Auckland Region Information Services Strategic Plan

March 2004

Improving health outcomes through information exchange

AUCKLAND DISTRICT HEALTH BOARD Te Toka Tumai

COUNTIES MANUKAU DISTRICT HEALTH BOARD

Waitemata District Health Board

Te Wai Awhina

E ngā maunga, e nga awa
E ngā parikarangarangatanga
Tatū atu ki ngā takutai moana
Puta ki runga, puta ki raro
Tēnā koutou, tēnā koutou, tēnā koutou katoa

Kei ngā kaihautū o te waka hauora o tēnei
E taki te whakapikinga o ngā tāngata, ngā whānau, ngā hapū
E hora ake nei i nga mihi ā ngākau ki a koutou katoa
Mauri ki runga
Tihee mauri ora

Kāti, kia tahuri nga whakaaro me nga mihi ki te hunga kimi mārama
Kia pikitū, pikiora, piki maramatanga
Ki manawa kai hau, ki manawa kai awatea
Kia pakari ai ā runga, ā raro, ā waho, ā roto
Kei ngā ariki o āpōpō
Tēnā koutou, tēnā koutou
Kāti ake, ki a tātou katoa
Kia piipiri rā tātou ki te kakara kotahi
Kia ora tātou katoa

The mihi acknowledges the people of the land, the people involved in the project (the team and DHBs) and the public at large.

This is the *Auckland Regional Information Services Strategic Plan* (RISSP). It identifies the strategic Information Services (IS) required over the next three to five years by the District Health Boards (DHBs) serving the Auckland region.

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.

A Collaborative Approach to Information Services

In September 2001 Auckland's three DHBs agreed to align regional IS in the *Auckland Systems Review*. Regional collaboration followed with the healthAlliance shared services partnership between Counties Manukau and Waitemata. A significant step forward came in March 2003, when the three Chief Executive Officers agreed to sponsor the development of a single Information Services Strategic Plan.

This document presents the output from that project.

A "Core Team" of five people created the RISSP, with contributions and refinements from a wider "Project Team" - people from the DHBs engaged as "wise heads" rather than as representatives of their 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 deliverables, and recommend acceptance to the sponsors*
- *To select the "Key Projects" to implement*
- *To act as a conduit for communication between the Project Team and various stakeholders.*

The RISSP begins by reviewing current national and international thinking on "the health system of the future", followed by the DHBs' shared information services vision and extracts from the DHBs' District Strategic Plans (DSPs).

We then introduce a number of information strategies to support the DHBs' strategies, and explain the information services landscape required to deliver them. This leads to a description of some key projects that contribute to the information strategies.

Finally, we outline a suggested programme of work to implement the key projects, and state the estimated costs and perceived benefits and risks of proceeding.

The full detail of the RISSP is contained in the Appendices included on the attached CD.

Development of the RISSP has been a seminal exercise in collaboration between the DHBs and the Primary Health Care sector, which we look forward to continuing as we implement the programme of work. We would like to take this opportunity to thank all the clinical and management staff who contributed.

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 from integrated, aligned systems that provide more effective support of clinical and business processes

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Introducing the Health System of the Future

The health system of the future will be

Safe—avoiding injuries to patients from the care that is intended to help them

Effective—providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding under use and over use)

Patient-Centred—providing care that is respectful of and responsive to individual patient preferences, needs and values; and ensuring that patient values guide all care decisions.

Timely—reducing waits and sometimes harmful delays for both those who receive and those who give care.

Efficient—avoiding waste, in particular waste of equipment, supplies, ideas and energy.

Equitable—providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location and socio-economic status.

from *Crossing the Quality Chasm, A New Health System for the 21st Century* (USA Institute of Medicine's Committee on Quality Health Care, 2001)

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". It states that "services must be co-ordinated, and providers must collaborate to ensure institutional boundaries do not compromise quality of care".

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

DHBs and their associates, Primary Health Organisations (PHOs) are required to deliver healthcare under the strategy. The 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 people's treatment. Radical, disruptive reform within the health sector carries huge risk of adversely impacting health outcomes. Consequently, the current reform is being implemented progressively and incrementally, allowing time for adjustments and corrections.

Information services are clearly seen as critical to delivering *The New Zealand Health 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".

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

Evolution of the New Health System

Old Health System	New Health System
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

New Zealand is implementing a new health system that reflects a global change in the model of delivering healthcare. Characteristics of the old and new health systems are described (above) in *The Primary Health Care Strategy*, and (below) in *Crossing the Quality Chasm, A New Health System for the 21st Century*

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

Improving Health Outcomes Through Information Exchange

Collaboration

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.

The RISSP vision is **"Improving health outcomes through information exchange"**. The following principles will guide the journey towards the vision, in an environment of concession, compromise and consensus.

- Auckland's three DHBs will collaborate to improve health outcomes through information interchange.
- The DHBs will adopt regional standards and information systems to allow sharing of information within the relevant legal framework.
- Information systems will contribute to the development of new processes for improved clinical effectiveness and efficiency.
- 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.
- 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.
- 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.
- 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.
- The Treaty of Waitangi principles of partnership, participation and active protection of Māori Health interests, cooperation and utmost good faith will be implicit conditions of all information systems.
- The limited funds available will be used to achieve the maximum possible positive impact on the DHBs' operational performance.
- Reasonable measures will be put in place to ensure 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.
- Rationalisation and standardisation of systems, and consolidation and reuse of equipment will result in improved service levels and reduced costs.

Information Services will Support the DHBs' Key Strategies

ADHB's four Key Goals are:

Lift the health performance of Aucklanders

- 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.

Make the change programme happen

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

Finish the building programme

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

Get control of our finances

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

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

The RISSP Information Strategies will support DHB Strategies to

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

COUNTIES MANUKAU DISTRICT HEALTH BOARD
A Community Partnership

Our vision is "To work in partnership with our communities to improve the health status of all, with particular emphasis on Māori 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 with respect 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*
- *Māori health services*
- *Mental health including alcohol, drug and 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
Te Wai Awhina

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*

WDHB Top 10 Things to Do

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.

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

Information Strategies to Support the DHBs' Key Strategies

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.

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.

The Project Team determined these strategies by studying the "Topics" 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
- Support 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 here by analysing the Topic Information Strategies for consistent and coherent key themes.

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 Health, 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 Health) Patient Information System for patient registration and 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.

Information Strategies to Support the DHBs' Key Strategies

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.

Enable the Primary Care Strategy

- Provide accredited Primary Health 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 Health Caregivers with fast, timely, and accurate access to and ability to update the National Health Index (NHI).
- Develop capabilities and systems for monitoring, reporting, and forecasting Primary Health Care expenditure, utilisation, outcomes, and Population Health status.

Coordinate care across the health sector

- Establish care co-coordination systems for Community and Ambulatory, Disability Support, and Mental Health services, which can exchange information with Primary and Secondary Health Care systems and with clients. Use technology that allows continuous improvement 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 the national programmes.

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 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.

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 Support functions.
- Continuously improve technology cost-efficiency.

Consolidate and strengthen the performance, robustness, security, and scalability of systems

- Provide an optimum organisational structure to meet the clinical and business Information Strategies, objectives and service requirements of the region's DHBs, Primary, and Community/NGO Health Care providers.
- Provide a robust, reliable, resilient, fast, responsive, permanent, and secure IT infrastructure that allows continuous improvements and enhancements, which 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 Health systems to meet changing clinical and business needs.

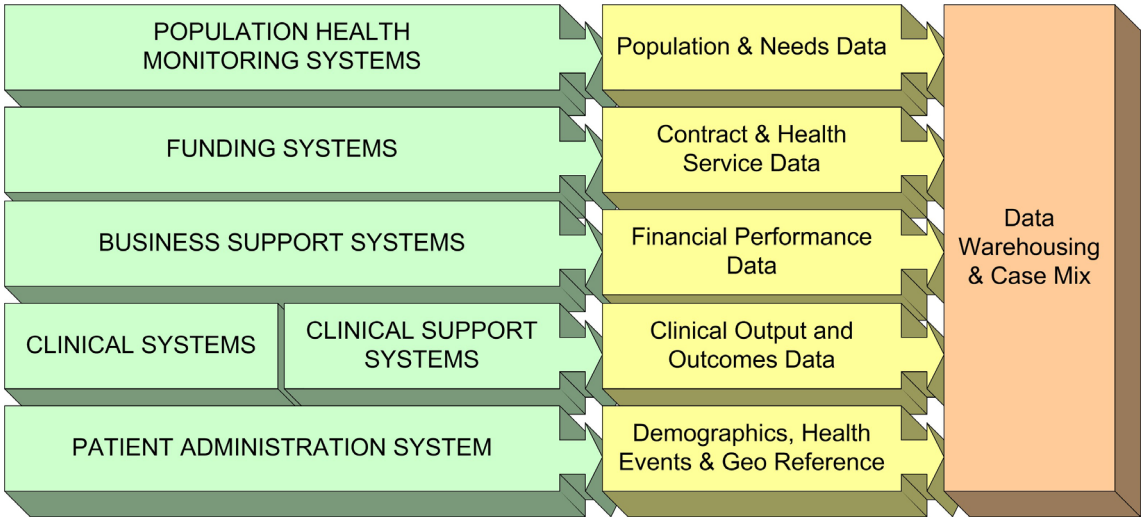
Organisational Commitment

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

A Balanced Approach to 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 at improving 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 patients 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 allow informed decisions about better ways to fund, manage and provide care for the Auckland population.

Moving to an Integrated Clinical Systems Landscape

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.

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 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.

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.

Key Projects to Implement the Regional ISSP

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 individual Topic Information Objectives down to 49, then invited the Reference Groups to select those which 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 identified and prioritised the set of 31 "Key Projects" shown here.

The process was an exercise in collaboration between the DHBs and Primary Health Care, and was successful in that a consensus view was achieved.

It is important to note that the selection process was purely subjective. The aim was for the Core Team to determine which initiatives had the most support, as a basis for developing a Programme of Work.

Implementation of any Key Project will be subject to business case approval, at which time an objective analysis of value will be made.

The Key Projects are listed alphabetically here, and ranked in priority order in the Programme of Work on page 18.

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).

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.

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.

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.

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.

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.

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.

e-Prescribing

Implement an e-Prescribing system that delivers the right medication to people, reduces medication errors, and the overall cost of pharmaceuticals.

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.

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.

HRMS and Payroll
Complete the CMDHB and WDHB implementations, and implement the *Leader* HRMS & Payroll system including self-service kiosk at ADHB.

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.

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.

National Immunisation Register
Assist the Ministry of Health to implement the National Immunisation Register (NIR) to support improved immunisation rates and the Meningococcal campaign.

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.

National Screening Programmes
Collaborate with the Ministry of Health as required to support the national screening programmes.

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.

Order Entry
Select and implement a regional Computerised Physician Order Entry (CPOE) system, incorporating clinical decision support tools.

Outpatient Scheduling (ADHB)
Replace ADHB *PHS* with the WDHB and CMDHB *PiMS* Outpatient Scheduling solution to provide a regionally consistent scheduling solution.

Patient Administration System (ADHB)
Implement a single consistent regional Patient Management System and improve quality of data collection (including ethnicity).

Pharmacy
Implement a new regional Pharmacy System.

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.

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

Public Health Alerts
Implement a regional geographic public health/epidemic alert system to assess and manage epidemics and civil defence emergencies.

Rostering
Implement a consistent and integrated regional Rostering system.

Self-Service Purchasing
Complete regional implementation of *Oracle* self-service purchasing.

Service Directory
Implement a regional health service directory across DHBs and PHOs (and integrate with National Provider Index when this becomes available).

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.

System Support
Provide a comprehensive IS/IT support service that meets the agreed service levels at minimum cost.

System Upgrades
Maintain the currency of systems with version changes so that they remain clinically relevant and supportable.

Well Child
Implement and enhance the Well Child information systems across the region, including the school dental service.

Key Projects to Implement the Regional ISSP

Return on Investment in the Key Projects

IS Spending Benchmarks

IDC's *Forecast for Management* survey shows median average IS spend over the period 1996 to 2003 in 150 Health & Community Services organisations (including DHBs) in Australia and New Zealand was 2.96% of revenue.

Microsoft has provided results from 406 U.S.-based survey respondents, collected between April 2003 and July 2003. These show the percentage of revenue spent on IT 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 for the UK Treasury - 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.

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
  a continuum of care is provided for patients
  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 patient care back to the ordering clinician
- Standard clinical processes can be supported by common systems
- Continuum of care for patients is facilitated by easier transfer of information from clinician to clinician

Investment in the Key Projects

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.

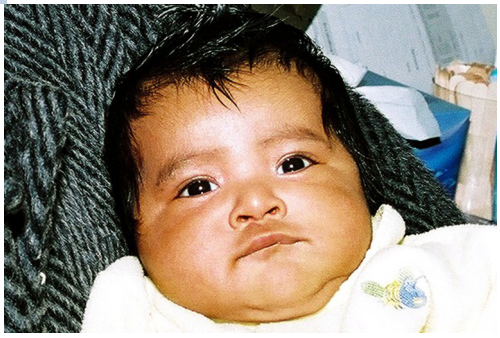
DHBs will need to add a provision for Latent Demand projects when drawing up their individual capital budgets.

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 more accurate costs. 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.

Projects will adhere to standard financial project accounting principles, with capital and operational costs reported against individual projects.



Auckland Region IS Spending

The DHBs' IS spending for 2004/05 is budgeted at $61M, increasing to $64M as a result of the RISSP Programme of Work. DHB total revenue for 2004/05 will be $2.337M, with provider arm revenue of $1.534M.

The benchmark figures opposite include Primary Health Care and Community/NGO organisations funded by the DHBs. Their level of IS spending is unknown, so an estimate of $20M per annum has been made to allow comparison between total Auckland spending and the benchmarks.

The estimated total IS spend for the Auckland region is 3.62% of DHB total revenue.

How Auckland Compares

Australasian 1996-2003 average	2.96%
Auckland Region estimate	**3.62%**
UK NHS recommended 2004	3.84%
US health sector 2003	4.39%

Balance of Investment

DHB spend as a percentage of provider arm revenue is estimated at 4.15%; Primary Health Care/ NGO IS spend related to DHB-funded services is estimated at 2.62% of corresponding revenue. It is expected that, over time, the projects contemplated by the RISSP will effect a shift in this balance.

Programme of Work

The following table shows the proposed timeframes and estimated capital requirements ($000) 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. There will be incremental operational costs, estimated at around $12.85M over the three years. Corresponding cost savings have not been quantified; that will be done as part of the business case process applied by each DHB. The Key Projects are shown here in the order that they were ranked by the Reference Groups.

		ADHB				CMDHB				WDHB				Grand
	Key Project	04/05	05/06	06/07	Total	04/05	05/06	06/07	Total	04/05	05/06	06/07	Total	Total
Patient and Clinical Systems														
1	Chronic Care Management	167	300		467	167	300		467	166	300		466	1400
2	Well Child		210		210		210		210		210		210	630
3	Clinical Data Repository	333	333	334	1000	333	333	334	1000	333	333	334	1000	3000
4	Clinical Workstation	108			108	108			108	109			109	325
5	Health Event Summaries	250			250	250			250		250		250	750
6	Mental Health			1000	1000	750	250		1000		250	750	1000	3000
7	Community, Ambulatory, Disability				1000		1000		1000	350			350	1350
8	e-Referrals	333			333	333			333		334		334	1000
9	Pharmacy						600		600		500		500	1100
10	Order Entry		500		500		500		500			500	500	1500
11	e-Prescribing	1000			1000		1000		1000			1000	1000	3000
12	Clinical Audit	110			110			110	110	110			110	330
13	Clinical Reference Texts	42			42	42			42		41		41	125
14	Outpatient Scheduling (ADHB)													
15	Patient Admin (ADHB)	2000	2000		4000									4000
	Total	4343	3343	1334	9020	1983	4193	444	6620	1068	2218	2584	5870	21510

	Key Project	ADHB 04/05	ADHB 05/06	ADHB 06/07	ADHB Total	CMDHB 04/05	CMDHB 05/06	CMDHB 06/07	CMDHB Total	WDHB 04/05	WDHB 05/06	WDHB 06/07	WDHB Total	Grand Total
Business Systems														
1	HRMS and Payroll	800			800									800
2	Self-Service Purchasing		1,000		1,000									1000
3	Service Directory	43			43	43			43		44		44	130
4	Rostering		900		900			300	300			300	300	1500
5	Management of Assets			100	100			100	100			100	100	300
	Total	843	1900	100	2843	43	0	400	443	0	44	400	444	3730
Funding and Performance Systems														
1	Business Intelligence / Population Health	444	444	445	1333	444	444	445	1333		667	667	1334	4000
2	Public Health Alerts	19			19			18	18		18		18	55
	Total	463	444	445	1352	444	444	463	1351	0	685	667	1352	4055
Infrastructure														
1	Standard Infra-structure	3800	4300	5800	13900	2200	2200	2200	6600	2200	2200	2200	6600	27100
2	System Upgrades	200	200	200	600	200	200	200	600	200	200	200	600	1800
3	Primary Care Information Services	35			35	35			35					70
4	Privacy and Security	10	10	10	30	10	10	10	30	10	10	10	30	90
5	System Support													
	Total	4045	4510	6010	14565	2445	2410	2410	7265	2410	2410	2410	7230	29060
	Grand Total	9694	10197	7889	27780	4915	7047	3717	15679	3478	5357	6061	14896	58355

Notes

(Community, Ambulatory, Disability, Mental Health) If this project requires ADHB to replace *HCC* then it will require an additional $1M.

(Outpatient Scheduling, Pharmacy, HRMS) ADHB budget was allocated in 03-04 year so no costs are recorded for the expected timeframe of this RISSP.

(Standard Infrastructure) cost estimates for the three years are: Software Licenses $1.5M; Server Hardware $4.5M; Desktop Hardware (PCs and printers) $10.1M; Storage $3M; Networks $3M; Standardisation $5M.

(Primary Care Information Services) WDHB budget was allocated in 03-04 year so no costs are recorded for the expected timeframe of this RISSP.

(System Support) This objective has no capital component.

(NIR, Mental Health, Screening, NHI) National projects will be funded by the Ministry of Health so no capital cost has been allocated.

Key Risks and Issues

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.

Some initiatives are not directly linked to patient 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 patients 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 patient information.

Little emphasis has been placed over the years on the ability to retrieve archived information in the context within which it was stored.

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The full RISSP output is contained in the *Appendices* on the CD…