



Patients First

PMS Requirements Project Final Report

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Document Control

Distribution List

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Change Record

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0.1	19 July 2010	Brent Sutherland	Initial Draft
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Related Documents

There are four documents in this series.

PMS Requirements - Exec Summary v1.1	A standalone summary document covering the key findings and recommendations
PMS Requirements Final Report - v1.1	(This document) The detailed report regarding background, recommendations and approach. This focuses on the key prioritised set of requirements (the top 5) and corresponding rationale.
PMS Requirements Final Report - Appendix - Detailed Requirements v1.0.doc	A supplementary document outlining the updated version of the full requirements set and context maps that were used for the consultation and should be used as a reference point for future requirements consideration.
GP PMS - Aligning Incentives with Requirements - Preliminary view LECG 29 Sept	A supplementary document - available on request from Patients First. Provides some commentary on the current state of the incentives and market factors for PMS vendors, funders and users in NZ.

Executive Summary

The context of health care delivery is changing from transactional care to on-going responsibility for a patient with shared care where required. This needs to be supported by health information systems including practice management systems that are responsive to emerging clinical and health pathway needs.

The Primary Care Practice Management Systems (PMS) Requirements Project was commissioned by the National Health IT Board to define and prioritise the desired functional and non-functional requirements required from a PMS, together with maps of the required information sharing / interoperability needs of a PMS within the broader eco-system (beyond the traditional walls of the practice). It outlines an evaluation framework to enable an objective assessment of progress by vendors towards systems that can support delivery of quality care both today and in the future.

The project was undertaken by the Patients First Programme and considered the following questions:

1. Does something need to be done (is it broken)?
2. What needs to be done?
3. What are the challenges?
4. What are the benefits?

and the hardest questions – where do you start and how do you manage it?

In 2005, Standards New Zealand released the PAS8170:2005 “Primary Healthcare Practice Management Systems” document – which was outlined as a publically available (voluntary) specification guideline. While this pointed at some overall hygiene factors for Patient Administration Systems – it did not go so far as to call itself a “standard” and provided a “point in time” set of compliance requirements for the New Zealand market along with a checklist of useful considerations. The document rapidly became obsolete as further compliance requirements were added to the New Zealand health information landscape.

This example illustrates some useful points – how do you set a context that is enduring?; how do you evolve the framework and retain it as a living set of requirements?; how do you measure and incentivise (or enforce) against that set of requirements?; and who governs it?

A Discussion Document on PMS Requirements was issued to the Sector on 21 June 2010, with copies to the principal PMS Vendors and the New Zealand Health IT Cluster. The volume of responses was disappointing with generally very limited comment on detailed requirements. The most significant feedback received was that much greater time is needed for consideration of the detailed requirements.

Feedback we did receive indicated a level of frustration about fragmentation, vendor un-responsiveness and lack of focus on clinical usability. From our review there is an issue to be resolved being that current functionality and market behaviour (by vendors and funders) is not aligned to a healthy market for primary healthcare information systems.

On reflection and with further targeted discussion it became apparent that gaining a single, homogenous primary sector view of detailed PMS requirements was not a realistic goal. This will take time to evolve. We revised our approach and sought themes of issues from the consultation then sought to validate these with various forums. Forums included PCIMG, Primary Care Network IS Managers and clinical leaders of information. This was supplemented with a brief/high level peer review and validation by the National Institute of Health Innovation (NIHI) and a parallel review of balancing incentives with requirements conducted by LECG.

The message we received from our consultation with the sector was

“Start with a small though strategic list of requirements and an effective governance process and mandate and evolve from that point”

We distilled the feedback down to five recurring and consistent themes and present these as the five highest areas of need or functional focus. These are:

The High Five

1. Published (standards based) APIs
2. Structured data within the PMS, moving towards semantic interoperability (LOINC etc.)
3. Support for interoperability standards, with e-Discharge and e-Referral the priorities
4. Information security, access and privacy
5. Developing consensus on usability guidelines including managing alert fatigue

If we could make one positive “sea change” in the PMS space it is to create an environment of information sharing. The health environment is broad and disparate in nature and the information and corresponding PMS and information systems landscape reflects that. The phrase we continually hear is the need to “join the dots”. At one level, information should be agnostic to the underlying systems that serve it up and others that consume and interpret it. The information needs to be current, relevant, accurate and useful in serving patient care as well as presented in a usable way.

The top recommendation of requiring PMS products to comply with published standards based API’s (that are part of the standard product and standard maintenance fee) will “unlock” the market and de-couple the clinical information from a specific reliance on specific vendor systems. That will create more of a market driven choice and level playing field.

This sounds simple but there are some fundamental challenges we face with the current environment:

Challenges

- We have a small market (<4000 GPs) which has a high cost of entry for new PMS players
- We have a market dominant player (MedTech has >80% of the market share) with a small number (3) other players (Houston, IntraHealth and MyPractice)
- We have some central agencies exhibiting anti-competitive behaviour by funding one vendor (the dominant market player) for compliance requirements and not other vendors
- Vendors are primarily funded for compliance rather than clinical functionality
- Vendors use proprietary approaches to making information available to the broader eco-system
- The sector operational investment (license and maintenance fees) in PMS in New Zealand is low in international comparative terms and not a sustainable business model for vendors (which also creates a high barrier to entry for new players)
- Those who directly interact with the systems are not necessarily those who benefit the most from the currently funded development activity
- There is no cohesive or powerful voice (incentive) for clinical functionality in PMS systems

Response

We have identified the “high five” as key focus areas. The most critical factor for creating any substantial change in the quality of clinical PMS functionality relates to the economic model for PMS development and adoption. This is followed closely by the consequential governance framework to deliver the changes.

Incentives and alignment

There is a need to find common ground between funders, end-users and vendors.

Good information should be a by-product of clinical workflow. If information is valued in clinical use and interaction with a patient, rather than an administrative or compliance adjunct, it is likely to be more relevant, timely and accurate. We need to explore the incentives of encouraging compliance and reporting as a by-product of clinical workflow practice.

Funders (particularly central agencies e.g. ACC, DHBNZ, MoH and Pharmac) are major influencers in the market and in systems development. Compliance reporting requirements are currently set by these central agencies according to each agencies specific needs rather than in a strategic and coordinated way.

This has engendered a “fund for compliance” rather than “fund for quality improvement” focus. When central agencies fund a dominant vendor and not others, it creates an un-level playing field where it becomes difficult for smaller players to participate in the market. This also creates a capacity issue for the dominant vendor.

The PMS market has limited growth potential in New Zealand. Despite New Zealand’s near universal utilisation of PMS system in primary care (95%), there is little room for market growth, so smaller or new players have to either “steal” market share from the dominant vendor or look to other markets abroad.

There is a misalignment between investment and direct benefit for users. The General Practitioner who pays for the system does not directly capture the benefit of better clinical coding or population reporting. The value of the information often grows when aggregated which is useful for funding and population health outcome analysis but does not accrue directly to the “person signing the cheque”.

PMS vendors follow the money which is largely derived from compliance reporting and development and may be perceived as a cost rather than a benefit to clinical management.

Quality drivers for development are changing. Some in the sector are advocating for a move from a “pay for performance” to a “pay for participation” model in terms of quality improvement. The “pay for participation” involves quality indicators for benchmarking and publishes quality measures. The current “pay for performance” model appeals to GPs extrinsic motivation – getting paid for achieving a minimum target. This is not necessarily desirable or sustainable. A “pay for participation” model appeals to GPs intrinsic motivation – addressing quality issues because it is useful and correct to do so and engenders a continuous quality improvement culture. This focuses on improving performance through benchmarking and peer review.

This raises the broader context of a more equitable and sustainable funding model. It does not resolve the questions but at least poses them for further discussion and debate.

Governance and Management

We recommend the governance framework for PMS evolution should operate as a sub-committee of the Patients First governance structure, augmented as appropriate with additional co-opted sub-committee members to the extent that is necessary to appropriately represent non-vendor stakeholders. We see this as being a cross section of:

- Central agencies
- General Practitioners
- Practice Nurses

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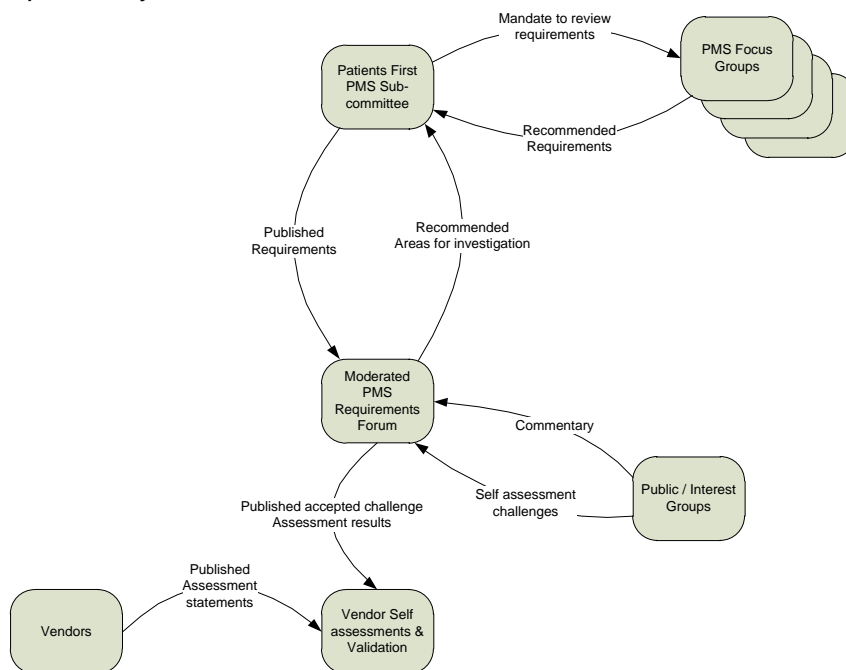
- Practice Managers
- Population Health analyst

Funders could pass all initiatives through a review process. This process would be a sector governance initiative with funders, vendors and, most importantly, user (general practice) representation. The process would ensure that rules were developed and applied to funding. The rules would need to be competitively neutral, yield value for money and would ensure that full clinical benefit was extracted from each proposed change.

Given one of the goals of such a change as is envisaged is to ensure appropriate PMS functionality moves to being significantly driven by the primary sector clinical representatives, we do not consider voting membership on the sub-committee by vendor representatives is appropriate although non-voting participation by invitation is desirable.

We recommend that the sub-committee be empowered to form additional PMS functionality focus groups to drive evolution of the detailed PMS requirements with appropriate clinical involvement at a pace the clinicians are comfortable with. It is desirable to get the “high five” completed within 6 months and next tranche identified and underway within the following 6 months (i.e. rolling 12 month radar of focus areas).

We recommend the proposed Evaluation Framework be pragmatic and cost effective for all parties with a matrix of approaches, focusing initially on vendor self-assessment against key published requirements, independently validated as needed.



Certification/Validation

Our expectation is that vendor self-assessment includes publication in a central (moderated) repository available to the market for information. This repository would include the list of requirements, including most up-to-date compliance requirements depending on what part of the eco-system the relevant products are positioned (i.e. provides vendors with a definitive and up-to-date list of “certification” and compliance requirements).

Given the detailed PMS requirements are still evolutionary the goal will be to identify subsets of requirements (such as the “high five” e.g. privacy, security and information sharing first) to provide a way of easing into the process, but with a goal of expanding that as requirements are agreed.

With their role in supporting several recent national systems evaluations, we consider the National Institute of Health Innovation (NIHI) to be the natural manager and moderator of the repository, under contract to the supplier of the requirements, the Patients First PMS sub-committee.

Key Recommendations

1. Create the governance group and process.
2. Create a baseline assessment of the vendors against the High 5 list of functional issues.
3. Implement the High Five within the next 6 months.
4. Bring the central agencies together in a single forum for compliance requirements – channelled through the single governance vehicle.
5. Review appropriate funding models.

Spill-over recommendations

While the following recommendations do not directly relate to PMS requirements, they relate to the broader eco-system view and we recommend that these be considered by the National Health IT Board and relevant parties in the context of a “joined-up ecosystem”.

1. Consideration of implementing a published API standard across secondary and primary care systems
2. A move to a standards based PHR/EHR in terms of data
3. Common principles and framework for security, privacy and data governance for Healthcare Information (i.e. applicable across all settings of care)

Benefits

If the recommended actions are undertaken, the resultant benefits are envisaged as:

- laying the foundation for a “joined-up” eco-system (including paving the way for e-referral, e-discharge and easier access to data for reporting)
- creating a clinical voice of influence around functional requirements
- breaking the cycle of silo’d compliance reporting/overhead requirements by central agencies by taking a strategic and aligned view of quality reporting that is a by-product of clinical workflow
- reducing administration overhead for clinicians and frees up vendors to focus on clinical functionality
- removing the anti-competitive behaviours that perpetuate the current monopoly in the market
- creating an evolving and “living” process to work toward continuous quality improvement and better health outcomes

Post Script - illustrating some current barriers and opportunities

Example 1

Public funding spent on vendor swap-out without search/selection process

One of the five PMS vendors (MedCen) has recently pulled-out of the market. In a region where the majority of the GPs were using that PMS system, the local DHB funded the wholesale swap-out from the MedCen system to MedTech for the GPs in the region. There was no tender process and, due to the funding being within the delegated authority of the DHB, there was no national visibility of this transaction.

Example2

Central Agency/public funding spent on single vendor compliance development

One central agency has developed a set of specifications for the market dominant PMS vendor to adapt the PMS product to meet compliance requirements and make the system more usable for medications management. While this appears, at face value, to be a pragmatic way of reaching and influencing a high number of end-users, it is arguably anti-competitive and creates an environment where smaller competing vendors need to self-fund to keep up with equivalent requirements.

Balanced with a good-news story

Example3

Co-opetition – (competing) vendors sharing development cost/resource in GP2GP

Recently an unusual (some would say unprecedented) event occurred during design and development of GP2GP.

A component was required for GP2GP. The API for translation and transport of messages was a component that required a common design specification. The four PMS vendors clubbed together and agreed to contract one party to develop a common API that each would contribute to the design and development costs for a shared/open-source library.

“What were the conditions that existed to allow this to happen and acted as a catalyst for the (competing) vendors to come up with the suggestion?”

1 Introduction

1.1 Patients First Background

qi4gp had its genesis based on a study tour of the UK by RNZCGP and GP Leaders in 2006 looking at the NHS Quality and Outcomes Framework (QOF). This trip generated a discussion paper in July 2007 entitled “A Quality and Information Perspective for General Practice” prepared for The Independent Practitioners Association Council of NZ, The Royal NZ College of General Practitioners, The NZ Rural General Practice Network Inc and The NZ Medical Association.

This took the lessons from the UK visit and looked at how these could be best applied to a New Zealand context.

This evolved into a qi4gp (Quality and Information for General Practice) initiative in New Zealand sponsored by the General Practice Leaders Forum (GPLF). The vision for the qi4gp project was:

“To develop, articulate and implement a vision for a quality and information strategy for general practice in New Zealand”

The key objectives of the original qi4gp project were to:

- Outline a vision for quality General Practice
- And corresponding information requirements to support this and
- Coalesce the general practice network around a common goal toward these ends

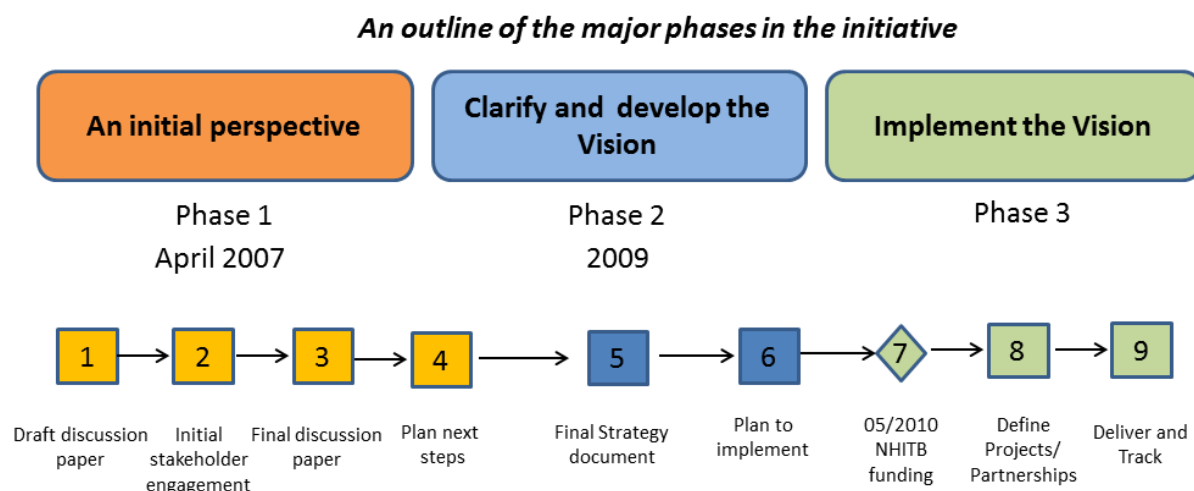


Figure 1 – qi4gp overview from original discussion paper

The original qi4gp project was split into two main streams - a quality work stream, led by RNZCGP, and an information work stream, led by IPAC (now GPNZ), and was defined in three broad stages:

- Stage 1 An Initial Perspective (2007)
- Stage 2 Develop and Clarify the Vision (2009)
- Stage 3 Establishment and Implementation (2010)

That third stage is now underway, with a programme of coordinated projects under what is now referred to as the Patients First programme, with funding from the National IT Health Board.

Patients First seeks to define and refine the strategy for primary care health information and quality and build a single, integrated governance group around this.

1.2 PMS Requirements Project

The context of health care delivery is changing from transactional care to ongoing responsibility for a patient with shared care where required. This needs to be supported by health information systems including practice management systems that are responsive to emerging clinical needs.

Within the Patients First programme a key component is enhancing quality of care by identifying improvements in practice management systems (PMS) that support better quality care delivery, both in a patient-centric way, and with the PMS as an active participant in a connected health eco-system.

In summary the project has sought to:

1. define and prioritise the desired “in-practice” functional and non-functional requirements required from a PMS, together with maps of the required information sharing / interoperability needs of a PMS within the broader eco-system (beyond the traditional walls of the practice).
2. outline an evaluation framework to enable an objective assessment of progress by vendors towards systems that can support delivery of better quality care.

While not in the original scope, the analysis undertaken by the project indicated some root-cause issues that pointed to an additional area that needs to be addressed to balance and achieve the desired results ,namely:

3. aligning incentives and funding behaviour with requirements

2 Project Definition

2.1 Project Background and Overview

This Project is was established within the context of the third stage of the qi4gp Programme – Patients First - details of which are set out in the Programme Charter, but key aspects of which are summarized here.

The National Health IT Board has provided seed funding for what was qi4gp, now Patients First, to move into a delivery phase to deliver tangible benefit to the sector and earn its reputation and credibility as a centre of gravity for primary care information projects in delivering better outcomes for New Zealand into the future, in particular to:

- deliver tangible results that link quality and information together for enabling better outcomes
- paint a clear vision of the future (easily measurable, specific and balancing rhetoric with delivery)
- earn respect as a pragmatic group that represents the federation of primary care and a collective voice for requirements, prioritisation and delivery/monitoring of investment in primary care information and quality.

The scope of Primary care is limited to General Practice and Pharmacy for the programme over this timeframe.

Within the programme the Primary Care PMS Requirements Project is required to define Primary Care PMS Requirements including requirements, prioritization criteria and roadmap which includes a structure that is suitable for applying to a national PMS certification programme.

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The funding grant via successful tender to the November 2009 Ministry of Health Primary Health IT Grant Funding Process and subsequent contract in March 2010 outlines the following objectives and deliverables

- a. Prepare a prioritized list of business and clinical requirements for PMS when used for the safe delivery of primary health care, this will be achieved within the qi4gp programme and will give consideration to the role of primary care PMS in the context of the health system as a whole. The requirements will provide the greatest opportunity for improvement in the quality and safety of patient care within general practice and along the total health continuum;
- b. identify in quantified terms, the improvement in quality of care expected to be provided through improved PMS capability within primary care;
- c. develop a prioritized list of business and clinical requirements for PMS when used across primary care;
- d. develop a roadmap for the investment in new PMS capability to deliver the benefits identified above
- e. develop a framework for the evaluation of PMS solutions suitable for use across primary care in New Zealand.
- f. make available evidence of findings from (a) – (e) above and their analysis
- g. document the identification of high level requirements, risks and dependencies associated with the activities described above;
- h. provide a report, documenting findings and analysis from the activities described in (a) to (g) above.

3 Consultation Undertaken

3.1 Initial Discussion Document

A Discussion Document on PMS Requirements was issued to the Sector on 21 June 2010, with copies to the principal PMS Vendors and the New Zealand Health IT Cluster.

The volume of responses was disappointing, with generally very limited comment on detailed requirements.

Significant feedback was received that much greater time is needed for consideration of the detailed requirements, that potentially all practices should have the opportunity to comment and that specialised work groups should be commissioned to gain consensus on relative importance of particular relevance to their field of interest. That is certainly consistent with past approaches to developing material such as this, but inconsistent with the goal for this project of relatively swiftly identifying those areas that are priorities for investment to improve the quality and safety of patient care.

That said, clearly the desire for broader and more extended consultant time will need to be reflected in proposals for on-going enhancement and governance of these requirements beyond this project. The key message has been

“start with a small though strategic list of requirements and an effective governance process and mandate and evolve from that point”

Additionally, there was a desire (both from some responses and informally) that there needs to be clarity on what the likely outcome is be for practices when the PMS requirements project is implemented, and what approach is planned to be adopted to gain vendor support for the changes.

In respect of specific questions asked in that Discussion Document (rather than the detailed requirements):

Comment was sought on:	Responses received:
The appropriateness of recommending adoption of particular research based user interface guidelines	Limited comment with one recommending a workshop on this
The requirement for a published API and the appropriateness of the GP2GP standard as a basis for that	Strongly supported as a base requirement, with appropriate that previous work be built on (including the HISO forms standard which has that as a goal), and should be part of the evaluation framework to ensure it will meet its objectives
Use of LOINC codes, Universal List of Medicines and other future coding systems mandated by standards	Considered to be essential. The issue of when and how SNOMED CT is to be mandated was also raised.
Whether the requirements for patient and whānau access should be strengthened to require support for at least minimum access capability	Some concern that this is another step in terms of privacy and confidentiality and needs to be part of a wider debate in the whole access / patient consent area.
Whether a minimum set of non-functional requirements should apply	One responder proposed that the ability for the PMS to be mandated as multi-tenant capable (i.e. a single hosted instance for multiple practices with each practice having

Comment was sought on:	Responses received:
	their own configuration / confidentiality of data.
Whether a standard for transfer between commercial PHR services is required, similar to that being adopted with the GP2GP standard for PMS transfers	Supported.
The proposed evaluation framework.	No comment, except in terms of the API.

Where comments were made on the detailed requirements, they were helpful and have been reflected in subsequent versions.

3.2 Subsequent Consultation

Originally we planned to take the responses received, reflect those in the requirements, and undertake a second round of consultation.

In the form originally proposed, that was clearly inappropriate.

Following a workshop with the Sector Review Group on 6 August 2010 and the Primary Care Information Management Group on 11 August 2010, it was decided to focus consultation on the key issues identified with stakeholders who could contribute specifically to those.

The consultation and discussion was supplemented by a peer review by the National Institute for Health Innovation and a brief/targeted review of incentive frameworks and considerations for future PMS requirements conducted by LECG.

A number of formal and informal interviews have been conducted with key stakeholder groups including representatives of central funding agencies, General Practice Networks and PMS vendors.

4 Outputs and structure

The structure of the deliverables from the project is:

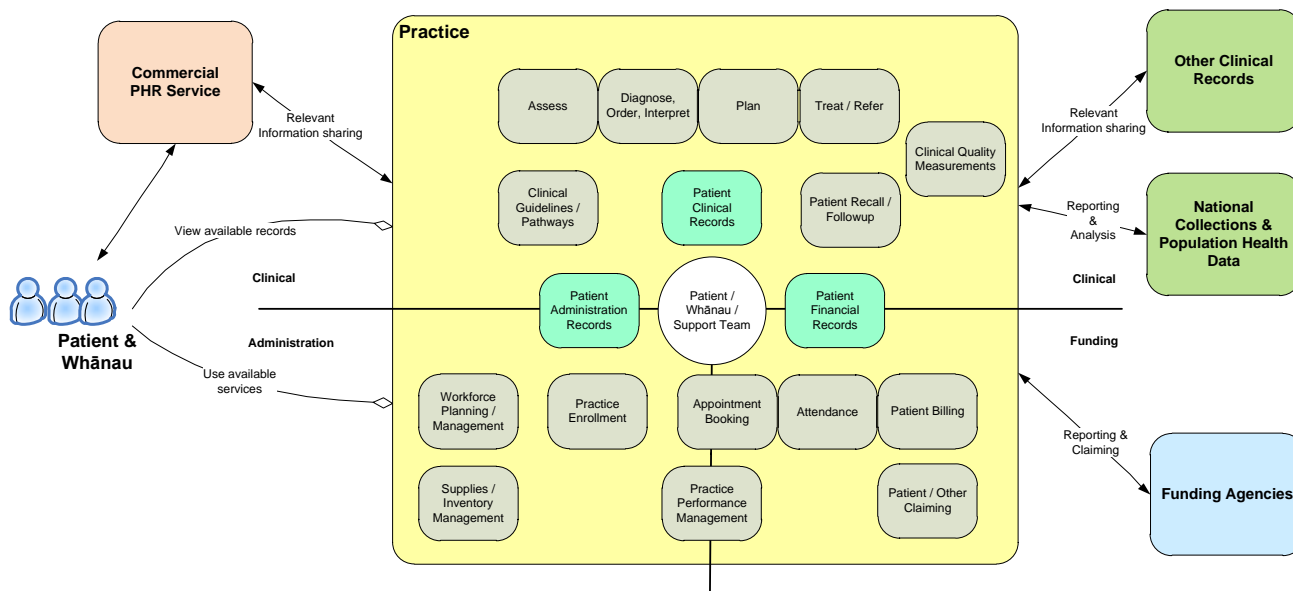
Context Maps	Describes the broader context of the healthcare ecosystem in which information needs to flow and support clinical delivery and quality – and the role of PMS' within this context
Requirements presented within Functional blocks Specific requirements within the functional blocks	The detailed requirements described in the context of “what” functionality is required (rather than “how” specific products should deliver the functionality). This is analogous to an RFI or RFP level of requirement/detail.
Key Priority List	Derived from consultation – feedback regarding the detailed requirements. This list distils the key requirements that there has been consensus on from the consultation and represents the fundamental themes – and therefore focal points – for initial focus and certification.
Recommended Evaluation approach and framework	Presents a framework around: Governance, constituency, roles and recommended process for managing (the

	evolution of) PMS requirements, prioritisation and “certification”.
Economic and behavioural considerations	A set of observations and corresponding considerations regarding incentive frameworks and some of the drivers of current behaviour that need to be addressed to drive effective change in the PMS environment.
Risks and Issues	A set of currently identified risks and issues that need to be managed as part of the implementation stage of the PMS requirements work.
Action Plan	A set of direct and consequential recommendations and next steps to move from this phase of identification to delivery and management of PMS requirements.

5 Detailed Requirements and Major Actions Needed

5.1 Detailed Requirements Deliverable with this Report

The framework for the scope of the PMS functionality is set out in the following:



The approach to developing the requirements was to balance a “top down” view of the PMS functionality and interactions with other health sector participants requiring interoperability / information sharing, with a “bottom up” view of the in-practice functionality requirements.

That bottom up view drew significantly on work done some years ago by IBM Consulting for the Australian Commonwealth Department of Health and Family Services. They worked with over 80 clinicians, mainly general practitioners, to build on the Good European Health Record (GEHR) to develop a recommended general practice systems definition.

The requirements also reflect

- The voluntary specifications contained in PAS 8170:2005 Primary Healthcare Practice Management Systems
- The goals articulated in HMSC reports
- Needs contained in a number of recent international PMS requests for proposals
- Specific considerations that reflect new service delivery models being explored by the sector outside the practice walls (e.g. as outlined in BSMC business case process).
- Comments received.

Specific requirements regarding current compliance reporting have not been covered off in detail in these requirements other than by reference to PMS’ needing to comply with all current standards and reporting requirements. A criticism levelled of the PAS 8170 guideline is that, in listing all current compliance requirements at that point in time, the document became out of date as soon as any of those requirements changed. It is envisaged that a separate schedule of most current compliance requirements be published and maintained in a centrally available location to enable users and vendors to see the most up-to-date list of these. This will be part of the implementation of the certification process.

A set of detailed requirements is provided as an Appendix to this report. In response to the comments received during the consultations, these require more discussion and analysis before being adopted as intended within the proposed the evaluation framework. As such, at present, they are a guide to areas that should be considered by potential purchasers of a PMS. For completeness, copies of the information sharing maps developed alongside the requirements are also included as an Appendix.

These requirements at present do not require the use of particular technologies. The PMS is, however, expected to operate within a connected eco-system, and as such technologies which better support connectivity and high availability are likely to be more highly regarded.

Although the requirements are expressed as evolutionary, a number of priority areas for action have been identified. The most critical for creating any substantial change in the quality of clinical PMS functionality relates to the economic model for PMS development and adoption, followed closely by the consequential governance framework to deliver the changes. Those, together with the way the Evaluation Framework can operate in parallel with those are addressed in this Section. Beyond those, the priority functional and interoperating issues to improve quality of care are discussed in Section 6.

5.2 The PMS Economic Model issue and options

5.2.1 Introduction

At the highest level the issue is how do we balance delivery of improved functional requirements with incentives to both practices and vendors to achieve that? Development of potential options requires a review of some of the challenges inherent in the status quo, as follows, within the context of evolution of a set of clinically led requirements with an associated PMS evaluation regime.

The bottom-up driver - one cohesive voice and place for end-user requirements definition and prioritisation - needs to be balanced with a funding model that encourages the vendors to take-up the challenge of responding to these requirements. It also needs to account for and embed into this process the top-down (and funded) requirements from central bodies (which, from an opportunity cost, may be at odds with the bottom-up end-user requirements).

Unfortunately, current international practices do not greatly assist us at this time. Adoption of PMS systems is a driver for Australia and Canada – but these are being incentivised by programmes that fund the adoption and uptake of PMS systems by government and public funders. In some cases, these are under-pinned by a set of minimum requirements and certification or panel of recognised products. In these examples, there is both carrot and stick.

New Zealand is quoted as having the highest adoption rate of information systems in General practice in the world. This has largely been due to the incentive of on-line claiming.

We do not lack for adoption and reach of the use of information systems in New Zealand. However, the focus of the use of the systems is largely a reflection of why they were so well adopted in the first place – funding and reporting.

5.2.2 Fund compliance or functionality?

The National Health IT Plan states, as one of its guiding design principles (at 7.4.1.2) that “management information (for example, reporting against external contracts) will be a by-product of day-to-day administrative and clinical work processes (and not an end in itself)”.

Whilst this is an ideal goal there are a number of things that need to happen. Compliance reporting is currently set in silos, with at least four central agencies dictating requirements.

- Pharmac
- MoH

- ACC
- DHBNZ

Some of these providers fund or subsidise vendors for new compliance related development, others do not fund, whilst some fund some vendors and not others.

Whereas the goal for vendors is a sustainable (and flourishing) business that is self-funded via license/maintenance (annuity) revenue, the license and maintenance fees charged by the majority of PMS vendors in New Zealand is minimal – and does not make for a sustainable business. Instead, vendors rely on development funding – mostly from those funders mentioned above.

This creates a capacity dilemma for vendors – develop core and extended clinical functionality (where the funding stream available to do so barely meets the maintenance needs of the existing product) or “follow the money” and develop the compliance requirements (as funded work).

5.2.3 A preliminary note on incentives for future development

As part of the development of these requirements, we commissioned LECG to conduct a brief review of current challenges and options on the subject of incentives for PMS in the New Zealand market.

Our goal was to understand the potential options around balancing PMS requirements for vendor certification with the right incentives and a governance and contractual framework to support these.

The main issues identified were:

1. Adverse market characteristics
 - a. Current funding arrangements are unfair and potentially anticompetitive
 - b. A dominant vendor significantly influences the market
 - c. High cost of entry to market and limited market size
 - d. High switching cost for users
 - e. Misalignment between investment and benefit for users
2. Combined with a lack of regulation
 - a. Lack of coordination around setting criteria for reporting requirements
 - b. Lack of incentives for vendors to develop further and for users to comply with reporting requirements
 - c. Intellectual property (*ownership of what is publically funded*)
3. And some behavioural issues
 - a. Lack of commitment to share information
 - b. Potential damage to trust through misuse of information

Potential options identified

This is a complex issue and there is more work to be done to investigate this further. Within the confines of the time available, some of the potential options (not mutually exclusive) include:

1. Directing funds that are ear-marked for development of primary care-led systems and quality systems into improving PMS
2. A sector governance initiative with representation from users, funders and vendors to ensure rules around standards and criteria were developed and applied to funding
3. Immediate clarification of health information (*and data governance*) usage to begin strengthening the regulatory environment
4. Rebalancing of commercial incentives to develop proprietary systems whilst at the same time allowing access to others in the market

Funders could pass all initiatives through a “gate” – the “gate” would be a sector governance initiative with funders, vendors and, most importantly, user (GP) representation. The “gate” would ensure that rules were developed and applied to funding. The rules would need to be competitively neutral, yield value for money and would ensure that full clinical benefit was extracted from each proposed change.

5.3 Future Governance and Evolution

To manage implementation of that changed economic model for PMS investment, together with managing agreement on and evolution of PMS functionality, an appropriate governance framework will be required.

The initial consultation document identified the following stakeholders and objectives for improved PMS functionality, including information sharing:

Stakeholder Group	Objectives
GP Practice Manager	A structured framework for deciding on preferred PMS vendors, agreed minimum levels of functionality and processes to make switching vendors easier if necessary.
Practice Clinician	Improved ease of use functionality and information accessibility, including having access to a continuum of care view of patients records, whoever is providing that care.
Other Providers	Access to appropriate aspects of patients' records as needed to have more complete information for care decisions and clarity of care responsibilities.
IPA	Improved information flows to support service quality management.
PHO/MSO	A structured framework for recommending preferred PMS vendors to enrolled practices, improved information flows to make funding / claiming / administration more efficient and for better practice / PHO population health analysis for contract reporting and service design / monitoring.
Patient & Whānau	To be able to access appropriate functionality to improve the clinical relationship, including potentially appointment management, prescription renewals, and access to other aspects of the patient's record and education material to improve their understanding and management of their health. As Personal Health Records (PHRs) become more available and networkable monitoring devices options for sharing that information with their doctor or other care provider will be needed.
PMS Vendors	To have a sector-wide framework for required functionality so they can focus on meeting at least the agreed needs, and compete on innovative functionality.
Other Vendors	Understanding of where their application is anticipated to fit in an evolving primary sector ecosystem and with what anticipated information sharing and interoperability.
Funding agencies	How to integrate compliance and funding requirements within the context of the overall information requirements, and ideally derive that information from clinical processes, rather than separate compliance activities.

The challenge for a potential governance framework is to devise appropriate representation for such a diverse range of stakeholders.

Patients First is one of the four groups charged within the National Health IT Plan with implementation leadership and accountability for the health sector. With its founding sponsors of The Royal New Zealand College of General Practitioners (RNZCGP), General Practice New Zealand and the National Health IT Board, Patients First has a mandate to govern primary and community health care projects.

Although the governance and leadership framework for Patients First is still under discussion, we expect it to have a broad representation from Primary and Community care, beyond representatives of the founding sponsors. As such, we recommend the governance framework for PMS evolution should operate as a sub-committee of the Patients First Governance structure, augmented as appropriate with additional co-opted sub-committee members to the extent that is necessary to appropriately represent non-vendor stakeholders, once the Patients First structure is finalised. Although the charter for such a sub-committee is to a large extent self-evident from this report, it will need to be aligned with the final form of the Patients First governance charter.

We recommend that the sub-committee be empowered to form additional PMS functionality focus groups to drive evolution of the detailed PMS requirements with appropriate clinical involvement at a pace the clinicians are comfortable with. It is desirable to get the “high five” completed within 6 months and next tranche identified and underway within the remaining 6 months (i.e. rolling 12 month radar).

We discuss the proposed evaluation framework and implementation of that in the next section, but clearly appropriate engagement with vendors needs to be designed into the final form of the PMS sub-committee governance framework. Given one of the goals of such a change as is envisaged is to ensure appropriate PMS functionality moves to being significantly driven by the primary sector clinical representatives, we do not consider voting membership on the sub-committee by vendors or by the NZ Health IT cluster is appropriate, although non-voting participation by invitation is desirable.

It is clear that the current Primary Sector Vendor Forum will need to evolve from primarily a compliance communication focus to one that better aligns with the objectives of the PMS sub-committee, and it may well be that this should become a bridging group between vendors and the sub-committee.

5.4 Evaluation Framework

5.4.1 Relationship to Governance

Given the need for change in the economic model discussed above, and a governance framework to deliver that, the third fundamental aspect of the change needed is a more transparent way of the sector better understanding the functionality of PMS offerings (and, potentially, in the future specialist solutions within the PMS continuum such as decision support tools).

5.4.2 What should be evaluated?

To start with we need to be very clear about the scope of any evaluation / certification regime, since there are a number of components active in delivering the required PMS functionality:

- “In practice” functionality – both clinical and non-clinical, with potentially privacy, security and usability functionality as special components of interest in their own right.
- “Information sharing” functionality – both messaging and invocation based.
- Non-functional attributes including vendor capabilities.

In respect of already planned sector wide certification, Connected Health is planning to accredit Telecommunications Service Providers, then to certify connectivity products/ services to be used by them, initially by self-certification with Ministry audit to ensure compliance. Although initially focused on message transport layers, the conceptual model does extend to an application layer.

5.4.3 What are our goals with evaluation?

Then we need to be equally clear about what we are seeking to accomplish with any such regime, and the differences applicable to each of the components.

The specific goals of a conformance / certification regime are generally expressed as being to demonstrate to the public and to health care providers that healthcare ICT products and services

are safe, effective, meet privacy and security requirements and will interoperate within an integrated health care delivery system in New Zealand.

The Patients First programme has a key component of enhancing quality of care by identifying improvements in practice management systems that support better quality care delivery, both in a patient-centric way, and with the PMS as an active participant in a connected health eco-system. Hence the focus of an assessment regime needs to provide an objective assessment of progress by vendors towards that, to assist PMS purchasers in their decision making.

5.4.4 What are the evaluation options?

A fully robust certification regime is likely to be a substantial investment, and take time to put in place.

At issue, therefore, is the extent to which application of increasing effort on the assessment (self or independent) - validation – certification continuum will drive improvement against the goals listed above.

By way of comparison Connected Health has determined self-assessment supported by Ministry validation through spot audit as being sufficient for their purposes.

The Integrating the Healthcare Enterprise (IHE) approach through their Connectathons is to seek to validate self-assessment of conformance to interoperability profiles. The criticism of this is that it is at a point of time only, with specific software versions, and application of any subsequent changes or patches potentially invalidates the conformance.

5.4.5 Proposed Evaluation Framework

Based on these considerations, the proposed evaluation framework should be pragmatic and cost effective for all parties with a matrix of approaches, as follows:

Requirements area:	Assessment approach	Validation approach	Certification approach
Information sharing capabilities	Self-assessment as conforming to standards	Independent Lab based confirmation (at a point in time)	Deferred until need demonstrated
Privacy, Security and Usability capabilities	Self-assessment as conforming to requirements	Independent Lab based confirmation (at a point in time)	Deferred until need demonstrated
Other “in practice” functionality capabilities	Self-assessment as conforming to requirements	Deferred until need demonstrated OR partial validation based in priority scenario based demonstration in Independent Lab	Not proposed
Non functional (non Vendor) capabilities	Self-assessment as conforming to requirements	Deferred until need demonstrated OR partial validation based in priority scenario based demonstration in Independent Lab	Not proposed
Vendor capabilities	Vendor statement only	Not proposed	Not proposed

5.4.6 Implementation

Our expectation is that self-assessment includes publication in a central (moderated) repository available to the market for information. This repository would include the list of requirements, including most up-to-date compliance requirements depending on what part of the eco-system the relevant products are positioned (i.e. provides vendors with a definitive and up-to-date list of “certification” and compliance requirements).

Given the detailed PMS requirements are still evolutionary the goal will be to identify subsets of requirements (such as privacy, security and information sharing first) to provide a way of easing into the process, but with a goal of expanding that as requirements are agreed.

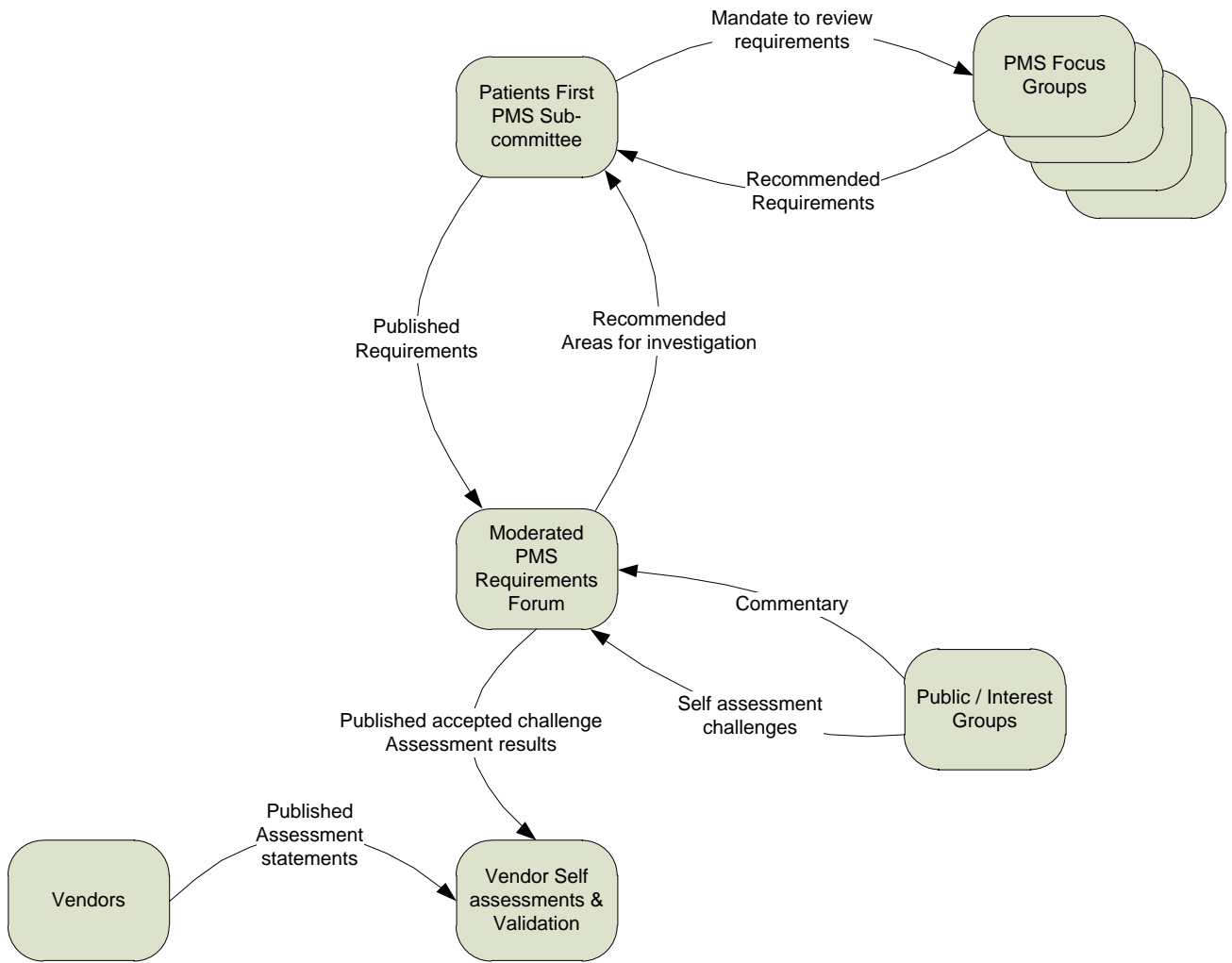
Clearly if there is to be a moderated repository, then the question is who should be that moderator and maintain the repository, and the scope of that moderation.

We consider that should not be the Patients First PMS sub-committee given their role of establishing the requirements.

With their role in supporting several recent National systems evaluations, we consider the National Institute of Health Innovation (NIHI) to be the natural manager and moderator of the repository, under contract to the supplier of the requirements, the Patients First PMS sub-committee. That contract should make it clear that NIHI’s role is moderator only, and validation of vendor claims as agreed with the sub-committee, such as if there is a challenge to any self-assessment statements. That contract should not prevent the sub-committee separately contracting with NIHI in their research capacity to advise them or focus groups on particular functionality issues.

Where the criteria for validation assessment is not binary, we expect NIHI would provide recommendations on the evaluation criteria, including scoring assessments where appropriate, to the PMS sub-committee for confirmation.

Visually, the process for developing requirements and evaluating against them would be as follows:



6 Key Priority Issues for future PMS – The High Five

Whilst the major actions required to bring about change are discussed in the previous section, the following are the other issues identified as priorities from the consultation undertaken.

- Published, standards based APIs
- Structured data within the PMS, moving towards semantic interoperability (e.g. LOINC etc.)
- Support for interoperability standards, with e-Discharge and e-Referral the priorities
- Broader debate on access, privacy and data governance
- Developing consensus on usability guidelines including managing alert fatigue

They are each discussed further in the following sections.

6.1 Structured Data

To better support information sharing / interoperability there is a need for agreement on common terminology and coding systems (supporting so called semantic interoperability). As such, use of LOINC codes for lab orders and results and use of the planned Universal List of Medicines are proposed to be included as PMS requirements. In general, the expectation is that where a messaging standard mandates use of a particular coding system the PMS will need to support it. Where no code system is mandated (such as is currently the case with diagnosis codes) use of such coding systems in the PMS is proposed to not require semantic equivalence or interoperability, but rather that the code, the coding system and meaning of the code be available, consistent with the approach being taken for GP2GP.

Interoperability ideally should be at a structured data item level, rather at a text block level (even though text may explain the data or coding). As standards are agreed these need to be adopted, including SNOMED-CT when and if there is a decision to adopt this.

It is recognised this requires significant change to some PMS, and in many cases additional clinician time involved in entering coding. This is generally expressed as the highest priority looking towards an inter-connected eco-system, but it is likely to be expensive, both in capital and operational terms.

6.2 Published, standards based APIs

To support additional specialist applications (such as decision support or user defined special purpose assessments) the PMS should support a published API (application programming interface) that such applications can use to extract data from and write data back to the PMS.

Ease of data extraction and analysis from some PMS are expressed as being an associated priority issue, but to some extent both are by limitations in terms of available structured data.

The provision of an API could be left to the vendors as to form and scope, or standards or guidelines (such as an evolution of forms server and possibly a GP2GP variant) be required to be complied with. Our preference is the latter so that there is some degree common functionality across all PMS.

The most likely and pragmatic approach is a phased one whereby

1. vendors are required to expose a defined set of (patient and clinical) information in a structured and published way
2. Over time, this moves to a standards based API defined as a sector standard to which vendors need to comply

The main commercial consideration that needs to accompany this requirement is that this is a requirement for being a recognised “certified” product in the market – and should be part of the core

product and corresponding standard license and maintenance pricing rather than an additional module.

The way in which patients may wish commercial PHR services (including the likes of Microsoft HealthVault and Google Health, and local versions) to interact with the systems in the Practice is still evolving, as is the willingness or otherwise of Practices to share or use information in that way. At issue for patients is the extent to which selection of a PHR promoted by a practice or selected by themselves has the potential to lock them into that PHR or to PMS used by the practice (and hence to practices using that PMS).

GP2GP is a standard aimed at making it easier for patient's to shift practices. We would expect commercial PHRs to be encompassed by a future PMS API standard / guideline.

6.3 Interoperability Priorities

Work is underway with GP2GP as a record transfer mechanism.

e-Discharge and e-Referrals are also continuing to be worked on to achieve more structured semantic content, and these were generally agreed to be the priorities for interoperability, although it was recognised that execution under the BSMC business cases would lead to increased clinical network information sharing that may make it desirable to quickly move to a standard for record sharing rather than to have different solutions developed in different regions.

6.4 Information Security, Access and Privacy

Whilst this issue goes beyond Primary Practice, as systems become connected up, broader debate on access and privacy are arguably required. Historic rules have been adjusted by allowing "opt out" of Test Safe, and this seems to be becoming a default option.

As PHRs become used, and Patient / Whānau access to records increases, a more complex consent / deny access model is potentially needed – at significant cost and overhead.

The Primary Sector certainly has a role in that debate, but we recommend this be addressed more broadly, and with some urgency so informed discussion is possible.

Vendors need to be given some specific direction at least at a level of principles including the custodianship and use of information. Vendors have a role in this discussion though should not be driving it.

A defined set of privacy and security guidelines should be provided to the vendors and refined over time to ensure security and privacy requirements can be met – that align with legislation. There is also a need to define the data governance and privacy principals as they relate to personal Health Records and shared care plans. The proliferation of cloud computing drives a need for a set of principals around data governance across the sector.

6.5 Usability

We provided potential usability requirements in the initial consultation are based on the HIMSS Usability Testing Patient Safety checklist (© 2009 Healthcare Information and Management Systems Society), noting also that but consideration is being given to adoption of standards in certain areas recommending adoption of the technology independent aspects of the Microsoft Common User Interface Guidance toolkits, derived from their joint research with NHS England on usability and patient safety. It is likely Patient Banner and Medications entry / display will be early candidates for this approach.

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Concerns were expressed that application of usability guidelines imposes costs on vendors (to modify) and users (to pay for the modifications and to retrain). Indeed there was concern that there was not really sufficient significant dissatisfaction with current experiences to warrant investment in developing guidelines and implementing them.

We have therefore removed those proposed requirements from the current draft detailed requirements, but consider it is an issue for ongoing consideration.

What was expressed as important in this area, however, was development of guidelines on how “alert fatigue” should be managed in the PMS.

7 Appendix: Information Sharing Maps

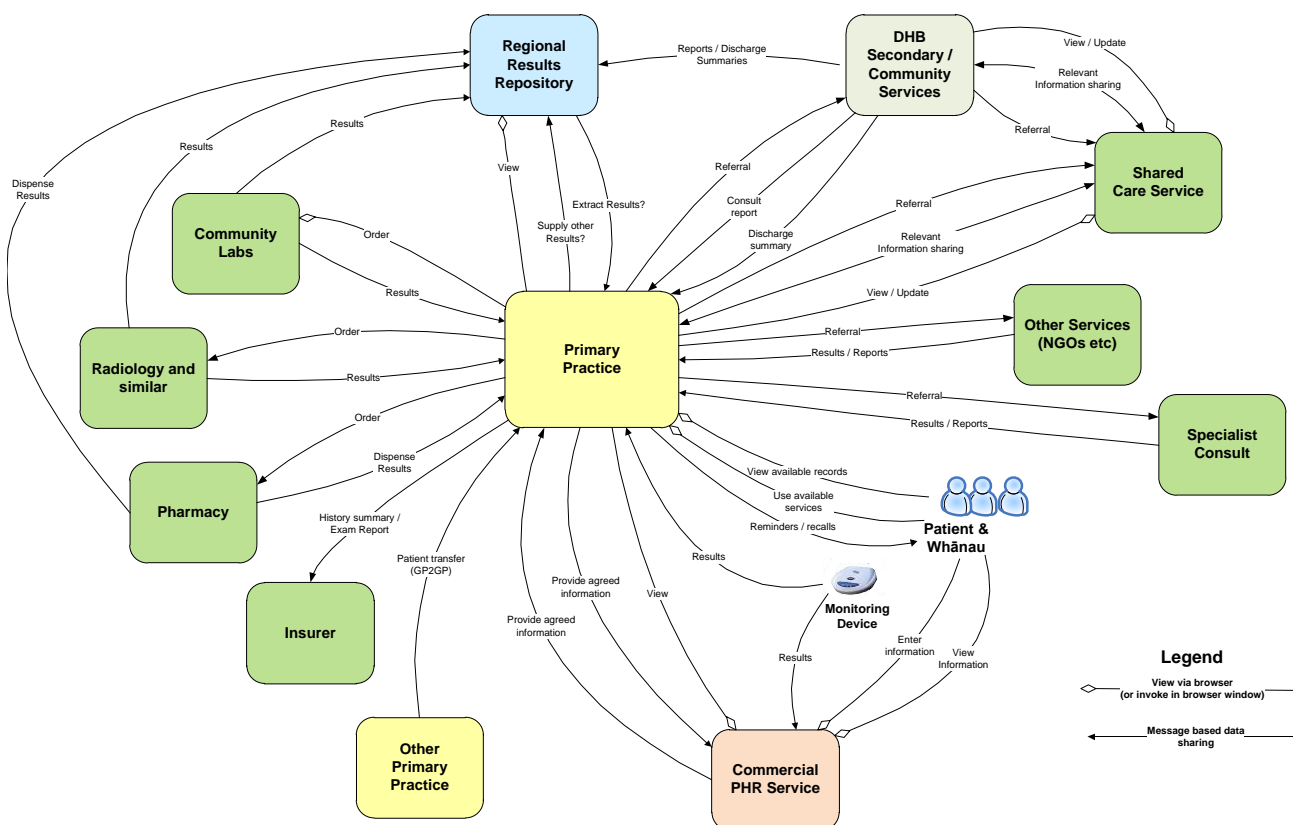
7.1 Overview

Information sharing maps in this Section have been developed in respect of the participants in a Clinical Practice-centric Network, a Funding Network and a future National Collections / Population Health Network.

The information flows associated with clinical quality indicators has not yet been added to these maps, pending more progress with that Project. Fundamental “lookup” services, such as access to the proposed Identity Management / Recipient Provider Index (NHI / HPI replacement) and GeoCoding services have been excluded from these maps.

These maps are set out in the following sections with some high-level issues for future consideration, beyond the priorities identified in Section 6.

7.2 Clinical Practice-centric Network



7.2.1 Shared Services

Although the scope and nature of Shared Care Services are still evolving in New Zealand, the information sharing illustrated here is based on the approach being taken in other jurisdictions and being considered in New Zealand.

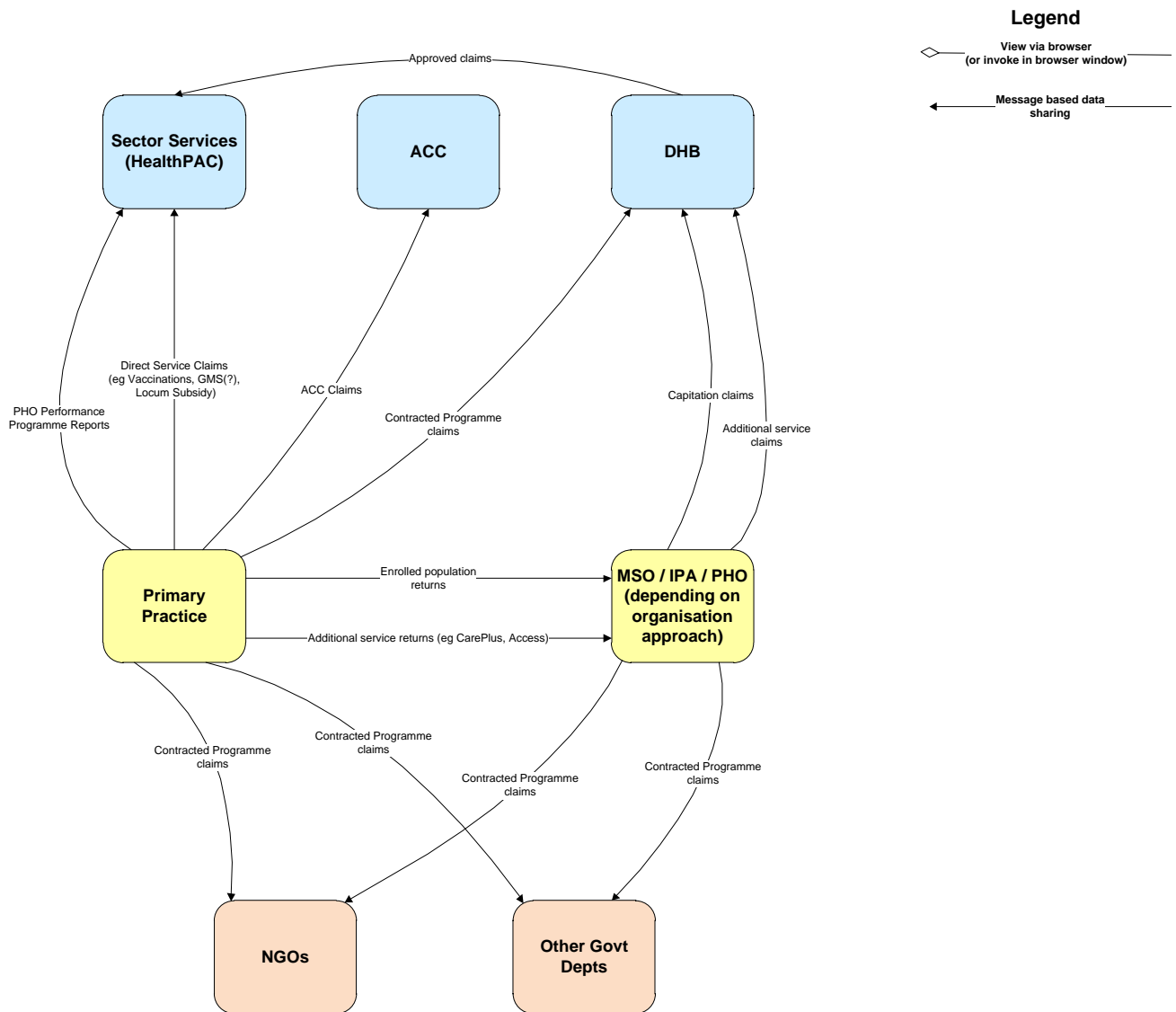
7.2.2 Commercial PHR Services

The way in which patients may wish commercial PHR services (including the likes of Microsoft HealthVault and Google Health, and local versions) to interact with the systems in the Practice is still evolving, as is the willingness or otherwise of Practices to share or use information in that way.

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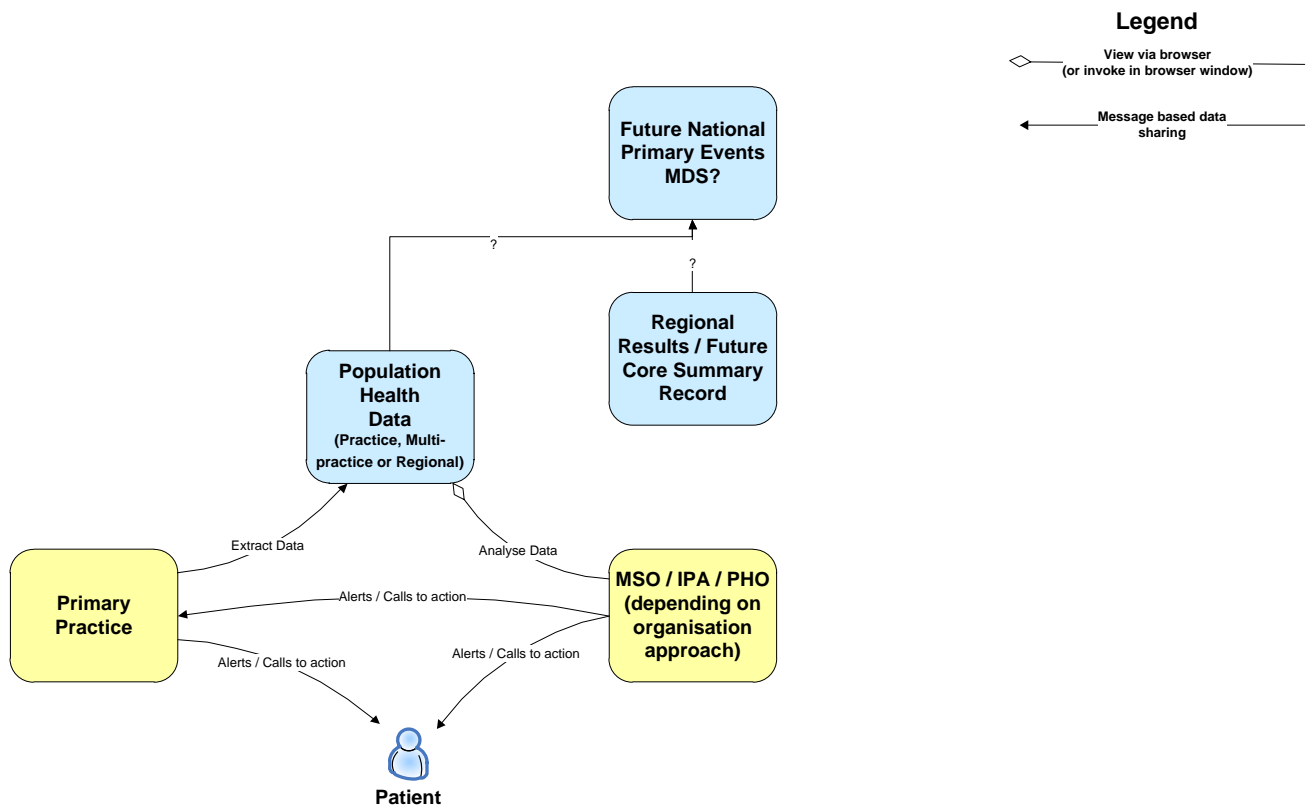
GP2GP is a standard aimed at making it easier for patient's to shift practices. Consideration may be needed whether the standard should also apply to commercial PHRs.

7.3 Funding Network



Although not explicitly shown, the ability for practices and MSO/IPA/PHO organisations to access the status of funding payments and to reduce the current timing gap associated with PHO enrolment status changes are seen as desirable attributes of improved information sharing in this area.

7.4 National Collections / Population Health Network



National Collections / Population Health repositories at present are derived as a by-product of Funding Network information flows (e.g. National PHO Register and National Immunisation Register).

There is a need to construct data warehouses (probably by PHOs in view of their population health mandate) and analyse them to feed behaviour change. Ideally that data can then be aggregated regionally and then nationally.

Consequently there is a need to define a set of primary healthcare information that is easily able to be aggregated at multiple levels whilst still supporting local work practices.

The analysis should not be for the purpose of reporting but to feedback to practices, clinicians and patients to generate action. Alerts / actions should be workflow based, not via static reports. Reporting and compliance should be a by-product of good work practices, not an end in itself.