



## E-Pharmacy - Perspectives and Implementation Considerations



A Report by the NZ Health IT Cluster

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## 1. Document Purpose

This document is intended to provide a Health IT Cluster perspective on E-Pharmacy, in particular to move the agenda forward by engaging people in discussion about the scope, benefits, and implementation of E-Pharmacy.

It is primarily targeted at the Ministry of Health who sponsored this report and the Health Information Strategy Action Committee (HISAC) as input to Action Zone 4 of the Health Information Strategy for NZ.



## 2. Executive Summary and Key Recommendations

E-Pharmacy has been on the E-Health agenda for some time now and a number of the components of E-Pharmacy have been implemented with the sector already. Implementation efforts to date have tended to be adhoc in anticipation of a future where electronic business methods are the norm or in response to the WAVE report (Working to Add Value through E-Business) rather than part of a specific E-Pharmacy vision and strategy.

In recognition of its importance, E-Pharmacy is now formally part of the strategic information systems landscape in the New Zealand Health & Disability sector with the inclusion of the E-Pharmacy Action Zone within the Health Information Strategy for New Zealand 2005 (HIS-NZ).

An indicative scoping exercise has defined the high-level scope of E-Pharmacy. A preliminary scoping exercise is now underway which will define E-Pharmacy to a level of detail appropriate for understanding all components that will make up E-Pharmacy and the recommended approach to implement these, and will be the basis for evaluating systems and proposals.

A number of NZHITC members have implemented some parts of E-Pharmacy and continue to work with their customers on new features and functions which would fit under the banner of E-Pharmacy. These members are acutely aware of their customer's needs and the implementation challenges. The New Zealand Health IT Cluster (NZHITC) believes it is important to be proactive and provide input to the E-Pharmacy Action Zone, particularly as it enters the definition and planning phase. The NZHITC believes that it can provide practical advice on progressing E-Pharmacy to implementation reasonably quickly.

In February 2006 the NZHITC sent a questionnaire to both of the NZHITC Clinical and Technical Working Groups seeking response to high level questions on E-Pharmacy. The purpose was to solicit responses from the workings groups on a range of E-Pharmacy related issues in order to develop a NZHITC view for presentation to the Ministry of Health and the Health Information Strategy Action Committee (HISAC).

This report provides a NZHITC perspective on E-Pharmacy including the survey findings and recommendations, and the next steps to progress E-Pharmacy, and is being provided as input to HIS-NZ Action Zone 4.

Analysis of the survey responses has identified a series of findings. These are summarised below:

- There are various interpretations of the E-Pharmacy vision and scope.
- There is a common view that E-Pharmacy will deliver real benefits to the sector and to patients. The benefits of E-Pharmacy broadly fit into three groups:
  - Better patient health outcomes / clinical safety.
  - Improved healthcare administration and expenditure.
  - Improved and timely monitoring, tracking, and reporting.
- A number of building blocks are in place upon which E-Pharmacy can be built and advanced quite quickly, including leveraging a number of relevant E-Health initiatives and a number of the other HIS-NZ Actions Zones.
- There are also some important building blocks that need to be put in place. These include:
  - Agree the definition and scope of E-Pharmacy and its components
  - Specify the business and technical requirements, and solution architecture for E-Pharmacy



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- Develop a business case including high-level business and technical requirements, an assessment of solution options and feasibility, the implementation approach, funding, etc
- Identify and/or define the critical standards for E-Pharmacy including leveraging existing standards, in particular standards for data, drug formulary, coding, information exchange, security, and business processes
- There are also some important some barriers to overcome in particular addressing security concerns and the Medicines Regulations and Electronics Transactions Act.
- E-Pharmacy is an achievable proposition. It requires the establishment of an implementation project or programme of work that provides for a phased approach to delivering E-Pharmacy, with an emphasis on the core enabling components (building blocks).
- There is a desire and a willingness across the health IT sector to collaborate to make E-Pharmacy a reality as soon as is practically possible.

The key NZHITC recommendations are:

- I That this report be accepted as input to the HIS-NZ Action Zone 4 preliminary scoping project.
- II That consideration be given to amending the definition of E-Pharmacy in the HIS-NZ glossary of terms to include other healthcare service providers, regulatory, and funding and payment agencies, and reference to health outcomes and patient safety. The proposed wording can be found in section 4.1 of this report.
- III That consideration be given to amending the HISO E-Pharmacy Information Lifecycle diagram to accommodate more solution options, without specifying a preference, and include a number of linkages within the lifecycle which necessarily exist today. The suggested changes are outlined in section 4.6 and Appendix 2 of this report.
- IV That E-Prescribing be confirmed as the core enabling transaction for the wider scope of E-Pharmacy, and that the E-Prescribing lifecycle diagram in Appendix 1 of this report be modified in line with recommended changes outlined in section 4.6 and Appendix 2 of this report.
- V That the guiding principles listed in section 5.1 of this report be used to inform the development of formal guiding principles for Action Zone 4.
- VI That the implementation of E-Pharmacy be managed incrementally with an initial focus on the core enabling components (building blocks), then those that deliver significant benefits across the continuum of healthcare in incremental steps. This approach acknowledges that the practicalities of implementing E-Pharmacy are significant and not without risk, and the leverage that can be gained from early delivery of core enablers.
- VII That NZHITC consults with HISAC to determine what further assistance it can provide in relation to the E-Pharmacy Action Zone, including developing an E-Pharmacy Architecture Options Analysis and Feasibility report as input to an E-Pharmacy business case. This should be developed in close conjunction with the other HIS-NZ Action Zones and would ideally be undertaken when the high level requirements for E-Pharmacy have been specified.
- VIII That priority be given to developing a business case for E-Pharmacy, including specifying the high-level business and technical requirements, and assessment of the solution options.
- VIX That Action Zones 4 and 12 collaborate as soon as possible to develop an initial assessment of the standards requirements for E-Pharmacy.



- IX That Regulation 43 of the Medicines Regulations be amended to allow E-Pharmacy transactions and, given the potential elapsed time to get this amendment through due process, that immediate steps be taken to confirm the amendments required and initiate the amendment process. Suggested wording changes can be found in section 6 of this report.



### 3. Introduction

In February 2006 the New Zealand Health IT Cluster (NZHITC) sent a questionnaire to both of the NZHITC Clinical and Technical Working Groups seeking response to high level questions on E-Pharmacy and E-Prescription. The purpose was to solicit responses from the working groups on a range of E-Pharmacy related topics in order to develop a NZHITC view for presentation to the Ministry of Health and HISAC.

This document outlines the survey findings and recommendations from the NZHITC.

#### 3.1 Background

##### Current situation:

Although E-Pharmacy has been on the E-Health agenda for some time now, various interpretations of the definition of E-Pharmacy and its benefits exist within the sector, and the detailed business and technical requirements are not specified.

Aspects of what may comprise E-Pharmacy have been implemented within the sector already. For example:

- Approximately 98% of New Zealand pharmacies and GPs' are computerised.
- Drug interactions databases are available electronically and are currently embedded in some primary care Practice Healthcare Management Systems (PHCPMS) and hospital-based Clinical Information Systems (CIS).
- Controlled drugs registers are available electronically and are currently embedded in Pharmacy Management Systems (PhMS).
- The NHI is accessible online.
- Clinical data repositories currently exist at local and regional levels and are expanding to provide an extended view of the patient's clinical record, including Rx information.
- At least one DHB is doing electronic prescribing at the secondary care level with some workarounds to address legal requirements (e.g. putting bar codes on hard copy prescriptions).

However, some components have not yet been addressed. For example:

- The estimated level of computerisation of secondary care facilities and private health care providers (e.g. rest homes) is unknown but expectations are that this figure is considerably lower than pharmacies and GPs', specifically within the context of E-Pharmacy.
- Some of the electronic links are missing:
  - Prescribing already exists as a function within some PHCPMS solutions, which includes drug interactions and warnings. Prescriptions are printed out for the patient to take to a pharmacy. No electronic prescriptions data is sent to a pharmacy.
  - Most pharmacies can generate some prescriptions from with their PhMS. These are not sent electronically to a patient's doctor.
  - Prescribing and dispensing systems use different coding systems which were developed to suit the specific needs of either the practice management systems or the pharmacy systems.



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- Currently floppy diskettes carry \$500+million of invoices annually which are sent to HealthPAC including the unencrypted names/addresses of patient using controlled drugs.

Some barriers to overcome include:

- There is anecdotal evidence that pharmacies are warned not to use email on the same computers that are used for dispensing, because of the risks of computer viruses corrupting the data.
- A pilot system 5 years ago in the Manawatu proved to be too difficult, and Pharmacy Electronic Claiming, the single step between Pharmacies and HealthPAC, turned out to be a much bigger project than was originally envisaged.
- The Medicines Regulations and Electronics Transactions Act.
  - Regulation 41 of the Medicines Regulations sets out the form of a script (in hard copy, writing, signed etc). The schedule to the Electronic Transactions Act (ETA) excludes Regulation 41 from coverage under the ETA. Therefore a script must be in hard copy, and hand signed (an electronic version is not allowed). However, Regulation 43 allows the Director General of Health to approve other forms “in special circumstances”. In February 2006 the Ministry of Economic Development reviewed the ETA schedule and advised that the exclusion of Regulation 41 should not change, even though electronic prescriptions are on the horizon, in view of the Director General’s powers under Regulation 43 to enable electronic prescriptions.

The lack of a clearly defined and agreed vision for E-Pharmacy, adhoc implementations, and some key gaps, are impacting the pace at which E-Pharmacy is moving forward and it is likely that more cost and effort is being applied than required. Further, the benefits that E-Pharmacy can deliver may be compromised if the efforts of various parties are not aligned to an overarching vision and strategy, and a clear set of requirements.

The Health Information Strategy for NZ (HIS-NZ) 2005 is a major strategic programme for the sector. HIS-NZ has twelve (12) Action Zones. Action Zone 4 has an explicit focus on E-Pharmacy.

The definition of E-Pharmacy outlined in HIS-NZ is quite narrowly focused and does not accommodate what some parts of the sector consider to be essential E-Pharmacy components. In recognition of the fact that further definition of the action zones is required, the Health Information Strategy Action Committee (HISAC), which is responsible for driving HIS-NZ to reality, is currently working through an indicative scoping exercise for all HIS-NZ Action Zones. Two outputs will be produced from this work:

1. An Indicative Scope that defines the scope of an Action Zone at a high level and is an internal HISAC document.
2. An Initial View which will be used to raise awareness of HISAC’s initial thinking about an Action Zone to the sector at large.

Once these are completed a preliminary scoping exercise will define E-Pharmacy to a level of detail appropriate for understanding all components that will make up E-Pharmacy and the recommended approach to implement these, and will be the basis for evaluating systems and proposals.

HISAC is preparing to distribute to the sector the E-Pharmacy Initial View.

The standards requirements will be a specific output of future HIS-NZ action zone work. The Health Information Standards Organisation (HISO), now a HISAC sub-committee, will be



guided, in part, by the standards needs of each of the Actions Zones. E-Pharmacy standards are currently on the HISO radar.

E-Pharmacy is now formally part of the strategic information systems landscape in the New Zealand Health & Disability sector. There is a desire within the sector for E-Pharmacy to become a reality and willingness to collaborate to make it happen as soon as is practicably possible. A number of important components are in place; some of these are quite mature and can be leveraged to deliver early results.

### **NZHITC input to E-Pharmacy**

The NZHITC believes it is important to be proactive and provide its views on E-Pharmacy, not only in response to the question ‘what is E-Pharmacy’, but also ‘how E-Pharmacy could be implemented’.

A number of the NZHITC members have implemented some parts of E-Pharmacy and continue to work with their customers on new features and functions which would fit under the banner of E-Pharmacy. These members are acutely aware of their customer’s needs, the implementation challenges, and therefore the need to influence HIS-NZ E-Pharmacy Action Zone by providing their views to HIS-NZ.

This document seeks to provide a NZHITC perspective on E-Pharmacy and the next steps to progress this. This report is being provided as input to Action Zone 4 of HIS-NZ.

## **3.2 Analytical Approach**

The NZHITC survey was targeted at the NZHITC Clinical and Technical Working Groups and consisted of sixteen (16) questions across eight (8) categories and supporting reference documents. It was intended to expedite the process of collecting the views of the Working Groups and to gather views in a consistent manner.

The question categories were:

1. ePharmacy & ePrescription Overview and Definitions
2. Benefits and Risks of ePrescription
3. ePrescription Information Lifecycle
4. Standards for ePrescription
5. ePrescription Process
6. ePrescription Network
7. Implementing ePrescription in New Zealand
8. Other Considerations

The NZHITC survey supporting and reference documentation included:

- The main survey document which comprised the questions, and diagrams depicting the E- Prescribing lifecycle, E- Prescribing process flow, and a high-level network for E- Prescribing.
- A HISO document titled “ePharmacy explained”. Survey question (1.1) made specific reference to the diagram in the HISO document which depicted the E-Pharmacy lifecycle.

The approach developing this report included:

- Mapping the feedback from each survey responder to the corresponding survey question in tabular form and consolidating these into a single document



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- Analysis of the survey responses in order to distill a definition of E-Pharmacy, to develop a set of guiding principles which can be used to guide the recommendations presented in this report and the implementation of E-Pharmacy
- Analysis and interpretation of the survey responses in order to present the perspectives, requirements, potential impacts, concerns and recommendations of the NZHITC
- Development of the report content, socialisation of the report to selected Working Group members, and updating the report based on feedback

The survey questionnaire can be found in Appendix 1.

## 4. E-Pharmacy Overview

This section outlines the perspectives, requirements, potential impacts, and concerns of the NZHITC based on analysis and interpretation of the survey responses.

### 4.1 Definition of E-Pharmacy

E-Pharmacy is defined in the Glossary of Terms in the Draft Health Information Strategy for New Zealand as *“electronic transactions between prescribers and pharmacies. It includes and enables improved coding, tracking the dispensing of prescribed pharmaceuticals, the use of computer decision support tools, and provides a better basis for monitoring compliance”*.

It is not clear from the definition above if:

- E-Pharmacy includes transactions such as those between claimers and payments providers, between pharmacies and other health service providers, and prescribers, or between pharmacies and regulatory, funding and payment agencies. These transactions exist today. The NZHITC believes it is important to include these transactions in the definition of E-Pharmacy as this reflects the broader perspective of what needs to be considered within the E-Pharmacy context.
- E-Pharmacy includes a unique identifier for all available or all funded drugs, or a common medicines terminology. This may be implied as part of the term ‘coding’, however, that term may be limited to diagnosis coding as part of a doctor or specialist consultation. The NZHITC believes that it is important to avoid making the definition too complex and therefore suggests that for the purposes defining E-Pharmacy the term ‘coding’ should be used to cover unique identifiers for drugs, medicines terminology and any relevant coding requirements. The standards related to E-Pharmacy must specifically cover drug identifiers and medicines terminology as distinct from diagnosis or any other coding requirement.
- Better health outcomes and patient safety are enabled by E-Pharmacy. The NZHITC considers these to be important inclusions because it adds a patient dimension to what comes across as primarily a business process / administrative focus in the HIS-NZ definition.

The definition that the NZHITC proposes is:

- “electronic transactions between:
  - prescribers and pharmacies
  - pharmacies and other healthcare service providers, and
  - prescribers, pharmacies and regulatory, funding and payment agencies.

It includes and enables improved coding, tracking the dispensing of prescribed pharmaceuticals, the use of computer decision support tools, improved patient safety and better health outcomes and a better basis for monitoring health outcomes and adherence”.

### 4.2 E-Pharmacy Stakeholders

The range of E-Pharmacy stakeholders is broad and represents many areas of the health and disability sector. The E-Pharmacy stakeholders identified in the survey responses have been



grouped by the primary, secondary and other stakeholders involved with or concerned with the development, implementation and utilisation of E-Pharmacy:

<u>Stakeholder Group</u>	<u>Stakeholder Group entities</u>	<u>Description</u>
Primary	Prescribing Practitioners/Entities e.g. medical practices, hospitals	- GP's, midwives, nurses, specialists, dentists, optometrists, etc
	Dispensing Practitioners/Entities e.g. pharmacies, hospitals	- Pharmacists - commercial and public health
	Patients	- Those with acute and chronic disease conditions, elderly and disabled, etc
Secondary	Funding and Payment Agencies	- ACC, Pharmac, Ministry of Health, HealthPAC
	IT technical, solution providers	- Vendors, information service providers (e.g. HealthLink, NZHIS), network/messaging transport & infrastructure providers
Other	National Strategic Governance	- HISAC
	Representative bodies	- NZHITC, IPAC, DHBNZ, those covering Doctors, Midwives, Nurses, Pharmacists, Optometrists, Podiatrists, Dentist, etc
	Health Service Providers	- DHB's, community service providers, PHO's
	National Agencies	- NZHIS
	Pharmaceutical Companies	- Various

### 4.3 E-Pharmacy Objectives

The objectives of E-Pharmacy identified in the survey responses are:

1. Standardisation of data, information exchange, and business processes.
2. Improved and timely monitoring, tracking, and reporting.
3. Improved patient safety / better patient health outcomes.
4. Improved healthcare administration and cost-effectiveness.

These objectives are consistent with what has been identified in HIS-NZ Action Zone 4. They do not specify the order in which E-Pharmacy should be implemented.

### 4.4 E-Pharmacy Benefits

The anticipated benefits of E-Pharmacy identified in the survey responses broadly fit into three groups:

- Improved patient safety / better patient health outcomes.
- Improved healthcare administration and expenditure.



- Improved and timely monitoring, tracking, and reporting.

These potential benefits are further defined below:

Improved patient safety / better patient health outcomes

- Improved patient safety and better patient health outcomes resulting from the removal of transcription errors and the corresponding reduction in dispensing errors, and improved quality of treatment decisions made by clinicians and the reduction of adverse events/drug reactions.
- Improved patient health outcomes associated with the identification that a prescribed medication has not been collected.
- Improved patient safety and patient health outcomes resulting from the availability of information as part of a basic EHR (e.g. emergency presentations to ED with known drug list).

Improved healthcare administration and cost-effectiveness

- Improved or more effective healthcare expenditure opportunities associated with the cost savings resulting from a reduction drug in related morbidity and mortality.
- Improved healthcare expenditure and administration associated with the use of decision support, including compliance with local formularies, compliance with standard order sets, access to best practice guidelines at the point of prescription, context-specific prompts and warnings, current cost and schedule information available at the point of prescription.
- The standardisation of data and enabling end-to-end electronic processes (including linkage options to other electronic processes) lowers the cost for claims administration by reducing the manual effort required to create, submit and reconcile claims (e.g. claims made to HealthPAC, invoicing ACC for medications used in treatment of injuries, prevalidation of drugs requiring a special authority) and reduces the number of interventions required by the Pharmacist.
- The enabling of end-to-end electronic processes reduces the administration effort required by minimising the need for duplicate data entry and processes by prescribers and pharmacists.
- Improved prescription legibility potentially reduces administration effort required by Pharmacists (e.g. time spent querying the content of a prescription).
- Less data entry reduces the administration effort required by Pharmacists.
- Cost savings resulting from a reduction in medication wastage.

Improved and timely monitoring, tracking, and reporting

- Improved clinical and administrative review and compliance measurement resulting from the provision of secure, auditable and transparent transactions.
- Improved data collection for forecasting and policy development resulting from the provision of standardised data.
- Improved monitoring and tracking of prescribed/dispensed pharmaceuticals resulting from the provision of standardised information in a timely manner for notifications e.g. error tracking, notification that a prescribed medication has not collected, national stock levels of critical pharmaceuticals, cost tracking to individual patient level
- Provision of valid and consistent data for research and analysis

#### 4.5 The Components of E-Pharmacy

The components of E-Pharmacy identified in the survey responses broadly fit into three groups:

- Organisations and people.
- Business activity.
- Information and communication technology.

These components are further defined in the table below:

Component	Description	Comments
<i>Organisations and people</i>		
Organisations and people	Those involved with or concerned with the development, implementation and utilisation of E-Pharmacy	Refer section 4.2 E-Pharmacy Stakeholders
<i>Business activity</i>		
Consultation	The diagnosis, prognosis, and treatment of a particular case	By authorised practitioners
Prescribing	To order a medicine or the use of a medicine	By authorised practitioners using electronic systems and processes
Dispensing	To prepare and give out medicines	By authorised dispensaries using electronic systems and processes
Claiming	To request payment in accordance with an agreed arrangement	For services provided or medicines dispensed
Monitor	To collect information with a view to keep a close watch over events or to analyse and report, especially on a regular or ongoing basis	For forecasting and policy development, research and analysis, compliance and outcome measurement, and monitoring and tracking of prescribed/dispensed pharmaceuticals
<i>Information and Communications Technology</i>		
Information systems	The means by which organisations and people, utilising information technologies, gather, process, store, use and disseminate information	Includes up to date prescriber and dispenser management systems, clinical decision support tools, national, regional and local reference information systems, communication networks, etc

Standards	The framework and common language that enables systems, data and process to be linked of regardless of origin, and maximum leverage can be gained from the data / information that is inherent within	Standards for data, coding (e.g. unique identifiers for drugs, medicines terminology, diagnosis), information exchange, security, and business processes
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#### 4.6 *The E-Pharmacy and E-Prescribing Information Lifecycle*

The E-Pharmacy and E-Prescribing Information Lifecycle diagrams which were provided in the survey (refer appendix 1) covered patient consultations where medicine is prescribed. An Information Lifecycle diagram is intended to show that:

- Across a continuum information is created / received (and stored), shared, used, maintained, and disposed of (in some cases).
- There are distinct phases within the lifecycle and through each phase the amount of information captured and available to be shared increases.
- Within the information lifecycle there are a range of business processes (standalone or integrated) which are applied, and a range of tools that support those participants within the lifecycle and business processes.

Information lifecycle diagrams are very useful tools to assist with communications but they do have some limitations:

- They cannot easily reflect the detailed business processes without becoming overly complex. They are intended to simplify the message and are deliberately kept at a high level.
- They cannot easily represent the implementation considerations e.g. technical architecture such as central vs distributed, specific business models such as push or pull transactions. In fact these options should be neither defined or precluded by the lifecycle diagrams.

Analysis of the survey responses indicates that:

- The information lifecycle for E-Pharmacy and E-Prescribing are a good start but some important changes are required to accommodate a number linkages within the lifecycle which necessarily happen today and more potential solution options, without specifying a preference, and to better reflect the proposed definition of E-Pharmacy.
- E-Prescribing is the core enabling transaction for the wider scope of E-Pharmacy but this transaction as described in the information lifecycle diagram needs to include a feedback, acknowledgement loop.
- Underpinning the lifecycle is the need for standards, particularly data, drug formulary, and security standards and these were not adequately represented on the lifecycle diagrams.

A number of the suggested changes to the E-Pharmacy and E-Prescribing lifecycle diagrams raised by the survey responders were outside of the scope of these diagrams or related to the limitations of the diagrams. However, some relevant changes were identified. In summary, the suggested changes are:

- Standardise terms and use those commonly used in NZ.



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- Make the diagram solution / implementation agnostic e.g. the current diagrams do not accommodate local and regional clinical repositories and set an expectation that transaction data flow will be pushed i.e. there is only point-to-point messaging.
- Reflect register / data sources more accurately in terms of owners and locations and possible future requirements e.g. the need for electronic signatures, links to chronic care management, referrals, discharges and labs, etc.
- Improve consultation phase e.g. reflect decision support as part of prescribing, pharmacy generated prescriptions, and automatic generation of prescriptions within the PPHCMS/PhMS/Clinical Information systems (CIS).
- Include patient choice e.g. go to a pharmacy of choice.
- Include the use of coding (e.g. unique identifiers for drugs, medicines terminology, diagnosis), pharmacist referrals back to a prescriber, partial dispensing by a pharmacist, multiple active prescriptions across more than one pharmacy, repeats and prescription alterations.
- Include exception reporting in relation to a prescription not being successfully sent or not collected after a certain period.

The suggested change to the E-Prescribing lifecycle diagram is:

- Increase the scope to include a feedback loop which, at the very least, provides basic acknowledgement feedback to the prescriber. This may be a separate (but aligned) messaging lifecycle.

Changes were also identified for the E-Prescribing process diagram and it was suggested that a technical working group validate the E-Prescribing network diagram.

A detailed summary of the suggested changes that should be made to all diagrams can be found in Appendix 2.

## 5. Implementing E-Pharmacy

E-Pharmacy has been on the E-Health agenda for some time now and aspects of what may comprise E-Pharmacy have been implemented with the sector already. The reality is that the sector lacks an agreed definition and vision for E-Pharmacy, the implementations to date are adhoc and are not aligned to an overarching strategy with a clear set of requirements, and some important gaps need to be addressed before further progress can be made.

The Health Information Strategy for NZ (HIS-NZ) 2005 is a major strategic programme for the sector. There is an explicit focus on E-Pharmacy within this programme. An indicative scoping exercise is underway to further define the scope of E-Pharmacy. This will be followed by a preliminary scoping exercise which will define E-Pharmacy to a level of detail appropriate for understanding all components that will make up E-Pharmacy and the recommended approach to implement these, and will be the basis for evaluating systems and proposals.

The NZHITC has identified a number of implementation considerations for E-Pharmacy as input to the indicative and preliminary scoping work being undertaken for Action Zone 4 of HIS-NZ. These align with and add to what is outlined for E-Pharmacy in HIS-NZ.

The list of implementation considerations identified by the NZHITC fall into the following groups:

- Guiding Principles
- Consultation Planning
- Requirements
- Business case
- Solution Architecture / Detailed Design
- Standards
- Implementation Management
- Other Considerations
- Risks, Issues, Barriers
- Assumptions

This list reflects a logical order in which things should be undertaken but also anticipates that a number of these considerations will need to be actioned in parallel and some will need to be phased. Further definition for each item listed follows.

### 5.1 *Guiding Principles*

The following principles are based on analysis of the survey responses and should be used to guide the design and implementation E-Pharmacy:

- Stakeholders will be consulted on business and technical requirements, solution options and design.
- The approach to implementation should consider early delivery of enablers for E-Pharmacy and benefits, and the minimisation of risk. It should accommodate early and late adopters of systems and deliver early benefits.

- The design should ensure a high-availability infrastructure to support a high quality of service.
- The design should ensure inter-operability at a minimum to support the efficient and effective sharing of data / information.
- International models that can be leveraged should be referenced.
- Data should be collected once and used many times.
- A Patient should have choice (e.g. dispensing pharmacy).
- A Doctor should be able control the notifications received in relation to a prescription.
- Security and privacy of information should be maintained.
- E-Pharmacy systems intended for use by clinicians must provide support for clinical decision making in a manner suited to the reality of clinical work.
- E-Pharmacy can operate as an organisational, regional and/or national solution and can work with existing solutions / systems.
- The costing of E-Pharmacy initiatives will be carried out on a total cost of ownership basis, incorporating the actual costs of training and deployment, on-going maintenance costs, etc.
- The business case for E-Pharmacy may be justified using metrics other than purely financial benefits.
- Health sector, HIS-NZ, NZHITC and eGovt specific assumptions and principles will be applied in defining and designing E-Pharmacy.
- E-Pharmacy will be aligned with all relevant national strategies.

Guiding principles should be agreed early in the implementation planning phase.

## **5.2 Consultation Planning**

Work has already been undertaken to identify the E-Pharmacy stakeholder groups (see section 4.2 of this report). Ensuring that there is adequate consultation, both in terms of scope and scale, is important to the successful implement of E-Pharmacy.

A consultation plan would:

- Formally document those that are likely to be affected by the implementation of E-Pharmacy and identify the representative that will be consulted.
- Outline the consultation process that will be followed.
- Outline what information will be gathered and how this information will be analysed.
- Specify the time line for the consultation process setting out the steps that will be taken and when, including linkages with other HIS-NZ Action Zone consultation activities.

The development of a consultation plan is an important planning activity and should be undertaken early in the implementation planning phase.

This consultation plan addresses a wide range of E-Pharmacy consideration including definition, scope, business and technical requirements, implementation, funding etc. It is

not intended to replace the consultation model for standards development as defined by HISO.

### **5.3 Requirements**

The specification of the requirements for E-Pharmacy is an important building block. The requirements need to be documented, organised, and structured, and draw a distinction between business and software requirements.

The requirements for E-Pharmacy should include the following areas:

- Business requirements (statements about E-Pharmacy in a business / clinical context, including an agreed information lifecycle and business process).
- Software requirements also known as functional requirements (specifying what "the system shall / may do, are documented for existing or future software systems, and should be aligned with business requirements).
- Business rules (the policies that must be enforced or the rules needed to support legal and regulatory requirements).
- Non-functional requirements (reliability, availability, performance, security, user experience attributes, support, etc).
- Constraints (any constraints that are to be applied).

Requirements should initially be specified at a high level, sufficient to support the development of a business case for E-Pharmacy. The detailed requirements will be specified once funding has been agreed to do this work.

### **5.4 Business case**

The business case for E-Pharmacy will need to specify:

- The high-level business and technical requirements for E-Pharmacy.
- The solution options, feasibility, and recommendations - potential/alternative solution configurations need to be identified and assessed for feasibility, and the rationale provided for a recommended option.
- A high-level plan for delivering E-Pharmacy including definition of the scope (in and out), approach (phases, leverage points, etc), priority deliverables, key assumptions and risks, constraints, etc.
- Funding needs (project and ongoing) and the proposed funding model(s).
- The supporting case to secure business case signoff and allocation of funding.

Development of the business case will require a consultative approach. The implementation approach and funding model identified in the business case will undoubtedly need to reflect sector collaboration.

The business case will secure funding to initiate a project or programme of work, including the development of detailed requirements and detailed solution design. The extent of the project or programme of work depends on the proposed solution design, implementation approach and funding model. A centrally funded solution for E-Pharmacy may be proposed. An alternative that may be proposed is to confirm/develop and publish E-Pharmacy standards, encourage stakeholders to implement them, and let the commercial imperatives deliver E-Pharmacy.



## 5.5 Solution Architecture / Detailed Design

The solution architecture for E-Pharmacy is an important guide for a number of technical implementation decisions. A consultative approach to the development of the solution architecture is critical achieving buy-in and to ensuring that those involved in implementing E-Pharmacy are clear about what they need to align to.

A high-level assessment of the options and feasibility of these will need to be addressed in the business case. Once the business case is approved and the project or programme of work is initiated, more detailed work on the solution architecture and design of E-Pharmacy will be required.

The factors identified in the survey responses that will affect the solution architecture / design include, but are not limited to:

- The requirement to support a “push” or “pull” model or both models for prescription and dispensing transaction flow (see E-Pharmacy Models below).
- The location of E-Pharmacy and reference data repositories, including the integration with national, regional and local systems and data repositories.
- The requirement to support ‘real time’, batch or message based transaction processing.

### E-Pharmacy Models

The need to understand how E-Pharmacy will work in practice was evident from the survey responses. The concerns raised were primarily around the operational model for E- Prescribing e.g. would prescriptions be dispensed prior to patients presenting themselves or after, or both?

Analysis of the survey responses suggests there are several high-level models that could be adopted for E-Prescribing. Some of these are outlined below:

Model		Description	Comments
1. Pre-determined collection	a. dispense in advance	Prescriptions are electronically submitted to a dispensary at the time the prescription is created. The pharmaceuticals are dispensed in advance of patient arrival.	<p>Patients must collect.</p> <p>Patients must know which dispensary they will use if they have the choice.</p> <p>Potentially speeds up service to the patients.</p> <p>Risk of wastage if patient does not collect or ends up collecting from somewhere else.</p> <p>There is a significant dependency on the accuracy and relevance of the information about dispensing organisation.</p>

Model		Description	Comments
	b. dispense on demand	As above except that the pharmaceuticals are dispensed when the patient presents at the dispensary.	<p>Patients must collect.</p> <p>No wastage.</p> <p>Potentially slower level of service over 1a. above.</p> <p>There is a dependency about the accuracy of the information about the dispensing organisation as 1a. above.</p>
2. Any place collection		Prescriptions are created and electronically submitted to a central data store. The dispensary downloads the prescription from the central data stores when the patient presents at the dispensary.	<p>Patients must collect.</p> <p>This assumes the patient has a choice of dispensary.</p> <p>Patient doesn't need to know in advance which dispensary they will use.</p> <p>Potentially slower level of service over options 1a or 1b above due to the requirement to download.</p>
3. Delivery		Prescriptions are created and electronically submitted to a dispensing clearing-house where they are packaged for delivery to a specified address.	<p>There may be several clearing-houses from which the prescriber or the patient can choose which one they wish to use.</p> <p>There are additional security considerations and potentially more risk e.g. error detection may not occur until after the dispensing has taken place as this approach eliminates the need for the patient to present the prescription to the pharmacist.</p>

These models are described as a very high-level and do not address specific details around the business processes required to support each model. They assume that all options are legally possible and assume there are no security or privacy impediments. The business case will assess the potential solution options and feasibility, including which of these models could/should be adopted and if more than one is appropriate, how they might coexist.



## 5.6 Standards

A specific question in the survey related to AS/NZS4700.3:2002 (Implementation of Health Level Seven (HL7) Version 2.3.1 - Electronic messages for exchange of information on drug prescriptions). No consensus was reached. One respondent felt that the standard was not suitable as it has an outmoded file structure which would be expensive and complex to implement, and suggested creating a XML schema and using low cost, widely available tools for creating and reading XML messages.

The question of standards and the use of AS/NZS4700.3:2002 is something that HISAC, (through Action Zone 4 of HIS-NZ), and HISO (as the governance body for health information standards) is responsible for determining. It was noted that HISO is currently engaging in work to standardise on HL7 v2.4 in areas such as electronic referrals and that HL7 Version 2.4 is going to include standards for Pharmacy components for a number of electronic messages.

The detailed requirements will specify the E-Pharmacy standards requirements and specifically identify which HISO approved standards must or should be adopted, or identify areas where further standards definition is required.

The survey respondents believe that E-Pharmacy would benefit from having the following standards in place:

- Minimum data sets - for E-Prescribing and E-Pharmacy transactions to ensure that regardless of the transactions' origin, all messages contain the required information in required format, including the use of data standards such as the patient identifier, practitioner identifier, diagnosis codes, etc.
- Messaging - for E-Prescribing and E-Pharmacy transactions to ensure the consistent and compatible structure and content of the messages that are exchanged between systems that are working in various administrative, financial, and clinical activities in the health and disability sector.
- Reference data and coding e.g. unique identifiers for drugs, medicines terminology, diagnosis coding, allergy coding, NHI, HPI - will ensure that prescribers are using a universal set of data/codes that all stakeholders and their systems can understand and interpret. All software and system vendors will then have a data set that they can code in their respective systems.
- Security - to help mitigate the risk of an unauthorised person obtaining access to data/information and to ensure the data/information is secure at all stages of the process.
- Business process - to ensure process efficiency gains and associated benefits can be achieved.

HIS-NZ Action Zone 12 is primarily about standards. Collaboration between Action Zone 4 and Action Zone 12 should start early in the implementation planning phase for E-Pharmacy.

## 5.7 Implementation Management

The practicalities of implementing E-Pharmacy are significant and not without risk. There are several approaches to managing the implementation of E-Pharmacy. These include:

- a. Establish a large, complex project to deliver the entire vision for E-Pharmacy, focusing on whatever it takes to make the vision happen, including ignoring/bypassing initiatives within the sector if these don't accommodate the technical, business or timing needs of the project.



- b. Establish a comprehensive project or programme of work that focuses on a phased approach to delivering the entire E-Pharmacy vision, and leverages current capabilities / initiatives within the sector.
- c. Establish a programme of work that focuses on a phased approach to delivering agreed parts of the E-Pharmacy vision - potentially delivered as separate projects. The extent of this might be to confirm/develop and publish E-Pharmacy standards, and encourage stakeholders to implement them. Opportunities to leverage current capabilities / initiatives within the sector would also be explored.

The business case will secure funding to initiate a project or programme of work, including the development of detailed requirements and detailed solution design. The extent of the project or programme of work depends on the proposed solution design, implementation approach and funding model. A centrally funded solution for E-Pharmacy may be proposed. An alternative that may be proposed is

Option a. has the highest risk profile of the options listed and is not a 'best practice' approach given the anticipated scope and scale of the project.

Options b. and c. have a much lower risk-profile than option a. because of the phased approach, and can provide suitable go/no go check points within a governance framework.

Option c. does introduce a risk that E-Pharmacy may not be funded beyond this point, which may have consequences in terms of benefits realisation (see section 5.8).

These options need to be considered fully as part of an E-Pharmacy business case but it is recommended that E-Pharmacy implementation should be phased with an initial focus on the core enabler components (building blocks), then those that deliver significant benefits across the continuum of healthcare, with revision and refinement over time.

## **5.8 Other Considerations**

Other building blocks for E-Pharmacy that have been identified include:

- Implementation of the HPI for prescribers and pharmacists.
- A connected sector (electronic connections, IT infrastructure, and enabled applications) to support messaging, information access, etc.
- Prescription numbering - so that a unique ID is generated for every prescription included in the E-Pharmacy transaction process.

Some of these building blocks are in place but may need enhancing to meet the needs of E-Pharmacy. These can be assessed once the E-Pharmacy requirements are understood.

When designing and implementing E-Pharmacy, the following should be taken into consideration:

- A manual dispensing process still needs to be supported to accommodate partial implementation or situations where system availability is an issue.
- Pharmacists may require access to relevant clinical or other supporting information in order to assist with or improve prescribing and dispensing decisions. This needs further discussion to determine what information could be made available, and who should have access to this information and in what circumstances.
- Over the counter/pharmacist only medicines may need to be included in the data repositories as part of the patients' overall medication profile.

- Decision support / data validation will greatly assist the data quality challenge e.g. the quality of the data provided by a doctor in a prescription is an important factor if there are to be administrative gains to be made by Pharmacists.
- The accuracy and currency of certain information used by prescribers is a critical e.g. drug identifiers and decision support databases.

These considerations would need to be factored into the business and technical requirements as they are specified.

## **5.9 Risks, Issues, Barriers**

### **Risks and issues:**

The key risks and issues that were identified include:

- Privacy and security of systems and data. Patient data is required to be secure at all times with only authorised users able to access/view the data. Having a central database raises a potential patient privacy issue as patients may choose to exclude or protect some parts of their record. For example, some patients choose to collect certain medication from different pharmacies.
- Resolution of the medico-legal issue around whose obligation it is to follow up with a patient when he/she decides not to collect their medication is needed.
- Ensuring the right person is given the prescribed pharmaceuticals.
- There is a high dependency on system availability to manage transactions. The system/s in place need to be reliable and contingency processes need to be established in case of an outage or non-electronic processes.
- If full funding is not obtained there is a risk that only part of the solution will be implemented.
- Potential misuse of the data stored in the database e.g. information could be used for commercial gain such as targeted promotion of products.
- Managing the transition from current to future state may be confusing for patients and requires more detailed planning and management, however, a 'big bang' approach carries more risk.

The risks and issues need to be further assessed and strategies developed to address them as part of the implementation planning for E-Pharmacy.

### **Barriers:**

The barriers that have been identified include:

- Getting buy-in from pharmacies, in particular overcoming concerns about the security of their computer systems and patient data.
- Patients refusing electronic prescriptions or who do not support clinical information sharing, in particular keeping patients well informed and overcoming any concerns they may have.
- All prescribers need to be involved otherwise the information related to prescribing is incomplete.
- Currently prescribing and dispensing systems use different coding systems which are not compatible with each other.



- The Medicines Regulations and Electronics Transactions Act.
  - Regulation 41 of the Medicines Regulations sets out the form of a script (in hard copy, writing, signed etc). The schedule to the Electronic Transactions Act (ETA) excludes Regulation 41 from coverage under the ETA. Therefore a script must be in hard copy, and hand signed (an electronic version is not allowed). Regulation 43 allows the Director General of Health to approve other forms “in special circumstances”.
- The HPI is not fully implemented and will be a pre-requisite for prescriber and pharmacist identification.

These barriers need to be further assessed and strategies developed to address them as part of the implementation planning for E-Pharmacy.

### **5.10 Assumptions**

The following assumptions apply to the implementation of E-Pharmacy:

- That the sector can agree a vision and a practical implementation strategy for E-Pharmacy.
- That legal constraints can be overcome (e.g. the Electronic Transactions Act exclusion on pharmaceuticals and the Medicines Act requirement for hard copy scripts in all but “special circumstances”).
- That sufficient funding can be agreed and committed for the development of business and technical requirements and more than one iteration of E-Pharmacy implementation.

## 6. Recommendations

### 6.1 Key recommendations

The key NZHITC recommendations are:

- I That this report be accepted as input to the HIS-NZ Action Zone 4 preliminary scoping project.
- II That consideration be given to amending the definition of E-Pharmacy in the HIS-NZ glossary of terms to the following:  
“electronic transactions between prescribers and pharmacies, pharmacies and other healthcare service providers, and prescribers, pharmacies, regulatory, and funding and payment agencies. It includes and enables improved coding, tracking the dispensing of prescribed pharmaceuticals, the use of computer decision support tools, better health outcomes and patient safety, and a better basis for monitoring health outcomes and adherence”  
This definition broadens the scope of E-Pharmacy to include other healthcare service providers and regulatory, funding and payment agencies, and reference to health outcomes and patient safety and assumes coding means unique identifiers for drugs, medicines terminology, diagnosis and allergy codes, etc.
- III That consideration be given to amending the HISO E-Pharmacy Information Lifecycle diagram to incorporate the suggested changes outlined in section 4.6 and Appendix 2 of this report. The suggested changes accommodate more solution options, without specifying a preference, and include a number of linkages within the lifecycle which necessarily exist today.
- IV That E-Prescribing be confirmed as the core enabling transaction for the wider scope of E-Pharmacy, and that the E-Prescribing lifecycle diagram in Appendix 1 of this report be modified in line with recommended changes outlined in section 4.6 and Appendix 2 of this report.
- V That the guiding principles listed in section 5.1 of this report be used to inform the development of formal guiding principles for Action Zone 4.
- VI That the implementation of E-Pharmacy be managed incrementally with an initial focus on the core enabling components (building blocks), then those that deliver significant benefits across the continuum of healthcare in incremental steps. This approach acknowledges that the practicalities of implementing E-Pharmacy are significant and not without risk, and the leverage that can be gained from early delivery of core enablers.
- VII That NZHITC consults with HISAC to determine what further assistance it can provide in relation to the E-Pharmacy Action Zone, including developing an E-Pharmacy Architecture Options Analysis and Feasibility report as input to an E-Pharmacy business case. This should be developed in close conjunction with the other HIS-NZ Action Zones and would ideally be undertaken when the high level requirements for E-Pharmacy have been specified.
- VIII That priority be given to developing a business case for E-Pharmacy, including specifying the high-level business and technical requirements, and assessment of the solution options.
- VIX That Action Zones 4 and 12 collaborate as soon as possible to develop an initial assessment of the standards requirements for E-Pharmacy.



- IX That Regulation 43 of the Medicines Regulations be amended to remove reference to “in special circumstances”. The proposed amendment can be justified on the basis that electronic prescriptions will become the norm not the exception (i.e. there won’t be “special circumstances”) and the Director General could still retain control to ensure inter-operability, security, etc. Given the potential elapsed time to get this amendment through due process, it is recommended that immediate steps be taken to confirm the suitability of this amendment and others that may arise, and initiate the amendment process.

## **6.2 Next Steps**

Given the visibility of E-Pharmacy and the desire to progress to implementation, the proposed next steps are:

- The Ministry of Health and HISAC review this report and provide feedback on the content and recommendations to the NZHITC.
- The NZHITC publish the report.
- HISAC initiates a plan to develop the business case for E-Pharmacy.
- NZHITC consults with HISAC to determine what further assistance it can provide in relation to the E-Pharmacy Action Zone



## Appendix 1: Survey questionnaire

### NZHITC ePharmacy & ePrescription Working Groups Questionnaire

ePharmacy is defined in the Glossary of Terms in the Draft Health Information Strategy for New Zealand as “*electronic transactions between prescribers and pharmacies. It includes and enables improved coding, tracking the dispensing of prescribed pharmaceuticals, the use of computer decision support tools, and provides a better basis for monitoring compliance*”. This is an end-to-end all inclusive definition.

ePrescription is bounded by the *creation of electronic prescriptions to acceptance of that prescription by a pharmacist*. ePrescription is the initiating electronic transaction in what will eventually be a suite of standards across the wider scope of ePharmacy.

The following questionnaire has been developed for both of the NZHITC Clinical and Technical Working Groups to provide responses to high level questions on ePharmacy and ePrescription. This approach provides for expediency and consistency in questions allowing for enhanced interpretation and analysis of responses.

Some questions may not be relevant to one or the other working group, in which case respond N/A (not applicable). Detailed responses to questions would be preferred in order to capture the full scope of potential answers and interpretations. A section is provided at the end of the questionnaire for comment and suggestions on other matters relevant to ePharmacy and ePrescription that respondents may consider to have been overlooked.

Please type your detailed responses to the questions directly under the questions. The questionnaire references attached documentation including;

1. HISO ePharmacy papers by Genesis Consulting Group Limited:
  - a. ‘ePharmacy - A Explanation of Electronic Prescribing, Transmission and Receipt of Pharmaceutical Prescriptions’, and
  - b. ‘ePharmacy Implementation Thoughts’
2. ePrescription within the ePharmacy Information Lifecycle
3. ePrescription Process
4. ePrescription Network

Thank you for your participation in this questionnaire.



## Working Groups Questionnaire

#	Section & Questions
1.0	<b>ePharmacy &amp; ePrescription Overview and Definitions</b>
1.1	Do you agree with the attached <u>overview</u> of ePharmacy? If not why not, and what changes to the overview do you suggest, and why?  Response:
1.2	Do you agree with the <u>definition</u> of ePharmacy and the inherent ePrescription transaction from the 'Glossary of Terms in the Draft Health Information Strategy for New Zealand'? If not why not, what changes to the concepts and/or definition do you suggest, and why?  Response:
1.3	Do you agree that ePrescription is the core enabling electronic transaction for the wider scope of ePharmacy? If not why not and where would you suggest starting to develop and implement electronic prescribing and ePharmacy?  Response:
1.4	Who do you consider to be the primary, secondary and other stakeholders involved with or concerned with the development, implementation and utilization of ePrescription and ePharmacy? For each stakeholder noted, list what you consider to be the appropriate considerations and involvement in ePrescription and ePharmacy going forward that would meet their needs.  Response:
2.0	<b>Benefits and Risks of ePrescription</b>
2.1	Describe the benefits of ePrescription either discretely as an electronic transaction enabling Health Practitioners to generate and transmit pharmaceutical scripts to Dispensing Pharmacists; and/or the benefits of ePharmacy overall incorporating ePrescription as above.  Response:
2.2	Describe the risks of ePrescription either discretely as an electronic transaction enabling Health Practitioners to generate and transmit pharmaceutical scripts to Dispensing Pharmacists; and/or the risks of ePharmacy overall incorporating ePrescription as above.  Response:
3.0	<b>ePrescription Information Lifecycle</b>
3.1	Does the ePrescription Information Lifecycle Diagrams attached accurately reflect the flow of prescription data elements and associated information end-to-end, i.e. from Health Practitioner to Dispensing Pharmacist and back again. (note: this is about the flow of information. A separate process question follows). If not why not, what is missing, and/or what is there that is not required?  Response:

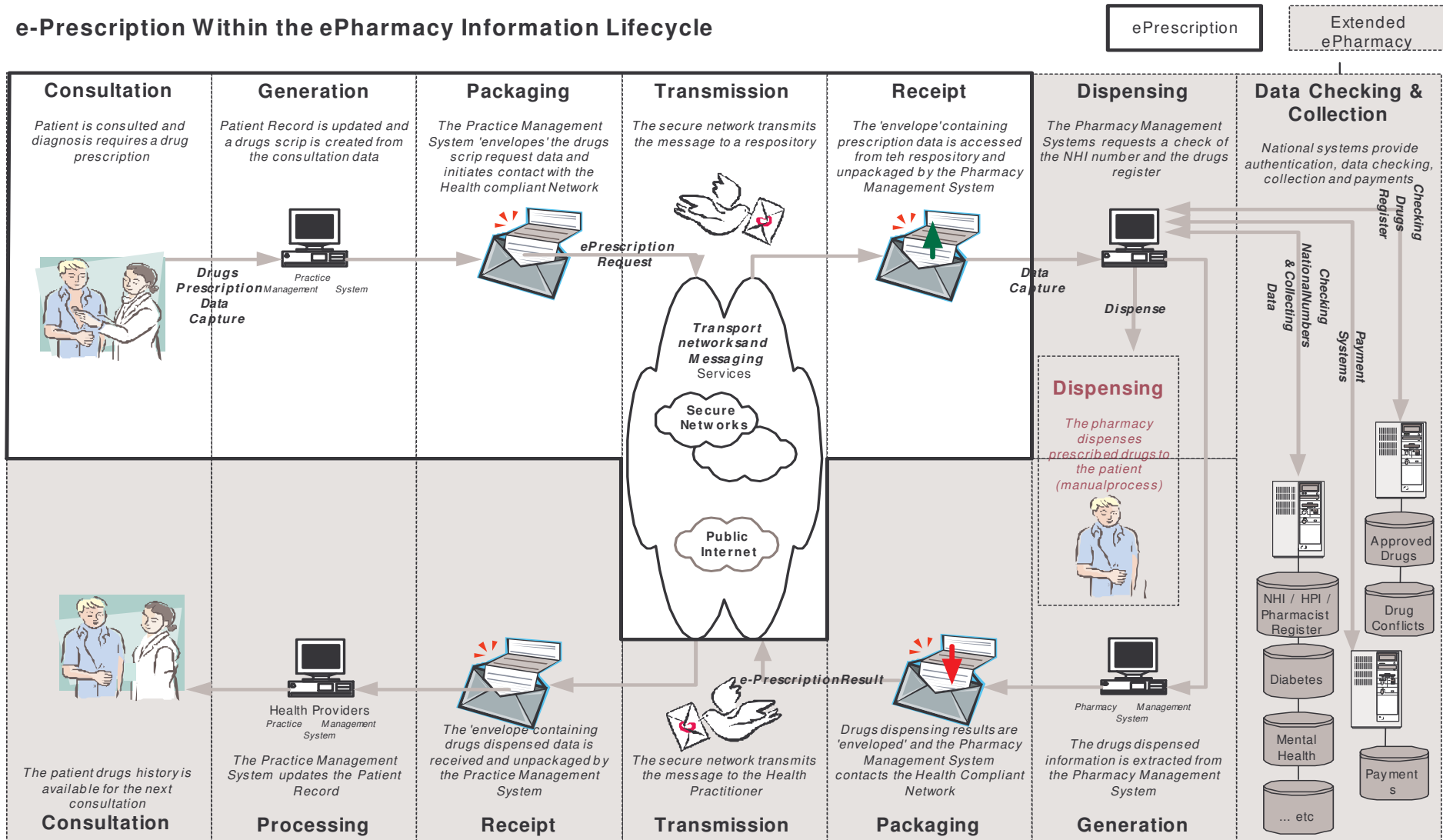


4.0	<p><b>Standards for ePrescription</b></p> <p><i>The questions in this section are for those qualified to provide a response, otherwise respond N/A. The “AS/NZS 4700.3:2002 - Australian/New Zealand Standard™ ‘Implementation of Health Level Seven (HL7) Version 2.3.1 - Part 3: Electronic messages for exchange of information on drug prescription” - standard can be downloaded in PDF format from the NZHITC website at the following link: <a href="#">NZHITC ePharmacy Scoping Study</a></i></p>
4.1	<p>Are you aware of the AS/NZS 4700.3:2002 information standard and if so, do you consider this standards definition to be adequate and suitable for implementation in New Zealand as is. If not why not, and what amendments do you suggest to ensure leverage of this work and its application in the New Zealand context.</p> <p>Response:</p>
4.2	<p>What other standards, be it business, clinical, technical or otherwise do you believe are required to be in place in order to progress the development and implementation of ePrescription and ePharmacy in New Zealand.</p> <p>Response:</p>
5.0	<p><b>ePrescription Process</b></p>
5.1	<p>Does the ePrescription Process Diagram attached accurately reflect the flow of prescription data and associated decision points from Health Practitioner to Dispensing Pharmacist? If not why not, what is missing, and/or what is there that is not required?</p> <p>Response:</p>
6.0	<p><b>ePrescription Network</b></p>
6.1	<p>Does the ePrescription Hi-Level Network Diagram attached accurately reflect the participants and connections to enable ePrescription? If not why not, what is missing, and/or what is there that is not required and any other issues foreseen?</p> <p>Response:</p>
6.2	<p>What other ePrescription / ePharmacy solutions are you aware of or what technical architectures (software, data, telecommunications etc) exist or should exist to enable integration of ePrescription / ePharmacy?</p> <p>Response:</p>
7.0	<p><b>Implementing ePrescription in New Zealand</b></p>
7.1	<p>Does the attached ‘ePharmacy Implementation Thoughts’ accurately interpret and match ePharmacy implementation imperatives against the Health Sector ISSP (HIS-NZ) primary phases and priorities of; Core processes; Common Processes; and Ancillary processes? If not why not and what other implementation approach should be followed and/or phased approach be taken?</p> <p>Response:</p>
7.2	<p>What, if any, legal, strategic, statutory, or other changes or amendments do you believe would be necessary in order to proceed to detailed design, development, implementation and utilisation of ePrescription in New Zealand?</p>



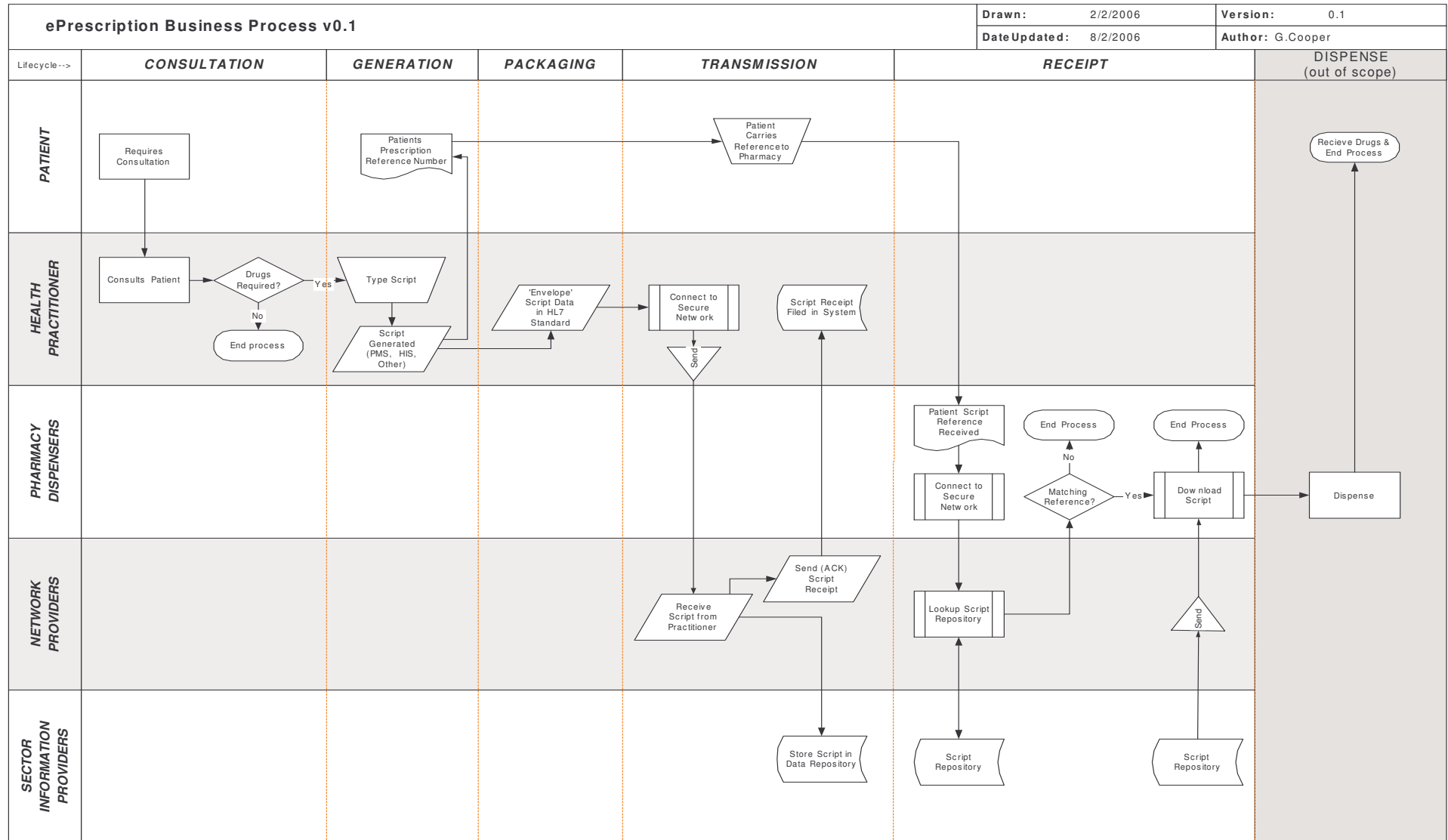
	<p>Response:</p>
7.3	<p>What other implementation considerations should be taken into account, considering the scope and extent covered in 7.1 above?</p> <p>Response:</p>
8.0	<p><b>Other Considerations</b></p>
8.1	<p>Please list and comment in detail as appropriate, on <u>any other</u> considerations appropriate and necessary to progress the objectives of the NZHITC ePharmacy project leading to a report to the MOH.</p> <p>Response:</p>

e-Prescription Within the ePharmacy Information Lifecycle

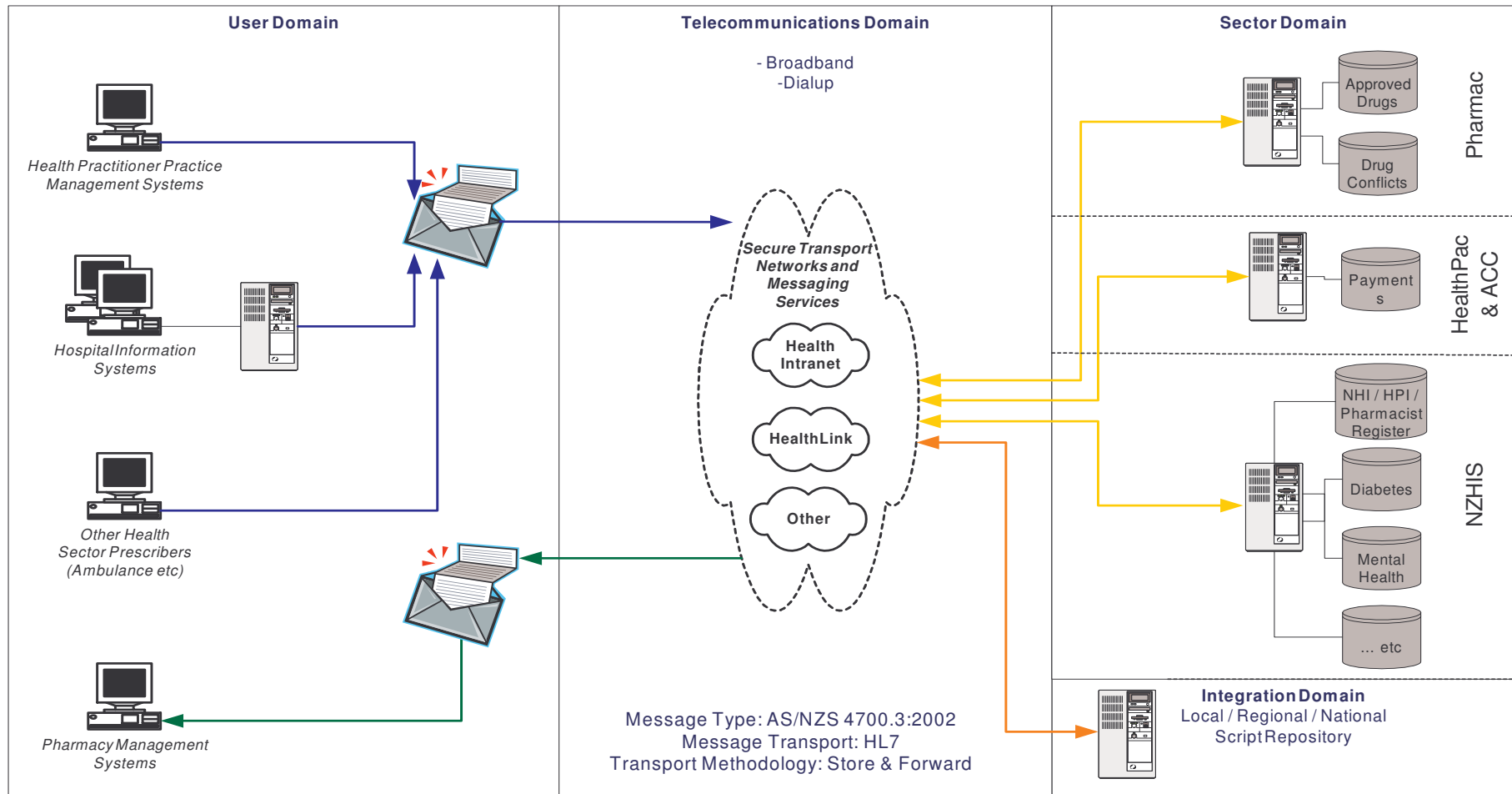




## E-Pharmacy - Perspectives and Implementation Considerations



ePrescription Network v0.1



## Appendix 2: Survey responses – proposed diagram changes

An analysis of the survey responses identified a number of changes required to be made to the diagrams provided in the survey in order to more accurately and adequately reflect what the responders felt E-Pharmacy should encompass. These changes are outlined below.

### E-Pharmacy:

- Ensure all reference documents / diagrams use consistent terms and that terms are those commonly used in NZ - e.g. replace adverse events / drug reactions with drug related morbidity and mortality, compliance with adherence.
- Make diagram solution / implementation agnostic i.e. can accommodate a “push” to or “pull” from prescription data transaction flow and dispensing pharmacy data transaction flow, “real time” or batch.
- Support integration with national, regional and local systems / clinical repositories / reference data sources.
- Reflect register / data sources more accurately in terms of owners and locations and include the possible future use of electronic signatures and a central signature repository, and include links to chronic care management, referrals, discharges and labs.
- Improve consultation phase e.g. reflect decision support as part of prescribing, pharmacy generated prescriptions, links to drugs register, automatic generation of prescriptions to reflect the fact that not all prescriptions need to be typed, and that these happen with the PMS/CMS.
- Include patient choice e.g. can go to a pharmacy of choice.
- Include exception reporting for prescription receipt i.e. notify prescriber only when there is a transmission error or when a prescription is not collected after a certain period.
- Include multiple active prescriptions across more than one pharmacy, including repeats and prescription alterations.
- Include pharmacist referrals back to a prescriber and partial dispensing by a pharmacist.
- Change Hospital Management Systems to Hospital Clinical Information System and reflect this in the return journey (receipt and processing).
- Include use of a common drug formulary.

### E-Prescribing:

- Include relevant changes made to the E-Pharmacy diagram.
- The return journey (package, transmission, receipt and processing) needs to be included as part of E-Prescription or at the very least provide basic acknowledgement feedback to prescriber, as we have today with other electronic transactions transmitted between health service providers.

### E-Prescribing process:

- Include relevant changes made to the E-Pharmacy diagram.



## E-Pharmacy - Perspectives and Implementation Considerations

- Reflect patient being given a hard copy script with a reference number that matches that which is sent electronically.
- Include regional and local clinical data repositories.

### E-Prescribing high-level network:

- Include relevant changes made to the E-Pharmacy diagram.
- It is also recommended that a technical working group validate this diagram.

### Other considerations

Requirements that cannot be practically accommodated in any the diagrams but which should be consider when designing and implementing E-Pharmacy are listed below:

- A manual dispensing process still needs to be supported to accommodate partial implementation or situations where system availability is an issue.
- Pharmacists may require access to relevant clinical or other supporting information in order to assist with or improve prescribing and dispensing decisions.
- Over the counter/pharmacist only medicines need to be included in the data repositories as part of the patients' overall medication profile.



## E-Pharmacy - Perspectives and Implementation Considerations