DHB staff, not just nurses • Evaluate existing Rostering Systems • Select a common Rostering System • Implement common Rostering System • Specifically excludes Nursing Acuity
Business Process Change	New electronic processes Formalisation of processes based on formulae Opportunities around wider sharing of staff regionally
Implementation Resource Requirements	• Evaluation & Selection Process • Software • Hardware • Implementation Resources (Business Project manager, champion, analysts; Information Services Project Manager, analysts, technical and support)
Incremental Operational Resource Requirements	Nil (additional people already in place)
Linkages to other Key Projects	• HRMS and Payroll

Benefits	
	• Workforce needs are anticipated; care is customised according to patient needs and values as workforce capacity flexes to meet patient acuity/demand
	• Reduced demand for usage of external nursing bureau resources
	• Electronic links to NCTN to better manage RMO leave entitlements
	• Potential financial benefit from retirement of legacy systems and staff efficiencies

Issues	
	• Three DHBs agreeing on what the Rostering solution should be
	• Manager buy in at all levels to ensure business processes are adhered to
	• Clinician buy in to participate in electronic self rostering and leave management processes
	• Ability to create an interface to NCTN to reduce duplication of information and manage RMO rostering issues

Capital Cost Estimates		
	• Software Licenses	100,000
	• Implementation Resources	750,000
	• Software/Development	50,000
	• Server Hardware	50,000
	• Project Overheads	550,000
	Total	1,500,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	40,000
	• Business Support Resources	0
	• IT Support Resources	0
	Total	40,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	900,000	13,000
		07	0	13,000
	CMDHB	05	0	0
		06	0	0
		07	300,000	13,000
	WDHB	05	0	0

06	0	0
07	300,000	13,000

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	Low
Magnitude	Process Change	High
	Business Resources	High

Value Assessment

	Level of Value
Ranking within Priority Objectives	Low
Contribution to Health Outcomes	Low
Contribution to Financial Performance	Med

6.1.27.<u>Self-Service Purchasing</u>

Funding Envelope	Business Systems
Overview	Implement self-service purchasing.
Background	CMDHB and WDHB are extensively using the self-service purchasing functionality provided by *Oracle*. ADHB purchasing officers use this functionality and the intention is to roll it out to a wider audience.
Drivers	The identification of a path to break-even over the next three years is a significant challenge for ADHB. The projected Statement of Financial Performance identifies significant gaps between the forecast deficit for each year and the maximum level of deficit support that the Crown has indicated it is willing to provide. Regional alignment of purchasing and materials management processes is one of a number of initiatives aimed at containing costs.
Deliverables	- Regionally aligned Purchasing and materials management systems - Regionally aligned Self Service Purchasing
Scope	- May be an opportunity for a single-instance system - Electronic SO12 and attendant workflow processes
Business Process Change	Major change in business process at ADHB with the move to self-service purchasing
Implementation Resource Requirements	Project manager/analyst/trainer for one year
Incremental Operational Resource Requirements	Nil
Linkages to other Key Projects	Asset Management
Benefits	Potential cost savings from automation of manual processes
Issues	None recognised

Capital Cost Estimates		
• Software Licenses		650,000
• Implementation Resources		210,000
• Software/Development		0
• Server Hardware		100,000
• Project Overheads		40,000
Total		1,000,000

Incremental Operational Cost Estimates (excludes depreciation)		
• Software/hardware Maintenance		0
• Business Support Resources		0
• IT Support Resources		0
Total		0

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	1,000,000	0
		07	0	0
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	Low
Magnitude	Process Change	Low
	Business Resources	Low

Value Assessment

	Level of Value
Ranking within Priority Objectives	Med
Contribution to Health Outcomes	Low
Contribution to Financial Performance	Med

6.1.28.<u>Service Directory</u>

Funding Envelope	Business Syetems
Overview	Implement a regional health service directory across DHBs and PHOs (and integrate with the National Provider Index when this becomes available).
Background	As systems are interfaced and integrated and more information is available, it is critical that access to information is facilitated but restricted to properly identified health care providers.
	Implementation of the care continuum is premised on a directory of the services available from other providers and a mechanism to facilitate appropriate access to those services.
	Up-to-date information on all services will be readily available through an electronic directory, initially for all providers and then in a format designed by consumers for consumers.
Drivers	The DHBs need to ensure that current service information is accessible to both consumers and providers. Improved service access and continuity can be achieved by the use of an electronic services directory that allows "seamless" access to information among Primary providers and between Primary and Secondary services.
	The WAVE report recommends a national Health Provider Index (HPI) be established as a single directory service, for use in authentication, network message handling, and data warehousing, with delegated registration and maintenance functions to relevant bodies..
Deliverables	Regional Provider Indexed linked to National HPI
Scope	- Reassess HealthLink system and agree an interim solution - Await outcome of e-Referrals and reassess requirement - Develop and implement: - Consistent Provider identification based on NZMC - Regional LDAP for provider authentication - Directory of provider and organisational services and competencies

- Directory of referral criteria and referral information requirements using XML

- Provide access to a national authenticated provider services directory for efficiently identifying other providers for information sharing and for secure identification and authentication of providers

Business Process Change	Updating data electronically rather than producing a book
Implementation Resource Requirements	Project Manager/business analyst
Incremental Operational Resource Requirements	Nil
Linkages to other Key Projects	• Partner with Ministry of Health Health Practitioner Index project • Required for e-referrals
Benefits	• Provides the means for clinicians in unrelated organisations to share information about services and availability • Allows coordination of care between Primary, Secondary, and Community providers • Enables providers to identify other services that may hold relevant clinical information about individuals • Enables more efficient provider participation in shared or integrated care activities • Improved patient privacy because of the ability to restrict information to relevant providers
Issues	Lack of understanding of the role and scope of HPI, versus the services directory concept
Capital Cost Estimates	• Software Licenses 0 • Implementation Resources 130,000 • Software/Development 0 • Server Hardware 0 • Project Overheads 0 *Total* 130,000

Incremental Operational Cost Estimates (excludes depreciation)		
• Software/hardware Maintenance		0
• Business Support Resources		0
• IT Support Resources		0
Total		0

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	43,000	0
		06	0	0
		07	0	0
	CMDHB	05	43,000	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	44,000	0
		07	0	0

Risk Assessment

			Level of Risk
Complexity		Lack of Project Definition	Low
		Dependencies/3rd parties	High
Magnitude		Process Change	Low
		Business Resources	Low

Value Assessment

		Level of Value
Ranking within Priority Objectives		Med
Contribution to Health Outcomes		Low
Contribution to Financial Performance		Low

6.1.29. Standard Infrastructure

Funding Envelope	Infrastructure
Overview	Provide a robust, reliable, resilient, fast, responsive, secure, and standardised IT infrastructure to deliver the clinical and business Information Management strategies in this RISSP at minimal cost.
Background	With the implementation of a shared services business unit between Auckland Hospital, Starship Children's Hospital, Green Lane Hospital, and National Women's Hospital, ADHB has aligned the information infrastructure between the 4 hospitals.
	healthAlliance has a programme of work underway (Project Fusion) to align the core infrastructure between Waitemata DHB and Counties Manakau DHB.
	In the meantime, the three DHBs are also aligned in various technology areas either due to previous cooperation or because of using similar solution selection processes and criteria.
Drivers	A key strategic problem for the DHBs is making the Secondary health sector cost efficient and effective. Each seeks to reduce operating costs through the elimination of duplicated processes or those that do not add value to people or the organisation.
	The three DHBs have embarked on building programmes to replace obsolete facilities with modern amenities. Information services play a key role in supporting the changed healthcare and business processes introduced with the new facilities.
	Information services themselves have a significant cost for the DHBs, so their rationalisation will contribute to the DHBs ongoing financial viability.
Deliverables	- Complete current infrastructure projects - Support facilities development - Develop regional plan to standardise and implement commodity hardware and open source software where proven and justified - Develop a Regional Enterprise Architecture Standards document listing the specific standards applicable to hardware, software, networking, database management, and messaging

Scope	- Standardising infrastructure across DHBs to achieve operating cost efficiencies, including - Fusion Part 2 (healthAlliance) - ADHB OneTouch (ADHB equivalent) - Includes desktop, servers, operating software, networks - Scope is both standardisation of infrastructure as above and "business as usual" upgrades - Implement the IT infrastructure required to support major facility developments such as - WDHB Waitakere Hospital - ADHB Building Programme - CMDHB Manukau site
Business Process Change	Nil
Implementation Resource Requirements	Will be provided by the proposed regional shared information service
Incremental Operational Resource Requirements	Nil
Linkages to other Key Projects	- System Support - System Upgrades - Regional shared service implementation project
Benefits	Reduction in operating costs
Issues	Need to focus on reducing total costs of ownership

Capital Cost Estimates

• Software Licenses	1,500,000
• Server Hardware	4,500,000
• Desktop Hardware (PCs and printers)	10,100,000
• Storage	3,000,000
• Networks	3,000,000
• Standardisation	5,000,000
Total	27,100,000

Incremental Operational Cost Estimates (excludes depreciation)	• Software/hardware Maintenance	0
	• Business Support Resources	0
	• IT Support Resources	0
	Total	0

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	3,800,000	0
		06	4,300,000	0
		07	5,800,000	0
	CMDHB	05	2,200,000	0
		06	2,200,000	0
		07	2,200,000	0
	WDHB	05	2,200,000	0
		06	2,200,000	0
		07	2,200,000	0

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	Med
		Dependencies/3rd parties	Low
	Magnitude	Process Change	Low
		Business Resources	Low

Value Assessment

		Level of Value
	Ranking within Priority Objectives	High
	Contribution to Health Outcomes	Low
	Contribution to Financial Performance	High

6.1.30.<u>**System Support**</u>

Funding Envelope	Infrastructure
Overview	Provide a comprehensive IS/IT support service that meets the agreed service levels as minimum cost.
Background	On 7 October 2003, the Regional Shared Services project was officially launched, with the intention of designing a new regional shared service for the three Auckland DHBs.
	Information services are currently provided to Counties Manukau and Waitemata DHBs by healthAlliance. ADHB has an internal information services capability.
	The project will transfer and amalgamate all information services functions currently existing in the three Auckland DHBs into a single regional shared service organisation.
Drivers	The DHBs will continue to develop shared management service arrangements in order to focus financial resources on providing clinical care.
Deliverables	A regional IS shared service acceptable to DHB users
Scope	Provide the following IT/IS/IM functions for the Auckland regional DHBs:

- Strategy Support
- Vendor relationship management
- Help Desk Services (ability to manage fault calls 24 hours a day, seven days a week, 365 days a year)
- Customer service and account management
- Infrastructure planning, implementation and support
- Desktop support
- Applications planning, implementation and support
- Project management
- IT Training
- IT Procurement
- Systems Administration
- Database Administration
- Service Coordination
- Specialist networks, voice, server, desktop support
- Business Analysis
- Software development

- Software configuration, scripting & packaging
- Software release management and testing.

Business Process Change	• Implementation of best-practice information services delivered through a new regional shared information service • Different ways of accessing information services
Implementation Resource Requirements	Will be provided by the regional shared information service
Incremental Operational Resource Requirements	Will be provided by the regional shared information service
Linkages to other Key Projects	• Standard Infrastructure • System Upgrades • Regional shared service implementation project
Benefits	Reduction in operating costs
Issues	• Difficult for regional shared service to provide the level of service currently provided by embedded service • Poor change management leading to staff resistance, demotivation, and poor productivity • Staff weary of change and restructure leading to high attrition and loss of key knowledge • Loss of momentum for key business projects caused by staff distraction with the restructure • Reduction in business service levels due to staff disaffection with change process

Capital Cost Estimates		
	• Software Licenses	0
	• Implementation Resources	0
	• Software/Development	0
	• Server Hardware	0
	• Project Overheads	0
	Total	0

Incremental Operational Cost Estimates (excludes depreciation)	• Refer to total of all other projects	0 0 0

	Total

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	0	0
		07	0	0
	CMDHB	05	0	0
		06	0	0
		07	0	0
	WDHB	05	0	0
		06	0	0
		07	0	0

Risk Assessment

			Level of Risk
	Complexity	Lack of Project Definition	Low
		Dependencies/3rd parties	Low
	Magnitude	Process Change	Low
		Business Resources	Low

Value Assessment

		Level of Value
	Ranking within Priority Objectives	High
	Contribution to Health Outcomes	Low
	Contribution to Financial Performance	High

6.1.31.<u>System Upgrades</u>

Funding Envelope	Infrastructure
Overview	Maintain the currency of systems with version changes so that they remain clinically relevant and supportable.
Background	Most software vendors run an ongoing programme of enhancements and upgrades to their offerings, funded by software maintenance payments from their customers. New versions of the software are released periodically, and the vendors cease to support older versions.
	Software licencees may choose to upgrade their implementations to the latest versions, to take advantage of new features and error corrections, and to ensure continuity of support from the vendor.
Drivers	Current information systems do not necessarily support current clinical and business practice.
Deliverables	Upgrading enterprise software systems to supported versions.
Scope	- Maintain the currency of business and patient/clinical systems with version changes so that they remain clinically relevant and supportable - Implement a process for monitoring the readability of historical archived media - Upgrades and minor enhancements to existing systems
Business Process Change	Major upgrades can result in extensive business process changes because of software functionality changes.
Implementation Resource Requirements	Will be provided by the regional shared information service
Incremental Operational Resource Requirements	Will be provided by the regional shared information service
Linkages to other Key Projects	- Standard Infrastructure - System Support - Regional shared service implementation project

Benefits	
	• Mitigating the risks of failure of unsupported software
	• Software supports current business processes
	• Software enables new business processes

Issues	
	Business or clinical readiness for software changes

Capital Cost Estimates		
	• Software Licenses	300,000
	• Implementation Resources	1,500,000
	• Software/Development	0
	• Server Hardware	0
	• Project Overheads	0
	Total	1,800,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	0
	• Business Support Resources	0
	• IT Support Resources	0
	Total	0

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	200,000	0
		06	200,000	0
		07	200,000	0
	CMDHB	05	200,000	0
		06	200,000	0
		07	200,000	0
	WDHB	05	200,000	0
		06	200,000	0
		07	200,000	0

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	Low
Magnitude	Process Change	Low
	Business Resources	Low

Value Assessment

Level of Value

Ranking within Priority Objectives   Med

Contribution to Health Outcomes   Med

Contribution to Financial Performance   Low

6.1.32.<u>Well Child</u>

Funding Envelope	Patient and Clinical Systems
Overview	Implement and enhance the Well Child information systems across the region, including the school dental service.
Background	Within the Primary Health Care and Secondary care environments, there are home and community based services that provide specialist care to children. These services form the link between the traditional secondary and primary environments and focus on a care co-ordination and a continuum of care view.
	Systems need to be able to consolidate information within the traditional Secondary/Tertiary environments and exchange information with other providers' systems. Establishing an integrated care platform will allow different service delivery models to evolve, whilst still supporting the consolidated view of information.
	Progress to date has been largely medically focussed and targeted at immunisation. While *Kidslink* records that a Well Child Check was done, it does nothing about sharing the critical early childhood indicators that are collected in the course of the Well Child check. An impetus to implement the Well Child Framework will likely drive a change of focus to a more holistic view of child health.
Drivers	Child health services are a key initiative, listed as priorities at both government and DHB strategic levels. The child health strategy is focussed on improved care coordination, ensuring that up-to-date and accurate information is available at every contact between a child and health services. The DHBs' Child Health strategies are to

- implement the National Child Health Information Strategy that incorporates collection, collation and analysis of data
- improve the health status of children and young people by having a greater focus on health promotion, prevention and early intervention
- ensure that all services are accessible, acceptable and appropriate for children, young people and families/whanau
- improve coordination and access to health services for those children or young people with high or complex needs or who are vulnerable
- improve the quality of children and young people's health services through monitoring, evaluation, workforce development, research and education.

Deliverables	Enhanced *Kidslink* system implemented regionally
Scope	- Extend the *Kidslink* software to accommodate wider information about child health needs, including full implementation of the Well Child Framework - Extend the *Kidslink* software to record the observations from the Well Child check, rather than just the fact that the test was done - Enable messaging to and from the school dental service system, *Exact Enterprise* - Implement *Kidslink* reporting of child immunisation rates
Business Process Change	Coordination with multiple external parties and agencies
Implementation Resource Requirements	- Significant business resources - NIR will cover support infrastructure
Incremental Operational Resource Requirements	Well Child administrator 0.2 FTE per DHB
Linkages to other Key Projects	National Immunisation Register
Benefits	- Improved efficiency and effectiveness of care through information sharing of critical early childhood information gathered through Well Child checks and care coordination - Improved health outcomes, as fewer children are lost through the gaps
Issues	- Will Ministry of Health deliver this functionality on the NIRS system - Delays in delivering NIRS - Development costs for establishing messaging capability in the *Exact* system. - The 'magnet' effect of NIRS on resources for expansion of Well Child checks
Capital Cost Estimates	- Software Licenses 100,000 - Implementation Resources 200,000 - Software/Development 150,000

• Server Hardware	50,000
• Project Overheads	130,000
Total	630,000

Incremental Operational Cost Estimates (excludes depreciation)		
	• Software/hardware Maintenance	50,000
	• Business Support Resources	30,000
	• IT Support Resources	
	Total	80,000

Implementation	DHB	Timeframe	Capex Cost	Opex Cost
	ADHB	05	0	0
		06	210,000	27,000
		07	0	0
	CMDHB	05	0	27,000
		06	210,000	27,000
		07	0	27,000
	WDHB	05	0	0
		06	210,000	27,000
		07	0	27,000

Risk Assessment

		Level of Risk
Complexity	Lack of Project Definition	Low
	Dependencies/3rd parties	High
Magnitude	Process Change	Med
	Business Resources	Med

Value Assessment

	Level of Value
Ranking within Priority Objectives	High
Contribution to Health Outcomes	High
Contribution to Financial Performance	Low

7. IT SPENDING IN THE HEALTH SECTOR

7.1. National Benchmarks

IDC is a global market intelligence and advisory firm for the information technology and telecommunications industries. It analyses and predicts technology trends so that its clients can make strategic, fact-based decisions on technology purchases and business strategy.

IDC's *Forecast for Management* survey asks "What percentage of your organisation's revenue (Government institutions please use expenditure) was spent on information technology (i.e. your IT/IS budget) in your most recently reported 12 month operating period? Please include capital, including depreciation, and operating expenses."

The results showed median average IS spend over the period 1996 to 2003 in 150 Health & Community Services organisations in Australia and New Zealand was 2.96% of revenue.

Unfortunately the IDC questionnaire does not specify whether health funding bodies such as DHBs should include "pass through" revenue (i.e. provider and funder arms) or just operational expenditure (i.e. provider arm only). It could be reasonably supposed that most Information Services organisations would use the higher expenditure number, thus making the percentage spent on IS appear smaller. The same revenue would then be counted by Primary Health Care respondents, thus 2.96% is considered to be a low estimate.

7.2. International Benchmarks

Microsoft has provided results from 406 U.S.-based survey respondents, collected between April 2003 and July 2003. The average enterprise size in revenue was approximately $US1.5 billion. The average number of employees for these enterprises was 4,296, with an average IS workforce of 240.

For purposes of the survey, IS budget includes the categories of hardware (including depreciation), software (including amortisation), internal staff, external service providers, voice and data communications charges, facilities and other expenses.

The percentage of revenue spent on IS across all industries was 5.18%, in health care it was 4.39%.

In the UK, the National Health Service (NHS) budget for 2002-03 was approximately £68 billion. Research from government IS experts Kable, based on interviews with NHS IT managers, reveals that the total spend on IS was around £1.4 billion, or 2.05%.

Securing Our Future Health: Taking A Long-Term View (2002) - an independent review by Derek Wanless - is the first ever evidence-based assessment of the long-term resource requirements for the NHS. The Wanless report recommends that, in order to meet the objectives of the *NHS Information Strategy*, spending on IS should be doubled (i.e. to £2.8 billion). The same report projected the total NHS budget increasing by 7.1% in 2003-04, i.e. to about £73 billion. The recommended IS spend is therefore 3.84% of total.

7.3. Cost of the RISSP Programme of Work

The benchmark figures above include Primary Health Care, Community/NGO, and Secondary figures. The DHBs' current IS spending, and the increase envisaged by the RISSP Programme of Work, are known. The level of IS spending by organisations funded by the DHBs is, however, unknown. An estimate has therefore been made, in order to compare Auckland spending with the benchmarks.

DHB Revenue 04/05

	Total Revenue	DHB (Provider Arm) Revenue	Outside DHB (Primary, Community/NGO) Funding
ADHB	1,137,000,000	788,000,000	349,000,000
CMDHB	626,000,000	411,000,000	215,000,000
WDHB	574,000,000	335,000,000	239,000,000
Total	2,337,000,000	1,534,000,000	803,000,000

Primary, Community/NGO IS Spend Estimate

Number of Practitioners	2,500
Average annual spend per practitioner	16,000
Total Spend	40,000,000
DHB Funding	50%
Primary, Community/NGO Spend	20,000,000

IS Spend 04/05

	Budgeted IS Opex	Budgeted IS Depreciation	Total IS Budget 04/05	Additional RISSP Opex 04/05	New Total IS Spend
healthAlliance	14,200,000	800,000	15,000,000		15,000,000
ADHB	19,100,000	13,500,000	32,600,000	1,468,666	34,068,666
CMDHB		7,500,000	7,500,000	1,019,666	8,519,666
WDHB		5,500,000	5,500,000	580,666	6,080,666
Primary, Community/NGO Estimate	20,000,000		20,000,000	1,000,000	21,000,000
	53,300,000	27,300,000	80,600,000	4,068,998	84,668,998

Total spend as a percentage of total revenue	**3.62%**
DHB spend as a percentage of provider arm revenue	4.15%
Outside DHB spend as a percentage of DHB funding	2.62%

Note:

- The revenue figures in the model above come from the three DHB's and healthAlliance's budgets for 2004-2005
- DHB IS spending figures come from the three DHB's and healthAlliance's budgets for 2004-2005; additional RISSP opex is from this document
- Outside DHB IS spending is an order-of-magnitude estimate
- ADHB depreciation is abnormally high as a result of commissioning the new hospital
- The above model assumes that the RISSP programmes do not contribute any additional depreciation
-

7.4. Comparisons

UK NHS actual 2003	2.05%
Australasian 1996-2003 average	2.96%
Auckland DHBs RISSP estimate	3.62%
UK NHS recommended 2004	3.84%
US health sector 2003	4.39%

8. LEVELS OF SYSTEM SECURITY

Information systems can be secured by implementing one or more of the following security principles.

- Network and operating system Security: Access to information systems from workstations is controlled by network and operating security in combination with internal and external firewalls. These security measures control whether a user can use a particular workstation and which information systems (servers/ applications/ databases) that user can access from that workstation.

- No System Security: Providing that an individual has network access to the system, they can enter the system and view all information without any form of personal identification. (For example: everybody with a network password can access and use the phone directory on the Intranet).

- Physical Security: The physical access to information systems can be limited by ensuring that a particular information system can only be accessed from specific workstations. (For example: Emergency department workstations have wider access to the Patient Management system than most other areas in the hospital.)

- System Access Security: The user needs a username and password or similar form of (personal) identification to access the system. (For example to access the Patient Management system, a user requires a logon and password)

- Role (or department) based System Security: The user accesses the system based on personal identification and, depending on their role, they have access to different levels of information (For example only a clinician currently working in Sexual Health can see sexual health data.)

- Individual based System Security – The user accesses the system based on a personal identification code. He/she can only access the information of a particular individual (patient or employee) if he/she is actually involved in the treatment of that patient or management of the individual. (For example, managers can only access information about their own staff in the Human Resources system). Some information in a patient record (e.g. sexual or mental health) may not be shareable at all.

- Time or event based System Security – The user accesses the system based on a personal identification code. He/she can only access the information for a particular time period or related to a particular event; generally in relation to specific patient events or an episode of care.

9. PRIMARY HEALTH CARE GP SYSTEMS STOCK TAKE

This report contains results derived from 281 general practices in Auckland (from Counties Manukau, Waitemata, and Auckland DHBs) who contributed information to the nationwide study (*Information Technology Systems in General Practice;* 2003; Royal New Zealand College of General Practitioners Research Unit, Department of General Practice, University of Otago). Please refer to original study report for methodology and national results.

Practice Software

276 out of 280 practices (98.6%) use specifically designed patient management system (PMS) software.

Table 1 shows the percentage of Auckland practices using each PMS type as compared to national figures.

Figure 1 shows the proportion of Auckland practices using software from each of the main PMS vendors. Next Generation has replaced Houston software (from national results) as the third largest vendor.

Table 1: PMS software

n = 276 (4 practices do not use a PMS, 1 practice did not respond)

| PMS	number using PMS	Auckland %	National %
Healthtech Medtech 32	158	57.2%	60.0%
Intrahealth Profile for Mac	27	9.8%	6.0%
Next Generation	27	9.8%	3.2%
Intrahealth Profile for PC	14	5.1%	6.0%
Mana Systems GPDAT	13	4.7%	3.0%
Advanced Clinical Records	11	4.0%	1.3%
Houston GP	8	2.9%	8.9%
Other (independently developed)	8	2.9%	1.3%
Houston VIP	3	1.1%	2.3%
Healthtech Medtech 16	3	1.1%	1.5%
Intrahealth MMAS	2	0.7%	0.7%
Medata Good Practice II	2	0.7%	0.2%
Taylor Made Software Medcen	0	0	3.8%
Alumni 32	0	0	1.6%
Yield Systems	0	0	0.2%
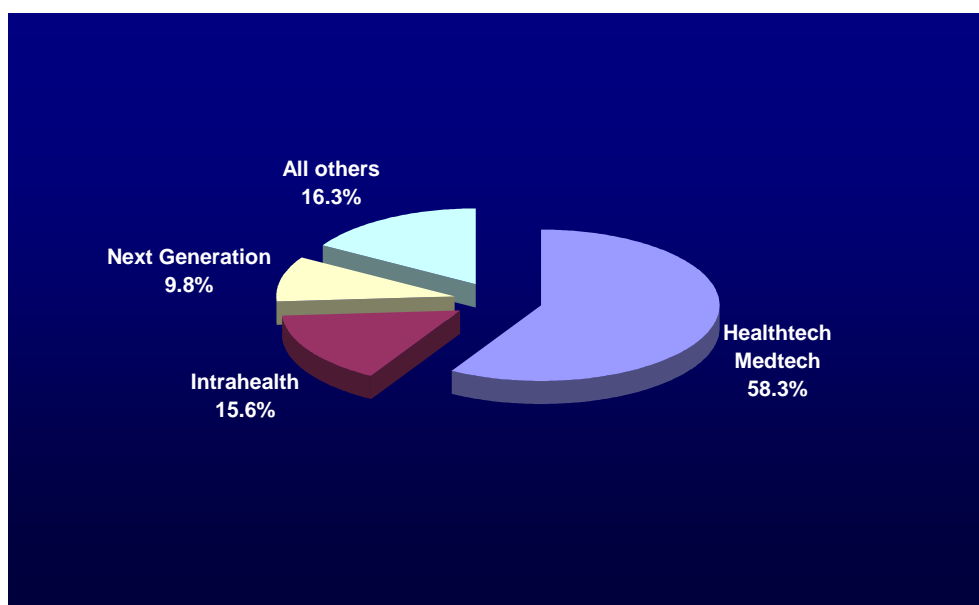
Figure 1: Proportion of market share of main PMS vendors.

NB: Healthtech Medtech includes editions 16 and 32; Intrahealth includes MMAS, Profile for Mac and Profile for PC.

The proportion of practices using their PMS to store full clinical notes was 74.4% (209 out of 281). This compares to national figures of 71.8%.

Of the practices storing notes electronically, 26.2% (compared with 19.3% nationally) store full clinical notes on paper as well as electronically.

Of those practices who do not use their PMS to store full clinical notes, 82.9% at least use their PMS to record that the consultation had occurred (compared with 89.6% nationally).

Table 2 shows the percentage of practices that are utilising certain functions of their PMS.

Table 2: Functions of PMS

NB: italics indicate % calculated from response to preceding question

Function	Yes
Built in Laboratory request/results function on PMS?	91.7%
If yes, do you make use of them?	*87.6%*
Record prescriptions on PMS?	90.7%
Record immunisations on PMS?	97.1%
Record allergy information on PMS?	90.3%
Record vaccination events on PMS?	92.8%
Record ACC details on PMS?	92.5%

95.0% of practices record screening information or keep disease registers on their PMS.

Table 3 shows the percentage of practices that record each screening or disease register parameter.

Table 3: Screening information and disease registers

NB: Calculated from a total of 267 practices that recorded parameters. Each practice recorded multiple choices.

Parameter	No. practices recording parameter	Auckland%	National %
Cervical screening	260	97.4%	97.8%
Diabetes register	237	88.8%	86.4%
Breast screening	215	80.5%	83.1%
Asthma register	149	55.8%	64.6%
Blood pressure	160	59.9%	60.4%
Other	88	33.0%	31.6%

Consultation diagnoses are coded in 66.7% of practices. Of these practices, 95.6% use Read Codes.

Practice hardware

Only one of the Auckland respondents did not have a computer in their practice.

Table 4 shows the percentage of practices that have computers running on each operating system, as compared to national figures. Note that practices may operate more than one system.

Table 4: computer operating systems

NB: Calculated from 277 practices (4 practices did not respond, 1 practice did not have a computer). Practices selected multiple responses.

Operating system	No. practices using system	Auckland %	National %
Windows 98	137	49.5%	56.8%
Windows 2000 Professional	105	37.9%	36.2%
Windows XP Professional Edition	66	23.8%	21.3%
Windows 95	55	19.9%	28.6%
Windows NT 4 Professional	49	17.7%	21.5%
Mac OS 9	25	9.0%	5.7%
Windows ME	13	4.7%	4.3%
Windows XP Home Edition	11	4.0%	4.0%
DOS	7	2.5%	3.3%
Mac OS (pre version 9)	7	2.5%	1.9%
Mac OS X	7	2.5%	1.3%

Other	4	1.4%	2.1%
Windows 3.11	0	0	0.3%
Linux (all Linux versions)	0	0	0.2%

Internet, Electronic and General Communication

73.8% (206 out of 279) practices connect to the internet. This is slightly lower than the national figure of 80.3%.

93.9% (262 out of 279) practices connect to Healthlink, which is equal to national figures (93.7%).

34.5% (91 out of 264) practices connect to the Health Intranet, which is almost equal to national figures (35.8%).

To connect to these services, 48.0% of practices have a permanent high speed link and 69.4% have a dial-up modem (lower than the national figure of 80.6%). Practices may have both types of connection.

Email is used in 72.5% of practices (198 out of 273). This is slightly lower than the national figure of 77.6%.

Support for hardware/software

78% of practices claim to have a 'disaster recovery plan' for their computerised information (equal to national figures).

The majority of practices (61.5%) reported rarely experiencing hardware faults in the past 12 months.

The majority of practices (53.4%) reported never experiencing software faults to the point of complete failure in the past 12 months.

The largest majority of practices (36.3%) reported that the longest period of time that computers were out of operation was 1 hour.

10.DHB INFORMATION SYSTEMS ALIGNMENT MATRIX

This comparison between the systems used by ADHB, CMDHB, and WDHB in various areas shows where similar systems are in place (grey areas). It should be noted that this list only includes the material systems. It is however non-exclusive and as such all DHBs have an obligation to check what is used in the other DHBs when new or replacement systems are being considered, irrespective whether the system is on this list or not.

Envelope (IS Investment portfolios)

BUS = Business Systems

CLI = Patient and Clinical Systems

FUN = Funding and Performance Systems

INF = Infrastructure

LAT = Latent Demand

NAT = National Projects

Focus

The F-column suggests that a particular area will Require Focus to provide a regional solution within the timeframe of the RISSP. The letter code indicates what the status of the future system is.

A = The systems are [A]ligned already

I = A project has been [I]nitiated.

K = The future system is [K]nown but project hasn't been initiated.

U = Future system [U]nknown, selection required.

X = Deferred; Alignment is not a priority for the next three years

Envelope	Information System	F Requires Focus	Auckland System / Vendor	Counties Manukau System / Vendor	Waitemata System / Vendor
CLI	Alcohol & Drug Services	A	N/A	N/A	Methdata / inhouse
CLI	Clinical Correspondence	A	SMD / Orion	Meddocs / Orion	SMD / Orion
CLI	Clinical Dictation	A	Winscribe / Winscribe	Winscribe / Winscribe	Winscribe / Winscribe
CLI	Clinical Results	A	ÉCLAIR / Sysmex Delphic	ÉCLAIR / Sysmex Delphic	ÉCLAIR / Sysmex Delphic
CLI	Clinical Workstation	A	Concerto / Orion	Concerto / Orion	Concerto / Orion
INF	Database	A	SQL Server / Microsoft	SQL Server / Microsoft	SQL Server / Microsoft
INF	Database	A	Oracle / Oracle	Oracle / Oracle	Oracle / Oracle
CLI	Dental	A	Exact / Softw.of Excellence	N/A	Exact Enterprise / SOEI
INF	Email Client	A	MS Outlook / Microsoft	MS Outlook / Microsoft	MS Outlook / Microsoft
INF	Email Server	A	Exchange / Microsoft	Exchange/Microsoft	Exchange/Microsoft
CLI	Endoscopy	A	Endoscribe / HCN	Endoscribe / HCN	Endoscribe / HCN
BUS	Financials & Mat.Management	A	Oracle Financials / Oracle	Oracle Financials / Oracle	Oracle Financials / Oracle
FUN	Funding /Contracting (Maternity)	A	Terranova PIMS / Terranova	Maternity PIMS / Terranova	Maternity PIMS / Terranova
FUN	Funding /Contracting (Needs Assessment)	A	SCID / MINISTRY OF HEALTH	SCID / MINISTRY OF HEALTH	SCID / MINISTRY OF HEALTH
INF	Graphics	A	MS Visio / Microsoft	MS Visio / Microsoft	MS Visio / Microsoft
INF	Integration Engine tier 1	A	eGate / Seebeyond	eGate / Seebeyond	eGate / Seebeyond
INF	Integration Engine vendor specific	A	Rhapsody/Orion & PIE/iSoft	Rhapsody/Orion & PIE/iSoft	Rhapsody/Orion & PIE/iSoft
INF	Internet	A	IIS / Microsoft	IIS / Microsoft	IIS / Microsoft

Envelope	Information System	Requires Focus	Auckland	Counties Manukau	Waitemata
System		**F**	**Auckland**	**Counties Manukau**	**Waitemata**
			System / Vendor	System / Vendor	System / Vendor
INF	Intranet	A	IIS / Microsoft	IIS / Microsoft	IIS / Microsoft
CLI	Laboratory System	A	Delphic LIS/ Sysmex Delphic	Delphic LIS/ Sysmex Delphic	Delphic LIS/ Sysmex Delphic
CLI	Maternity	A	Healthware/ Terranova	Maternity/ Terranova	Maternity/ Terranova
INF	Office Productivity	A	MS Office / Microsoft	MS Office / Microsoft	MS Office / Microsoft
CLI	Pathology Results	A	AP / Sysmex Delphic	AP / Sysmex Delphic	AP / Sysmex Delphic
INF	Project Mgt	A	MS Project / Microsoft	MS Project / Microsoft	MS Project / Microsoft
BUS	Purchasing	A	Oracle Financials / Oracle	Oracle Financials / Oracle	Oracle Financials / Oracle
INF	Reporting (Contracts)	A	MS business objects (?)	Business Objects /	Business Objects /
INF	Server OS	A	NT4 & Win 2000 / Microsoft	NT4 & Win 2000/ Microsoft	NT4, Win 2000 / Microsoft
INF	Server OS	A	Solaris / Sun	Solaris / Sun	Solaris / Sun
CLI	Theatre/Resource Scheduling	A	PIMS Theatre / iSoft	PiMS / iSoft	PiMS / iSoft
CLI	Alcohol & Drug Services (RADS)	I	N/A	N/A	CareManager
BUS	Budgetting & Forecasting	I	FARRS / SIMPL	Excel / inhouse	Excel / inhouse
CLI	Electronic Discharge Summaries (IP)	I	(EDS / Orion)	EDS / Orion	EDS / Orion
BUS	Human Resources	I	(Leader / AMS)	(Leader / AMS)	Oracle -> (Leader)
CLI	Immunisation	I	(NIR)	Kidslink (NIR)/ Orion	Kidslink (NIR)/ Orion
BUS	Payroll	I	Opendoor / Rhebus	Leader / AMS	Leader / AMS
CLI	Pharmacy	I	PharmX / APL	Ascribe / Asc	Pharmx / APL
CLI	Anaesthesiology	K	IDAS / Safeasleep	Various / in-house	(IDAS / Safeasleep)
CLI	Booking Review	K	CMS NBRS / in-house	NBRS / Knowledge Solutions	NBRS / Knowledge Solutions

Envelope	Information System	F Requires Focus	Auckland System / Vendor	Counties Manukau System / Vendor	Waitemata System / Vendor
CLI	Bookings	K	CMS Booking / in-house	PiMS / iSoft	PiMS / iSoft
CLI	Chronic Care Management	K	CISA+ / in-house	Soprano & Predict / Orion & Enigma	-
CLI	Clinical Data Repository	K	CMS / in-house	ÉCLAIR / Symex Delphic	(ÉCLAIR / Symex Delphic)
CLI	DRG Coding	K	CMCS & 3M Encoder	PLATO & 3M Encoder	PLATO & 3M Code Finder
CLI	Emergency Care/Patient Administration	K	CHIPS / in-house	PiMS / iSoft	PiMS / iSoft
CLI	Emergency Care/Patient Tracking	K	CHIPS / in-house	PTS / Orion	(PTS / Orion)
INF	Help Desk	K	Infra Active / Delta	Quetzal / Datawatch	Quetzal / Datawatch
CLI	In patients (ADT)	K	CMS / in-house	PIMS / iSoft	PiMS / Isoft
CLI	Laboratory System (Blood Bank)	K	Progesa / NZ Blood Services`	Delphic Blood Bank / Sysmex Delphic	Progesa / NZ Blood Services`
CLI	Outpatient Scheduling	K	PHS / HBOC-McKession	PiMS / iSOFT	PiMS / iSOFT
CLI	Patient Demographics	K	CMS / in-house	PIMS / iSoft	PiMS / Isoft
CLI	Provider Directory	K	-	Healthsearch/Healthlink	Healthsearch/Healthlink
CLI	Records Management	K	CRTS / in-house	PiMS PDT / iSoft	PiMS PDT / iSoft
CLI	Retinal Screening	K		Optimise / Optimed	Optimise / Optimed
CLI	Well Child	K	-	Kidslink/Orion	Kidslink/Orion
CLI	Acuity	U	(Trendcare)	-	Acuity / Precept Systems
CLI	Assessments /Forms	U	Various / in-house	Soprano / Orion	-
CLI	Bed Allocation	U	CHIPS / in-house	WIMS / inhouse	-

Envelope	Information System	Requires Focus	Auckland System / Vendor	Counties Manukau System / Vendor	Waitemata System / Vendor
CLI	Clinical Dec.Sup./Pathways	U	CISA+ / in-house	Soprano & Predict / Orion & Enigma	-
CLI	Clinical Notes (Children ED/Onc)	U	PATCH / in-house	-	-
CLI	Clinical Notes (Diabetes)	U	HCP / IntraHealth	-	-
CLI	Clinical Notes (Orthopaedics / Surgical)	U	Plato / Plato	Plato / Plato Systems	-
CLI	Clinical Notes (Respiratory)	U	CLIPS /	-	-
CLI	CM: Allied Health	U	HCC / IntraHealth	Houston / Houston	PiMS / iSoft
CLI	CM: Community Serv(clinical)	U	HCC / IntraHealth	-	(Soprano / Orion)
CLI	CM: Community Serv.(admin)	U	HCC / IntraHealth	PiMS / iSoft	Pims / Isoft
CLI	CM: Mental Health (admin)	U	HCC / IntraHealth	PiMS / iSoft	PiMS / iSoft
CLI	CM: Mental Health (clinical)	U	HCC / IntraHealth	various	Various
CLI	CM: Public Health	U	HCC / IntraHealth		
CLI	CM: Sexual Health	U	HCC / IntraHealth	NA	NA
CLI	Colposcopy	U	-	Colposcopy / Solutions+	(Colposcopy / Solutions+)
BUS	Complaints / Incidents	U	-	CIMS / Orion	AIMS / Australian Patient Safety Foundation
BUS	elearning	U	(Oracle)		
CLI	Elective Surg Scoring (CPAC)	U	(Predict / Enigma)	(Predict / Enigma)	
CLI	Electronic Referrals	U	-	(Soprano & Predict / Orion & Enigma)	-
CLI	E-Prescribing	U	-	(Soprano / Orion)	-

Envelope	Information System	Requires Focus	Auckland	Counties Manukau	Waitemata
	Information System		System / Vendor	System / Vendor	System / Vendor
CLI	Health Information & Communication	U	Internet / inhouse	Internet / inhouse	Internet / inhouse
CLI	Lab Document Mgt / Process Docs	U	IQMS	Qpulse	Qpulse
CLI	Radiology Management	U	Quadrat RIS / Afga	RIS / Détente	RIS / Détente
INF	Reporting (detailed adhoc)	U	MS Access Excell / Microsoft	Various / inhouse	Various / inhouse
INF	Reporting (scheduled)	U	Crystal Reports / Seagate	Crystal Reports / Seagate	Crystal Reports / Seagate
BUS	Rostering (staff)	U	ESP+Xpert / Totalcare	Onestaff / Perse	Rosters / Precept Systems
CLI	Audiology	X	-	-	Noah / Noah
FUN	Business Intelligence	X	-	OFA / Oracle	OFA / Oracle
CLI	Cardiology	X	Various / in-house	Various / in-house	Cardioview / Precept Systems
CLI	Clinical Audit	X	-	Plato / Plato Systems	(Clinical Audit / Orion)
BUS	Clinical Costing	X	PCM /	Transition / Allegiance	Datawarehouse / inhouse
CLI	Dietary	X	DMS / Cbord Group	Access / inhouse	Foodworks + Diet 4/ Xyris Software
INF	Integration Engine tier 2	X	(BizTalk / MS)		
CLI	Opthamology	X	ImageNet	Houston / Houston	Houston / Houston
CLI	Patient & supports portal	X	-	-	-
CLI	Patient Self Monitoring	X	-	(Soprano / Orion & Dr Global)	-
CLI	Pharmacy (Outpatient)	X	-	-	Toniq / Toniq Systems
CLI	Radiology Image Viewing	X	Web 1000 / Afga	GE Web / GE	Web 1000 / Afga

Envelope	Information System	Requires Focus	Auckland	Counties Manukau	Waitemata
			System / Vendor	System / Vendor	System / Vendor
CLI	Radiology Imaging	X	PACS / Afga	PACS / GE	PACS / Afga
INF	Reporting (on demand)	X		Reportz / Deloittes	Reportoire / Deloittes
INF	Scripted installs	X	-	?	tba
INF	Server OS UNIX other	X	Tru64 / HP & SCO UNIX	AIX / IBM	Tru64 / HP
CLI	Sterile Supplies	X	T-Docs / Getinge	(STS)	STS / Precision Data
CLI	Ward Stock Dispensing	X	-		Pyxis / Axiom

11. PROJECT TERMS OF REFERENCE

Project Title	Regional Information Systems Strategic Plan (ISSP)
Prepared By	Phil Brimacombe, Steve Mayo-Smith Date 22 May 2003
Project Sponsors	Dwayne Crombie, Graeme Edmond, Stephen McKernan
Project Managers	Ian Rowe, Johann Vendrig
Version and File Reference	Version 1.1 CIO\ISSP 2003\ToR regional ISSP.doc

ACTIONS REQUIRED	
Note	**The Boards of ADHB, CMDHB and WDHB note this terms of reference and its endorsement by the senior management teams and IS committees**

DELIVERABLES	

	The deliverable of this project will be a single regional ISSP for ADHB, CMDHB and WDHB, comprising:
	
	1. **An executive summary**:
	  a. Future State & Gap Identification
	  b. Current State Analysis & Issues Identification
	  c. Action Plan to move forward
	
	2. **An ISSP based on the national ISSP framework** that identifies the enabling technologies required to deliver the strategic business needs of the greater Auckland region health sector over the next 3 to 5 years.
	
	3. **Core components** of the project will include
	  a. A matrix review of the existing DHB IS capital plans and ISSPs, identifying commonality and alignment, and highlighting opportunities for short term collaboration and cost sharing.
	  b. A description of the "health system of the future" derived from national and DHB strategic plans, and identification and alignment of business strategic initiatives requiring information systems to enable and drive their implementation.
	  c. Agreed Regional Strategic Information Technology Direction
	  d. A "roadmap" of current and future IT/IM strategic developments, showing the current position of each DHB on that map and their individual paths towards a common strategy.
	  e. A program of projects, including descriptions, benefits, costs, high level timelines, resources, KPIs, and implementation plans by individual DHB.
	  f. Linkages and alignment to national and regional IT/IM initiatives and systems.

BACKGROUND

Project Statement	At a meeting of CEOs and CIOs on 5 March 2003, it was agreed that the three Auckland DHBs would jointly develop a single ISSP for the Auckland region.
	In September 2001 the three DHBs agreed on regional IS alignment in the Auckland Systems Review. A regional IS collaboration followed with the shared services partnership between Counties and Waitemata. In January 2003 Auckland DHB reaffirmed its commitment to the common systems alignment by selecting the same theatre management and clinical software used by Waitemata and Counties-Manukau Health.

	• Each DHB is at different stage of IS
	  – ADHB focus and commitment to Opening Day readiness
	  – WDHB in early stage Patient/Clinical Systems
	  – CMDHB is focusing on development in Primary, consolidation in Secondary

	The joint ISSP development will begin in May 2003. Flexibility in implementation will be maintained by individual DHB action plans. Historical DHB IS investment will be leveraged to support new strategies such as the Primary Health Care Strategy. Additionally the three DHBs are agreed in principle to a funding coalition for common IT/IM strategic initiatives.
Benefits	The anticipated benefits of a combined regional ISSP include:
	1. Strategic Alignment of IT/IM Direction across the Region.
	2. Clinical Continuity via the sharing of information and the adoption of regional standards and systems thus improving quality and productivity for patients and clinicians
	3. Financial Savings via joint IT purchasing and single instance systems such as Éclair Regional Results Reporting that will provide improved cost efficiency, pooled utilisation of capex will lower the TCO (total cost of ownership) of IT
	4. Improved Service via integrated, aligned systems that will provide more effective support and performance of clinical and business systems.

SCOPE

Principles	1. The ISSP will align with national, regional and DHB health strategies, and supports DHBs attaining their strategic goals.
	2. The aim of the ISSP is to enable DHBs to deliver a continuum of care to

the population via the sharing of information and the adoption of regional standards and systems.

3. The ISSP will be a plan for crossing the NZ quality chasm. It will systemically support the new model of healthcare, rather than automate the current processes. The ISSP will help drive strategy through innovation, anticipating the needs of the new health model.

4. The ISSP will be business focused ensuring that all IT/IM activities are aligned to clear business drivers and benefits.

5. The ISSP will deliver affordable, incremental IT/IM building blocks founded on the principles of high quality information exchange rather than the big bang monolithic approach. The analogy for this concept is "dolphins not whales"

6. The ISSP will aim to leverage the significant historical investment in secondary IT, to deliver benefits through the primary sector to patients, without impacting primary care independence.

7. The ISSP will pilot a single consistent future IT/IM direction (or roadmap), while allowing flexibility in implementation through individual DHB action plans, and recognising different starting points.

8. The ISSP will adopt a capital and operational expense approach, recognising that current fiscal constraints preclude significant additional DHB IS funding and require economies to be sought at all times. Therefore it will seek out alternative sources of funding, seek to reconfigure existing costs and redirect resources.

9. The ISSP will align with the format of the national ISSP framework, and will record the impact of collaboration and consultation with other DHBs.

10. The ISSP will not be an operational IS plan per se, focusing on specific IS initiatives rather than business as usual activities. However it will be linked into the operational plans of the health Alliance and ADHB IS by structuring milestones and timelines by financial year in order to permit specific IS initiatives to be carried into annual operational plans.

Inclusions	All IT/IM required to enable and deliver the business strategies of the three Auckland region DHBs in the years 2004 to 2007.
Exclusions	This project will develop the regional ISSP in parallel with, and will not delay, <u>current</u> DHB ISSP commitments including: • ADHB focus and commitment to Opening Day readiness • WDHB Clinical Systems implementation • CMDHB focus on development in Primary, consolidation in Secondary

CRITICAL SUCCESS FACTORS	
	1. Committed sponsorship by the CEOs.
	2. Good communication with and buy in from stakeholders.
	3. Governance processes associated with regional collaboration, including each DHB participating on an "equal voice" basis, and unanimity in decision-making.
	4. Shared solutions which reflect contributions and strengths of each DHB.
	5. Regional evaluation criteria to support assessment and prioritisation of investment decisions where necessary.

RELATED ACTIVITIES	
Auckland Regional Shared Service Review	The Regional Shared Services review may impact on aspects of the ISSP consequently a close alignment will be kept with the Shared Services review.
	It is also expected that work done on the regional ISSP will be used to inform the Shared Services review

LINKAGES	
Project relationships and linkages	The New Zealand Health Strategy December 2000
	The Primary Health Care Strategy February 2001
	From Strategy to Reality: The WAVE Project October 2001
	DHB District Strategic Plans
	Crossing the Quality Chasm: A New Health System for the 21st Century (Institute of Medicine Committee on Quality of Health Care in America, 2001)
Prior Work	ADHB ISSP May 2002
	CMDHB-WDHB draft ISSP December 2002

MILESTONES		
Key milestones and timeline	March 2003:	CEOs of ADHB, CMDHB, WDHB agreed to develop a single regional ISSP
	April 2003:	ISSP development process and ToR agreed
	May 2003:	Project team functioning, work plan under way, reference group established
		Matrix review of existing plans completed
	June 2003:	Health system of future agreed, and strategic initiatives aligned
		High level future state agreed
	July 2003:	Current state analysis and gap analysis completed
	August 2003:	Strategic roadmap agreed
		Linkages to national projects agreed

	September 2003: Program of projects and individual implementation plans completed
	October 2003: First draft circulated for feedback
	November 2003: Second draft circulated for signoff
	December 2003: Final document presented to senior management teams
	Note: These key milestones and their timings will be refined by the joint project managers as the full scope of the ISSP is developed

RISK ANALYSIS

Programme Risks	Risk Level and Mitigation Strategy
Clash of cultures obstructing compromise and agreement; lack of engagement, and potentially resistance, by stakeholders	High risk. Each CEO and CIO to establish a guiding coalition of influential senior clinicians and managers to promote the regional ISSP to stakeholders.
Short term projects taking priority and resources away from long term strategising	High risk. Strong statements and commitments required from the CEOs
Perception that IS is leading strategy development instead of waiting for the business, and subsequent resistance	High risk. Strong statements and commitments required from the CEOs. Appropriate use of IS Steering Committees that include relevant stakeholders.
Perception of inequality of contribution and lack of sharing by individual DHBs	Moderate risk. CEOs and CIOs to encourage regional rather than parochial thinking.
Inability to align different DHB strategic initiatives sufficiently to develop a common ISSP	Moderate risk. CIOs to encourage longer term as well as shorter term view.
Clinical information sharing between DHBs may be perceived to be a problem by the public.	Moderate risk. Close involvement of the DHB Privacy Officers
Lack of committed sponsorship by the CEOs	Low risk. Maintain frequent communication with sponsors.

STAKEHOLDERS

Clients	CEOs of ADHB, CMDHB, WDHB
Key Stakeholders	DHB CIOs, Clinical Directors of IS, senior clinicians, senior management teams, IS committees
Other Stakeholders	Providers from the primary, community and secondary sectors, PHOs, funders, mental health, Maori, Pacific, NGOs, consumers, DHB Privacy Officers

ASSUMPTIONS

Assumptions	1. The national ISSP Framework recently developed by the CIO Forum and MoH will be used as the table of contents for the regional ISSP.
	2. Regional collaboration and shared services and systems will continue to be a critical driver of business activity.
	3. A new model of health care delivery is prescribed in national strategy. The ISSP articulates how IT/IM will be used to enable and deliver the new model of healthcare strategy, which prioritises population health

	management by development of the primary sector to coordinate care. The Minister requires DHBs to make the strategy happen.
	4. The new funding environment requires new ways of funding for IT, for example by developing national demonstration projects such as the national immunisation system. The funding environment is geared towards building on existing capacity and systems.

RESOURCE REQUIREMENTS

Project Team	There will be a small project team whose purpose is to produce the regional ISSP, including developing and drafting the content, obtaining feedback and consensus from stakeholders, and obtaining approval for the final ISSP.
	The core work team, who will manage the process, will comprise
	• ADHB CIO
	• CMDHB/WDHB CIO
	• Joint project managers: ADHB IS Alignment Manager, CMDHB/WDHB IS Enterprise Architect
	• A project administrator
	The wider team, who will coordinate and contribute content, will involve the following:
	• ADHB Clinical IS Representation
	• CMDHB Clinical Director IS
	• WDHB Clinical Director IS
	• Health Alliance IS Manager
	• Operational General Manager
	• A CMO or other senior clinician
	• Primary Sector Clinical Liaison
	• Other parties as required
	A Chair will be appointed.
	The joint project managers will arrange working groups to address individual issues as required.
Governance	The project team will report via the CIOs to the NDSA Board which will act as a Project Control Board (PCB).
	The purpose of the PCB is to monitor progress by receiving monthly summary reports, and to provide high level direction and guidance to the project team.
	Reporting will also be provided to the individual DHB's IS committees
Reference Group	There will be a reference group of interested parties from the wider health sector, including providers from the primary, community and secondary sectors, PHOs, funders, mental health, Maori, Pacific, NGOs, consumers.
	The purpose of the reference group is to provide feedback from those involved in or affected by the regional ISSP.
Resource Constraints	Project participants will be fitting in this project around their current work commitments, and all will need to juggle conflicting priorities.

FINANCIAL SUMMARY

Budget	None

CONSULTATION AND SIGNOFF		
Document Consultation		
Sign-off	Chief Executive Officers:	
	Dwayne Crombie (WDHB)	
	Graeme Edmond (ADHB),	
	Stephen McKernan (CMDHB)	
	Chief Information Officers:	
	Phil Brimacombe	22/5/03
	Steven Mayo-Smith	22/05/03
	Project Managers:	
	Ian Rowe	22/05/03
	Johann Vendrig	22/05/03

12. PROJECT METHODOLOGY

The RISSP development project was jointly sponsored by the CEOs of the three DHBs.

A "Core Team" of five people developed the RISSP over a period of one year, through extensive consultation with DHB clinical and management staff and representatives of the Primary Health Care sector.

A wider "Project Team" refined and contributed to the project deliverables. The members of the Project Team were people from the DHBs who were engaged as "wise heads" rather than as formal representatives of their particular areas of the business.

Four "Reference Groups" oversaw the development; the senior management teams of the three DHBs, plus a group of prominent Primary Health Care representatives. The Reference Groups had three important roles to play:

- to review, critique and contribute to project deliverables, and recommend acceptance to the sponsors
- to select the "Key Objectives" that the RISSP will implement
- to act as a conduit for communication between the Project Team and various stakeholders.

The Project Team determined the strategies in Appendix 4 (Current State/Future State Analysis) by studying a group of "Topics", as required by the Ministry of Health's "National Framework for DHB Strategic Information System Planning".

The Topics were

- Collaboration
- Population and Public Health
- Primary Health Care
- Secondary and Tertiary Health
- Community and Ambulatory Services
- Māori Health
- Pacific Health
- Mental health
- Disability Support
- Child Health
- Older Peoples Health
- Chronic Care Management and Other Services
- Corporate Functions
- Technology and Infrastructure
- Information Services Organisation
- Quality and Safety

A number of strategies were determined for each Topic, in conjunction with "subject matter experts" from the DHBs and Primary Health Care. The resulting Topic Information Strategies were then reviewed and agreed by the Reference Groups.
The Core Team distilled the overall Information Strategies presented in Appendix 5.1 (Consolidated Strategies) by analysing the Topic Information Strategies for consistent and coherent key themes.

A number of "Information Objectives" (possible ways of implementing the Information Strategies) were recognised for each Topic.

The Core Team reviewed and consolidated the 233 Topic Information Objectives down to 49, shown in Appendix 5.2 (Consolidated Objectives), then invited the Reference Groups to select the Key Objectives that they believed would provide the most value to the DHBs.

Each of the four Reference Groups met to determine its preferences, then members attended a collective workshop, which arrived at the set of 30 "Key Projects" shown in Appendix 5.3 (Key Projects).

This provided the Core Team with a basis for developing the Programme of Work described in Appendix 5.5 (Programme of Work).

It is important to note that the selection process was purely subjective. The aim was for the Core Team to determine which objectives had the most support. The process was an exercise in collaboration between the DHBs and Primary Health Care, and was successful in that a consensus view was achieved.

Implementation of the Key Projects will be subject to business case approval; that is the time when an objective analysis of value will be made.

13.GLOSSARY

A large number of information technology and health care terms are used in the RISSP. The following is not intended to be a comprehensive list of them, rather an explanation of some whose meaning may not always be clear from context.

Business Information	The information that is gathered, manipulated, stored, distributed and accessed for the funding and management of (health) services
Clinical Information	The information that is gathered, manipulated, stored, distributed and accessed for the assessment and treatment of patients, including information that is used for the evaluation of outcomes of health services provided to people
Information Service(s)	The hardware, software, processes, and people that manage (electronic) data and information. Also used as shorthand for "the organisation that provides information services"
Information System (IS)	A computer application that supports a business function
Information Technology (IT)	The hardware, networks, operating systems, and databases that enable Information Systems
Information Management (IM)	The process of structuring and analysing data to extract value from it
Patient	Used in its widest possible sense, i.e. to refer to anybody accessing health and disability services (whether they are ill or not).
Clinician	Used in the widest possible sense of "a caregiver" – doctor, nurse, physiotherapist, psychologist, midwife, etc.
(Auckland) Regional	The area and population covered by the Auckland, Counties Manukau, and Waitemata District Health Boards
NGO	Non Government Organisation – any organisation involved in health care that is not responsible to the Minister of Health, e.g. community, local body, iwi, charitable trust
Provider	Any organisation providing health care
Point of care	The time and place of any interaction between a patient and a clinician
Funder	The funder arm of a DHB, responsible for health service commissioning
Business	The delivery and support of health care, i.e. not just management and administration
Shared service organisation	The yet-to-be-formed organization that will deliver information services to all the regional DHBs
User	A person who uses a computer system

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The Primary Health Care Strategy	hon Annette King, Minister of Health	February 2001
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He Korowai Oranga	Ministry of Health	November 2002
National Mental Health Plan	Ministry of Health	September 1997
Child Health Strategy	Ministry of Health	June 1998
Child Health Information Strategy	Ministry of Health	April 2003
Operational Policy Framework	Ministry of Health	February 2003
Health of Older People Strategy	Ministry of Health	April 2002
The New Zealand Disability Strategy	Ministry of Social Development	April 2001
Health Information Privacy Code 1994	Office of the Privacy Commissioner	30 July 2000
1996 Census of population and Dwellings	Statistics NZ	May 1997
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15. ACKNOWLEDGEMENTS

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