Multi Interventional Approach to Reducing Polypharmacy in the Central Region 2012
Table of Contents

Foreword .......................................................................................................................... 3
Executive Summary ......................................................................................................... 4
Background ...................................................................................................................... 6
Central Region Demographics ...................................................................................... 8
Financial Implications of Polypharmacy ........................................................................ 13
Raising Awareness .......................................................................................................... 14
Specialist Medicine Advisory Service Model ............................................................. 18
Linkages ......................................................................................................................... 23
Bibliography ................................................................................................................... 24
Appendix 1: Stocktake of Central Region Medication Projects .................................... 29
Appendix 2: Multi Interventional Approach to Polypharmacy – Communications Plan .... 33
Appendix 3: Cumulative Medicine Risk Analysis .......................................................... 37
Appendix 4: Pharmacy Council of NZ Definition of Medicines Management .............. 40

Charts

Chart 1: Projected change in population numbers by Central Region DHB (2012 to 2022) .... 8
Chart 3: The distribution of health literacy, Māori and non-Māori, aged 50-65 years ....... 9
Chart 4: Total Unique population on 9+ medications by DHB ....................................... 10
Chart 5: Population on 9+ Medications by Ethnicity for Central Region ....................... 10
Chart 6: Number of people with 9+ medications with self reported non compliance ....... 11
Chart 7: Patients by DHB with 9+ medications who reported they had fallen in the 90 days prior to assessment ...................................................................................... 11
Chart 8: SMAS patient flow .......................................................................................... 19
Chart 9: Medicines Management Competency Framework ......................................... 40
The Health of Older People Network would like to acknowledge the contribution of the working group members in the development of the Multi Interventional Approach to Polypharmacy:

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Foreword

The Polypharmacy Working Group was asked by the Older Adults and Rehabilitation Steering Group to consider approaches that could be applied regionally or within DHBs to address the issue of Polypharmacy in the elderly. It has long been known that elderly people are particularly prone to the adverse effects of medicines and are vulnerable to sometimes unpredictable interactions between medicines. The more medications an elderly person is on the more likely they are to have adverse events and interactions. This leads to an increased risk of falls, fractures, confusion, incontinence, constipation and a range of other problems that cause considerable distress to the person and his/her family/whānau - and often result in admission to hospitals or residential care for frail elderly people.

The Polypharmacy working group first looked at data available locally and nationally on the scope of this problem then reviewed the international literature about polypharmacy. The drivers for polypharmacy and solutions proposed to manage polypharmacy were particularly focussed on. It became clear that many patients and their families are not happy with the medicines that they are on, GPs are reluctant to discontinue medicines commenced by specialists and that most prescribing is a correct application of evidence based guidelines. The compartmentalisation of health care contributes to the problem because elderly people with multiple diseases are often seen by a number of specialists all treating each disease in the correct ‘evidence-based’ way. There are no ‘evidence based guidelines’ on stopping medicines in these circumstances. Because each person has a unique set of circumstances and symptoms past efforts to address this problem with protocols and simple guidelines have not been successful.

The Working Group concluded that a personalised approach – addressing individual patients’ priorities was the best way to approach this issue, hence our recommendation to promote the awareness about the risks of polypharmacy to patients and their families. Then they could drive the change by demanding to be on fewer medicines. In addition it is clear that GPs are not comfortable discontinuing medicines commenced by specialists, so a process needed to be developed whereby GPs could get specialist support and advice on the potential withdrawal of medicines.

Dr Ian Hosford
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Chair Polypharmacy Working Group
Executive Summary

Today people aged over 65 account for approximately 37% of current health service funding and as the number of older people grows steeply in the next 15 years, this will increase to approximately 50% of the total national public health spend\(^1\).

Across the Central Region 13% of the population is over 65 years old and that percentage is increasing. While the large metropolitan areas have a lower percentage of older people, the smaller, more rural DHBs (e.g. Whanganui and Wairarapa) have nearly a fifth of their population over 65 years old.

Older people have a higher incidence of chronic health conditions, and the use of multiple drugs is accepted best practice for common chronic conditions such as hypertension and diabetes, however older adults on multiple medications are at high risk of drug related problems because of complex drug regimes and physiological changes associated with aging. Drug related problems cause significant preventable mortality and morbidity.

Polypharmacy has various definitions in the literature ranging from four or more drugs in combination or simply the addition of one inappropriate drug to an existing regime. For the purpose of this project polypharmacy was defined as “the addition of one or more drugs to a regime which provides no therapeutic benefit and/ or causes drug related harm”\(^2\).

The Regional Services Plan 2011/2012 identified that polypharmacy was an issue for its ageing population. A Working Group was established from across the Central Region DHBs and primary care to develop a regional approach to addressing polypharmacy.

This report presents a recommendation to the Health of Older People Network and Regional Services Plan Leadership Committee to embark on a multi-intervention approach to reduce polypharmacy.

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1 National Health Board, Aug 2010. Trends in Service Design and New Models of Care: A Review

2 Best Practice Advocacy Centre (BPAC NZ)
Recommendations

1. Develop a campaign to raise awareness of polypharmacy with consumers and their family/whānau. Patients and their family/whānau need to be well informed with quality, readily-available information on polypharmacy and the negative impacts it can have. Patients and their family/whānau should drive the demand for change.

2. Develop a campaign to raise awareness of polypharmacy with prescribers encouraging a considered approach to prescribing in the specialist and primary care settings.

3. Development of a Specialist Medicine Advisory Service (SMAS) model to assist in medicines review and management of any changes. There needs to be a way of supporting GPs and other prescribers, by giving them somewhere to go for another opinion if they need assistance to reduce patient’s medications.

Additional Recommendations

- Central Region DHBs write to the Health Minister expressing our concern at direct to consumer marketing and how this encourages inappropriate demands for particular pharmaceuticals, particularly for older people.

- Education on the impact of polypharmacy should be regularly carried out by DHBs. Medicines review and the management of medication, particularly in multimorbidity should be routinely included in Grand Rounds and continuing medical education programmes for all clinicians involved in prescribing, dispensing and administering medication.
Background

Key Drivers of Polypharmacy

There are many drivers of polypharmacy identified in the literature. Some of these are:

1. Patient and family/whānau expectations
2. Specialist recommendations
3. The number of prescribers involved in the management of patients with multiple long term conditions
4. The application of evidence based guidelines in older adults with a number of diseases
5. Lack of evidence based guidelines for the cessation of medicines in the frail elderly population
6. Reluctance of many GPs to discontinue medicines recommended by specialists or in evidence based guidelines
7. Lack of support for GP’s/primary care teams for ‘total medication management’
8. Models of care, which support short hospital stays and multiple sub specialties.

Polypharmacy is not new, but it is increasing as the population ages with more long term conditions.

To illustrate this, if evidence based guidelines are rigorously followed, a 79 year old woman suffering from chronic obstructive airways disease, non insulin dependent diabetes, hypertension and osteoarthritis would be on 12 medicines. This would involve 19 dosages a day and could involve taking medicine up to five times a day. There would be 20 (known) potential interactions between those medicines.

Adverse drug events include adverse drug reactions that result from the pharmacological properties of the drug itself, as well as errors in the way the medicine is used alone or in combination with other medicines. Complex medication regimes may also cause difficulty with adherence which adds to possible adverse reactions.

Adverse events associated with medication are common and place a significant burden on the healthcare system in terms of both health outcomes and cost. It is estimated that 10% of patients visiting general practices will have had an adverse drug event in the previous six months\(^3\).

Polypharmacy, particularly if it includes psychotropic medications, is an important risk factor for falls, increasing the risk by around 50%\(^4\). A placebo-controlled clinical trial of withdrawing psychotropic drugs showed that falls were reduced by 66%\(^5\). A small reduction in falls in the elderly has the potential to deliver significant savings to the health service.

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through reduced ED attendances, bed stays and reduced costs of social supports such as home based support services.

Comprehensive Clinical Assessments (InterRAI) are being used across the country in assessing older people for home supports. The data collected provides a useful clinical repository, and gives increased visibility of polypharmacy to health professionals. Within InterRAI there are 30 clinical assessment protocols (CAPS) which can be used by the Needs Assessor to highlight areas of concern to primary care. However, if medication concerns are flagged to a GP, there is no guarantee that the GP will act on it – or have the support to address the concerns.

‘Clinicians lack the tools to detect patients overwhelmed by the burdens of treatment, and they lack strategies to lift these burdens.’

Patients with multi-morbidity need be informed to be able to share in decisions about their treatment, to ensure concordance with their medication regime. This is often not the case which can lead to poor adherence and wastage of medications.

Structures such as the Community Pharmacy Services Agreement (CPSA) and the Medicine Reconciliation and Medication Utilisation Review processes assist in identifying at risk elderly patients and support other strategies for medication management but do not specifically address the drivers of polypharmacy.

**Stocktake of Polypharmacy Initiatives**

The working group did not want to duplicate existing polypharmacy initiatives nor undermine the efforts of others in trying to address this issue. During August and September 2011, the working group sought to understand what initiatives had occurred recently or were underway in the Central Region to address polypharmacy. These projects are detailed by DHB in Appendix 1.

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Central Region Demographics

Between 2012 and 2022, the Central Region population is expected to grow by 4.3%. There are marked age group changes predicted. There will be more elderly and fewer young people and these trends are expected in each of the Region’s DHBs. The age group 65 to 84 years is expected to grow by 33.3 percent and represents an increase of approximately 36,000 people for this age group.

![Chart 1: Projected change in population numbers by Central Region DHB (2012 to 2022)](image)

Deprivation Distribution

Differences in health outcomes are due to a combination of factors, including socio-economic inequality, access to and quality of health care, and health risk factors such as diet, and other lifestyle factors.

There is great contrast between the proportions of people in each DHB living in the least deprived quintile (1) and the most deprived quintile (5).

- Capital & Coast and Wairarapa have the lowest proportion in the most deprived quintile (15 percent and 16 percent respectively)
- 35 percent of Whanganui’s population live in the most deprived quintile (5)
- 53 percent of all Māori in Whanganui reside in quintile 5
- Across all DHBs there are higher proportions of Māori and Pacific Peoples in the two most deprived quintiles (4 and 5)

Chart 2 shows the population distribution by DHB, ethnicity and deciles in the Central Region.

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Demographics and deprivation data sourced from Regional Services Plan 2012/2013

Page 8 of 41
Health Literacy

International research shows that patients who are active participants in managing their health and health care have better outcomes than patients who are passive recipients of care. Health literacy is essential for active participation. Health literacy ‘is defined as the ability to obtain, process and understand basic health information and services in order to make informed and appropriate health decisions’.

Health literacy is an issue for many people however chart 3 shows that 80% of Māori aged 50-64 have a poor level of health literacy, meaning they have insufficient skills to cope with the health literacy demands they face.

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Chart 3: The distribution of health literacy, Māori and non-Māori, aged 50-65 years

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8 Health Literacy Survey reported in Tatau Kura Tangata: Health of Older Māori Chart Book 2011 pg 19

Page 9 of 41
The Adult Literacy and Life Skills Survey 2006\textsuperscript{9} showed that, overall, the literacy of Pacific peoples was lower than other ethnic groups in New Zealand.

**Polypharmacy in the Central Region**

The InterRAI clinical repository identifies the degree of polypharmacy\textsuperscript{10} across the Central Region DHBs. Three years\textsuperscript{11} of data was reviewed and 3406 unique people\textsuperscript{12} living in the community were identified through assessments as being on 9+ medications.

![Chart 4: Total Unique population on 9+ medications by DHB](chart4.png)

**Chart 4: Total Unique population on 9+ medications by DHB**

Chart 5 shows the population on 9+ medications by ethnicity. The InterRAI is a very small subset of the total population. In this subset 1:16 are Māori (population norm for Central Region 1:5) and Pacific 1:42 are Pacific (population norm for Central Region 1:19).

![Chart 5: Population on 9+ Medications by Ethnicity for Central Region](chart5.png)

**Chart 5: Population on 9+ Medications by Ethnicity for Central Region**

Within InterRAI there are 30 clinical assessment protocols (CAPS), three of which reflect medication issues for patients:

- Medication CAP

\textsuperscript{9} Statistics NZ and Ministry of Pacific Island Affairs, 2010

\textsuperscript{10} Defined as those on 9+ medications in the InterRAI clinical repository data

\textsuperscript{11} Calendar years for 2010, 2011 and year to date 2012 (September)

\textsuperscript{12} Unique NHI as some people assessment more than once during the period
- Psychotropic CAP - identifies persons taking psychotropic drugs who need a medical review of their medication regimen, or who might benefit from more or different medical monitoring of psychotropic drug effects
- Adherence CAP – considers selected list of treatments or therapies and self reported compliance with medications prescribed by a physician

Chart 6 identifies the number of people (n=414) by DHB who triggered the adherence CAP on their InterRAI assessment. The adherence CAP indicates those who report they are non-compliant with their medication regime for some reason.

Chart 6: Number of people with 9+ medications with self reported non compliance

Polypharmacy is known to increase the risk of falls in older adults, therefore the number of falls experienced within the same cohort of patients was reviewed. Chart 7 identifies those that triggered the psychotropic, medication management or adherence CAPs\(^\text{13}\), who were on 9+ medications and who fell more than once in previous 90 days.

Chart 7: Patients by DHB with 9+ medications who reported they had fallen in the 90 days prior to assessment

This chart shows that over 55% (n=1922) of those who triggered a medication related CAP had fallen in the last 90 days.

\(^{13}\text{Some patients may trigger all three CAPS and will therefore be counted three times.}\)
It is an assumption of the working group that the risks and benefits of polypharmacy for frail Māori and Pacific elderly are similar to European and other groups, as there was no information / evidence to the contrary.
Financial Implications of Polypharmacy

The actual cost of pharmaceuticals is a relatively small proportion of the overall health budget and most of the medicines that elderly people are on are relatively inexpensive. It is unlikely that any service addressing polypharmacy could be justified solely on the basis of potential savings to DHBs from reduced prescription of medicines.

However, in 2005 15,254 people were admitted into New Zealand hospitals for 17,806 identified ‘adverse drug reactions’ (ADRs). In this group 146 different ADRs were recorded. Most of these people were elderly and the problem peaked in those aged 80. ADRs were implicated in between 6-30% of hospital admissions in the elderly. In addition to that, about 20% of those readmitted to hospital shortly after being discharged, were readmitted due to ADRs.

It is known that polypharmacy contributes to this. If a person is on two medicines there is a 13% chance of an adverse event. Five medicines, the chance of an adverse event is 58% and if on seven or more medicines the chance of an adverse event is 82%. In the frail elderly it is even greater.

In New Zealand the population of those aged 80 or over is growing and DHBs are already struggling with the volume of work that is being demanded of them. Community services are in a similar position. If the current trend continues our health services will be overwhelmed by the numbers of sick elderly people requiring treatment. If there is a way of reducing potentially avoidable admissions, this could reduce the demands on the health services and be cost saving.

There is limited evidence to show that investing in a program that addresses polypharmacy will save money in the long-term. There is also evidence from at least one NZ innovation currently running in the Wairarapa region, that committing specialist resources to advising GPs on how to reduce the number of medicines a patient is prescribed will save the DHB money. If such a service was also to reduce the number of admissions due to ADRs by 5%, that could result in significant savings (given the 2005 data above, that would be 763 less admissions).

Not doing something about polypharmacy is not really an option.
Raising Awareness

An innovative approach in raising awareness has been suggested by the working group – to put the power in to the patient’s hands. The aim is to educate the patients that it is appropriate to question their healthcare professionals when it comes to medication and they do not need to agree to a medication regimen they are not comfortable with. The working group values shared care decision-making and informed consent and a patient led request for a medication review is a useful tool, particularly for those on multiple medications.

The Health Waikato Regional Diabetes Service Report identified that, in order to improve the health of Māori, it was important to consider cultural factors when developing health promotion strategies, such as:

- Links between socio-economic determinants, health and the setting of priorities within the whānau
- Impact that whānau can have in influencing individual attitudes and behaviours
- Importance of Māori language and customs to Māori and their healthcare
- Targeting health promotion and treatment services for Māori groups in the community
- Improving services by providing targeted education in the community and using whānau in marae-based forums

A shared decision making approach supports patients to engage in this process and key characteristics of shared decision making are; that at least two participants (health professional and patient) be involved, that both parties share information, that both parties take steps to build a consensus about the preferred treatment and that an agreement is reached on the treatment plan.

There are two aspects to the Raising Awareness Campaign:

1. Directed to patients and their families/whānau. In this leaflet patients are given examples of problems which may arise from polypharmacy and are encouraged to seek a medication review from their prescribers or pharmacist if they have concerns.

The leaflet should give patients confidence to question their medication. Asking patients to challenge their medication regimen will ensure that they receive a review that is sensitive to their history and appropriate to them as an individual. It should allow them or their family/whānau to feel empowered to make a difference to their own health and therefore motivated to change.

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Leaflets may need to be translated into Māori and Pacific languages and tested with local Māori and Pacific to ensure the message is understood. Design and images may also need to be targeted.

These leaflets should be made available in community pharmacies, GP surgeries, secondary care clinics and inpatient areas, and all other relevant areas to target patients.
2. Prescribers are also targeted to remind them to think before they start a new drug. All prescribers are already aware of the dangers of polypharmacy and yet patients are not necessarily routinely reviewed. The working group felt that adding more algorithms to a prescriber’s workload would not produce the desired response of more patients having their medication sensibly reviewed. It also runs the risk of patients not being treated as individuals or thought of holistically. Proposed posters utilise the same graphics as the consumer raising awareness campaign.  

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17Templates are available from Central TAS, for DHBs to customise for their raising awareness campaign in ‘word template’ format.
A suggested Communications Plan is available in Appendix 2 which will need to be customised by DHBs to meet their local population needs during implementation.
Specialist Medicine Advisory Service Model

It has been demonstrated in New Zealand and internationally that targeted and individualised assessment by a multidisciplinary team can simplify treatment regimens and reduce the potential for harm from polypharmacy. Combined with a shared decision making approach medicine withdrawal may be the best clinical decision and result in significant patient benefits. The working group therefore proposes that a Specialist Medicine Advisory Service (SMAS) be established in each DHB to support GPs to address polypharmacy in their patients who have sought medication review following the Raising Awareness Campaign.

Practice principles for the proposed SMAS are identified as follows:

1. A review of a patient’s medication must take place in a timely manner following a referral to the SMAS. Likewise the total medication plan and subsequent support for the primary care team needs to be timely before further functional or clinical deterioration.

2. The SMAS must have optimum accessibility for the patients who are being reviewed and the referring practitioner.

3. Any changes to a long-standing list of daily medicines require the patient’s consent to participate in the medication management planning process.

4. Beneficial changes to long-term medications require a careful synthesis of the patient’s clinical status and co-morbidities, other medications, and social and environmental risk factors.

5. A scoring system is required to document and stratify a person’s medication risk and to facilitate regular audit.

6. Withdrawing or changing medication is a potentially risky process and explicit documentation must support any decisions to add, stop, or change medication.

7. One-on-one discussion with a specialist is strongly advocated by GPs and this should be available.

8. Specialist support from a clinical pharmacologist, geriatrician or internal medicine specialist is ideal, but may not be required in every case, particularly if there is an effective education and training programme to enhance GP capability.

9. An education programme should be available to all prescribers, pharmacists and other health professionals involved.

10. The outcome of the SMAS involvement will be a ‘medication management plan’ which must be effectively communicated to the community care team.

11. Community pharmacists can have a vital supporting role in the development and effective implementation of the medication management plan. They can alert
other carers to changes in a person’s clinical status or difficulties with medications, and can conduct regular adherence reviews.

The patient flow is outlined in Chart 8.

Chart 8: SMAS patient flow

**Targeted Patient Population**

- Aged 70 years or older (though younger high risk people such as Māori, Pacific people could be referred), and
- Multiple medications, and
- Several long term conditions, and
- Likely drug interactions and adverse events.

Other high risk patient factors triggering referral could be:

- Treatment goals have changed, such as when a person becomes frail, develops terminal illness or later stages of dementia
- High level of falls - two or more falls in three months
- Adherence issues
- Difficulty swallowing medication

Appendix 3 is the medicine risk assessment successfully undertaken at Wairarapa DHB and the OPTIMED Service. Such a tool assists in targeting the population most likely to benefit from a SMAS and will need to be developed with the demonstration DHB site.

Whilst timely psychogeriatric (or other) advice can avoid transfer of patients from residential care to DHB assessment units and higher levels of care, the service should initially be directed to those patients living in the community versus those residing in aged residential care.
**Suggested Clinical Team**

- Senior Clinical Pharmacist / PHO Pharmacist
- Hospital Specialist (Clinical Pharmacologist / General Physician / Geriatrician)
- Nurse Practitioners with the scope of practice in Older Adults

It is desirable that medication reviews performed by the SMAS pharmacist will be equivalent to level D of the Pharmacy Councils Medicine Management Competency Framework (Appendix 4), as the SMAS will be reviewing a complex cohort of patients with polypharmacy. This highlights the distinction between the medication reviews of the SMAS pharmacist versus a community pharmacist undertaking Level A medicine reviews.

**SMAS Team Process**

Patients may be identified by their GP, their community pharmacist, attending Hospital Specialist. The referral is sent to a dedicated member of the SMAS who undertakes a medication review, which includes formal medicines reconciliation, a review of medication, dosages, routes of administration, potential side effects and drug/drug and drug/disease interactions, and adherence with medication regimens.

Each patient is assessed as an individual, taking into account co-morbidities, possible adverse effects and adherence issues.

It may be necessary for information and discussion with the other health professionals involved in the person’s care.

The Clinical Pharmacist would discuss the case with the GP and other members of the multi disciplinary team (MDT), as appropriate.

Specialist advice may be sought from a geriatrician for example. Although it may not be deemed absolutely essential, there is an added advantage for complex patients of an ‘on-site’ consultation between the GP and a specialist in a visiting capacity, with direct access to the patient’s electronic record.

Following this MDT review a medication management plan is formulated and this is communicated (possibly using a standard template) to the patient and their doctor, but it is the responsibility of their GP to discuss and implement and medication changes with their patient.

Patients who are registered in Long Term Conditions (LTC) in the CPSA will have their medication management plan monitored by the community pharmacist in collaboration with the GP.

Further specialist assessment may be arranged, and follow-up by a member of the MDT, such as the Practice Nurse may be appropriate, in addition to routine follow-up by the patient’s GP. It is understood that medication withdrawal may take considerable time eg. Benzodiazepine withdrawal.
Medication lists may be reviewed by MDT, GP and pharmacy at 6 and 12 months with the aid of pre-arranged downloads of dispensing from the patient’s community pharmacy.

**Potential Outcome Measures**

The multi interventional approach seeks to deliver improvements for patients; therefore it is appropriate to consider the Model for Improvement. The Institute for Healthcare Improvement UK suggests three simple questions:

1. ‘What are we trying to accomplish?’
2. ‘How will we know that a change is an improvement?’
3. ‘What changes can we make that will result in improvement?’

Measures for improvement should always be linked to the programme objectives and aims, and be able to demonstrate that a change is an improvement (and not just a change). The local DHB approach will determine the type of quality measures planners will need to consider.

Detailed below are examples of measures that were identified during the literature review, which could be linked to multi intervention objectives.

1. Customer (patient, family/whānau and GP) satisfaction
2. GP, community pharmacy and referrer feedback
3. Medications discontinued, started or re-started one year following MDT assessment
4. ED and hospital admissions and reason recorded for one year following medication changes
5. Reduced falls in cohort identified by InterRAI clinical repository.

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18 www.ihi.org
Options Considered

**Option 1: One Specialist Medicine Advisory Service in each DHB**

The Polypharmacy Working Group believes there is sufficient identified need for this to be the preferred option.

Recommendation is for a 12 month demonstration site to be established in the Central Region.

The SMAS would not replace existing service models such as the OPTIMED in Wairarapa DHB where the model in place exceeds the minimum standard detailed in this report. Refer to the Stocktake in Appendix 1 for more detail on this initiative.

**Option 2: Sub Regional Specialist Medicine Advisory Service with option to support other DHBs within sub region**

A sub regional approach is not the preferred model yet due to the difficulties associated with shared patient information. Management of the older person and their medication needs to take into account the individual patient but also have capacity for discussion between the specialist team and GPs.

The demonstration site is best scoped at DHB level initially, but opportunities may occur during the demonstration for a sub regional development to occur.

**Option 3: Regional Specialist Medicine Advisory Service**

This option has been discounted at present as CRISP and Telehealth technology (MDT videoconference) needs to be established and working effectively.
Linkages

Community Pharmacy Services Agreement

The Community Pharmacy Services Agreement (CPSA) effective from 1 July 2012 proposes a new model for community pharmacy, with stronger emphasis on services to patients with higher needs and strengthens the role for Community Pharmacists to work in partnership with prescribers, such as GPs.

Base pharmacy within the CPSA are:

- maintenance of the medication record
- maintenance of the current medicines list
- medicines synchronisation
- patient contact
- discretion with dispensing frequency, and
- multi disciplinary interaction.

The service user population referred to the SMAS will be a subset of those registered as eligible for the Long Term Conditions (LTC) service via the CPSA. It is expected the service user subset will be the most complex patients.

The service objectives of the LTC are complementary to the SMAS and the funding enabled through the CPSA for LTC service users will enhance the multidisciplinary relationship.

By raising awareness of polypharmacy with consumers, the CPSA will financially recognise the additional input that might come about through consumers directing their concerns to their community pharmacist in the first instance. Due to the integrated service model, it incentivises community pharmacists to communicate with other health professionals on high risk patients, a cohort of which will have polypharmacy.

Medicine Reconciliation & Medication Utilisation Reviews

DHBs New Zealand wide have initiated Medicines Reconciliation (MR) programmes and Medication Utilisation Reviews (MUR).

MR is a process that collects, collates and communicates the most accurate list of medicines, allergies and/or drug reactions at a point in time. The goal is to obtain an accurate list of all medicines that a patient is currently taking within 24 hours of admission, transfer or discharge. MUR assesses the patients’ use, understanding and adherence with medication regimens.

Neither process actively addresses or makes decisions on the appropriateness of the prescribing or providing advice on the discontinuation or initiation of medication. While in many cases the suitability of the medication for the particular patient may be assessed and addressed separately this is not the aim of the MR process and so MR is not a system that will target or reduce polypharmacy. Thus MR does not take the place of a detailed medication review, nor does it provide a medication management plan.
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Appendix 1: Stocktake of Central Region Medication Projects

During August and September 2011, the Polypharmacy Working Group sought to understand what initiatives had occurred recently or were underway in the Central Region to address polypharmacy. These projects are detailed by DHB below.

<table>
<thead>
<tr>
<th>DHB Region</th>
<th>Medication and Polypharmacy Project Description</th>
<th>Outcomes</th>
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| Hutt Valley  | **Improving the quality of the discharge summaries**  
Clinical Pharmacists review discharge prescriptions and make amendments, notifying the doctors of changes made before prescription sign off.  
If time permits, "Changes to medications and reasons for change" section of discharge summary is complete. | This has been ongoing since it was initiated in 2004. Approximately 90% of all Older Persons discharge summaries and prescriptions are reviewed by pharmacists, and some medical/cardiology prescriptions. |
| DHB          |                                                                                                                  |                                                                                                                                                                                                         |
| Hutt Valley  | **Improving communication avenues between primary and secondary care and between DHBs (sub regional)**  
All Community Pharmacists and GPs have Concerto access, enabling them to read the discharge summaries and clinic letters. Enables the ability to question prescribing in the community if things don't reconcile.  
IS systems have now made it possible for Hutt Valley, Capital and Coast and Wairarapa clinicians to link through Concerto (eTree) and was instigated in August 2011. | Community pharmacy feedback is that Concerto access has helped them problem solve and do some reconciliation prior to dispensing, but they still have problems with incomplete information. There is some delay with accessing information about recent outpatient clinic visits.  
The response has been very positive to the now easy access of information regionally. Some delay with accessing information about recent outpatient clinic visits (eTree is currently being investigated to be made available in primary care). |
| DHB          |                                                                                                                  |                                                                                                                                                                                                         |
| Hutt Valley  | **Aged Residential Care Project 2009**  
This was a Planning and Funding initiated project. Specialist MDT team comprising of Geriatrician, Clinical Pharmacist and a Nurse Practitioner, worked alongside staff and GP of a Residential Aged Care Facility and conducted a full geriatric assessment which included a medication review for 34 patients. | There was a significant decrease in the regular and non-regular medications and dollar savings. A reduction in hospital admission or readmission was not addressed. One of the main issues for sustainability of the project is staff resourcing. Supporting the work of the GP, Registered Nurses and Community Pharmacists has become the focus of future developments. |
<p>| DHB          |                                                                                                                  |                                                                                                                                                                                                         |
| Hutt Valley  | <strong>Four Hutt Valley community pharmacies have adopted and “In-</strong> | Significant wastage has been identified.                                                                                                                                                                |
| DHB          | <strong>Significant wastage has been identified.</strong>                                                                  |                                                                                                                                                                                                         |</p>
<table>
<thead>
<tr>
<th>DHB Region</th>
<th>Medication and Polypharmacy Project Description</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHB</td>
<td><strong>Sync” approach to the dispensing of medications.</strong>&lt;br&gt;This involves realignment of all medications prescribed to achieve improved adherence and reduce wastage. This enables the community pharmacy to identify patients that are intentionally and non-intentionally non-adherent, and report any concerns back directly to the GP.</td>
<td></td>
</tr>
<tr>
<td>Hutt Valley DHB</td>
<td><strong>Hutt Valley DHB Pharmacy facilitator is currently working with the Aged Care Facilities and the community pharmacy as to what services they provide.</strong>&lt;br&gt;Following a meeting with the Aged Residential Care SIG GPs, the Hutt Valley DHB Pharmacy Facilitator is attending rounds to the facilities to ascertain how they could be best supported in terms of initiating medication review and identifying resolvable systems issues to the practice.</td>
<td>The facilitator has identified GP education, providing clinical indicators for practice specific to the patient and the provision of specific tools to the community pharmacies to enable medication review on discharge as potential avenues to pursue.</td>
</tr>
<tr>
<td>Wairarapa DHB</td>
<td><strong>OPTIMED weekly consultative service to manage cumulative medicines risk in patients with complex long term conditions and polypharmacy:</strong> Visiting specialist Prof Tim Maling + multidisciplinary community based team (GP, Practice nurse, Community Pharmacist). Part of Tehel Wairarapa business case. Covers all of the Wairarapa Medical Centres, including Whaiora. The service meets international specifications for Chronic Disease Management and there is strong support from GPs, patients and the community care teams in the Wairarapa region.</td>
<td>Medicines Treatment Plans are defined for each patient using an electronic template. GP compliance with recommendations (65%) has been evaluated and patient outcomes are to be evaluated over the Nov – Jan period through the Otago University Summer Student programme, in collaboration with Prof Mark Weatherall. Automatic dispensing updates and synchronised dispensing are currently under development through a patient owned web based facility to improve multidisciplinary communication and support and trials of this specially developed software begin next month.</td>
</tr>
<tr>
<td>Whanganui DHB</td>
<td><strong>Pharmacy Facilitation Service (2003)</strong>&lt;br&gt;Whanganui District Health Board and Progressive Health Inc. (IPA) established a Pharmacy Facilitation Service. The initial contract was for a 36 month period. Core components were:&lt;br&gt;- Complex comprehensive medication reviews for individual</td>
<td>Evaluated in 2010 by Clinical Advisory Pharmacist. Evaluation was a retrospective qualitative satisfaction assessment over a range of service user stakeholders. Outcomes were:&lt;br&gt;- Most respondents stated they felt more knowledgeable about their medicines, better able to take their medicines as directed, more</td>
</tr>
<tr>
<td>DHB Region</td>
<td>Medication and Polypharmacy Project Description</td>
<td>Outcomes</td>
</tr>
<tr>
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<tr>
<td>MidCentral DHB</td>
<td><strong>Health of the Older Persons (HOP) Community based specialist Teams (in Tararua and Horowhenua)</strong>. Projects commenced in 2011, and are priorities identified via the MidCentral Better, Sooner, More Convenient (BSMC) Business Case with MoH. The project duration is for three years. Age groups targeted are &gt;65 year olds and &gt;55 year old Māori. The aim of the project is to keep older people well in their communities. Clinicians involved include interdisciplinary teams of GPs (Special Interest), Nurse Practitioners Older persons, Clinical Nurse Specialists (Special Interest), Clinical Pharmacists, Allied health (Including Social workers, Physiotherapists and Occupational Therapists). The Health of the Older Person Service is broad and polypharmacy makes up a small portion of this. A review of Bpac literature (2006), Beers Criteria, STOPP, ARMOR and FORTA tools concluded that no single tool offered an up to date, comprehensive approach to assessing and managing polypharmacy in elderly populations. Moreover, it was</td>
<td></td>
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<tr>
<td></td>
<td><strong>Outputs related to polypharmacy include capturing whether</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• a clinical medication review has been undertaken</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• ‘inappropriate* medication’ has been stopped (where ‘inappropriate’ is a clinical decision for the clinician concerned)</td>
<td></td>
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<td></td>
<td><strong>These outputs contribute to the BSMC aspirational target of “Reduce polypharmacy in the over-65-year-olds by 10%”</strong>. In May 2011, progress against the aspirational targets was published via a status report. The indicator for the aspirational target of reduce polypharmacy in the over-65-year-olds by 10% is defined thus: “As an overall indicator of the level of polypharmacy the proportion of over 65 individuals resident in MidCentral DHB prescribed more than 12 unique drugs per quarter will be monitored.” This would be monitored via pharmaceutical warehouse data. This data is captured from pharmacy prescription claims and reflects all funded prescription pharmaceuticals dispensed. It is recognised that, while this is not an ideal or proposed measure of polypharmacy, there is no current means of measuring medication reviews undertaken at a district-wide level, outside the Tararua and Horowhenua</td>
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<tr>
<td>DHB Region</td>
<td>Medication and Polypharmacy Project Description</td>
<td>Outcomes</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>acknowledged that the clinicians involved did not use such tools when undertaking clinical medication reviews in practice, due to the significant level of clinical judgement required for each patient. As part of the HOP service, clinical medication reviews are completed by the clinical pharmacist in conjunction with GP for patients as part of this service.</td>
<td>Community Based Specialist Older Persons’ Team setting.</td>
</tr>
<tr>
<td>MidCentral DHB</td>
<td><strong>Integrated Medicines Management Leadership Group (IMMLG)</strong>&lt;br&gt;Another initiative from the MidCentral BSMC Business Case, commenced May 2011.&lt;br&gt;The core group is skill-based and multi-disciplinary. The IMMLG has a quality and service improvement focus and assumes the responsibility for measuring, monitoring and improving clinical performance related to medicines management. Rapid Cycle Activity is focussed within primary care and at the primary/secondary care interface. IMMLG recognises that medicines management is complicated and influences extend beyond that of the prescriber. Projects are likely to positively impact on polypharmacy issues.</td>
<td>Outputs/outcomes will be specific to each project.</td>
</tr>
</tbody>
</table>
Appendix 2: Multi Interventional Approach to Polypharmacy – Communications Plan

Introduction

Polypharmacy is defined as ‘the addition of one or more drugs to a regime which provides no therapeutic benefit and/or causes drug related harm’ Bpac (2010). It is an increasing problem overseas and in New Zealand, particularly as we experience an increasing aged population and patients develop more long term conditions. Often there are a number of prescribers involved in the management of a patient’s health conditions, which compounds the problem.

The Regional Services Plan 2011/12 identified that polypharmacy was an issue for the region’s aging population and a Working Group was established to address the issue.

A multi intervention approach has been recommended by the Working Group, with the emphasis on:

- Putting the power in the patient and their family/whānau /whānau hands by encouraging them, where appropriate, to question their healthcare professionals about their medication regime.
- The development of a Specialist Medicine Advisory Service model to assist medical professionals in de-prescribing.

This communications plan supports these business objectives and provides a foundation by which a DHB would need to consider their local population needs.

A demonstration site is proposed in one of the Central Region’s DHBs before roll out across the region.

Communications objectives

- To raise awareness of the risks and symptoms of taking a number of different medicines with patients, their family/whānau /whānau and health professionals
- To encourage health professionals and their patients to seek a review of their medicines, especially if patients have high risk factors
- To encourage and support the use of the Specialist Medicine Advisory Service (SMAS) by medical professionals
- To support DHBs to communicate to their stakeholders and ensure a regional approach
- To inform relevant internal and external stakeholders of the project and the role they can play

Key audiences

Internal
Central Region Clinical Board

Central Region medical professionals and prescribers such as those working in:

- Acute inpatient services (such as Medical Wards)
- Assessment, Treatment and Rehabilitation Units
- Mental Health for Older Persons Services
- Specialist services such as oncology, diabetes, cardiac, both inpatient and outpatient services
- Fracture clinics

External

- Patients and their families/whānau
- Central Region Consumer Representatives Forum
- Primary Care, such as GP’s and Practice Nurses
- Community Pharmacists
- Nurse Needs Assessment and Service Coordination Agencies, particularly the NASC assessors
- PHOs
- Home Based Support Agencies
- Aged residential care facilities
- NGOs such as Age Concern within the Central Region
- NZ Aged Care Association within the Central Region
- Alzheimer’s NZ within the Central Region
- Health Safety and Quality Commission
- National Health Board

Key messages

All audiences

- The use of multiple medicines is increasing as our population ages and more people have chronic conditions such as hypertension
- Patients on multiple medicines are at risk of adverse effects from these drugs
- Signs of risk are dizziness, feeling confused, feeling sick, being confused, being constipated, having some incontinence
- Patients and their family/whānau need to be comfortable with the patient’s medicine regime
- If patients and/or their family/whānau have concerns they should ask a medical professional to review their medicines
- GPs, Specialists and Pharmacists can all be involved in a review
- This isn’t about cost cutting, it’s about patient well being and safety

Additional for health professionals and DHB staff
• Information about the proposed SMAS service – its rationale and how to access it
• This is about improving patients wellbeing and safety

Linkages
There are linkages to the CPSA effective from 1 July 2012, which will strengthen the role for community pharmacists and encourage them to take a more active role in their patients prescribing regime, especially for those with high needs. The CPSA also proposes a greater role for pharmacists working in partnership with prescribers such as GPs and specialists and working within the multidisciplinary team.

Risk and mitigations
The main risk is that health professionals will feel threatened by a perceived challenge to their professional decision making. Early, transparent and comprehensive communication with these people and their representative groups will help to mitigate this risk. Consideration should be given to the development of a stakeholder management plan at a local DHB level. The establishment of the SMAS service will give greater confidence that they are being supported.

Patients and their family/whānau may not have the confidence to challenge their health professionals. The communication material has been tested with the Central Region Consumer Representatives Forum, however local DHBs may wish to test with local consumer groups to explore what could be provided to give patients greater confidence.

There is also a low political risk that this will be seen as a cost cutting measure. This needs to be covered off in the FAQs and briefings to NHB and Pharmac.

Collateral & Promotion
A planned promotional campaign will be required and will need to be customised by each DHB. Tools used to promote awareness of polypharmacy and the SMAS service will be:

• Letter to local primary care and NGO sector
• Road shows, including evening road shows to enable GPs to attend
• Promotion through established DHB mechanisms such as Grand Rounds, intranet, Executive Management and Senior Management meetings, etc
• Frequently Asked Questions (FAQs)
• Patient leaflets in languages relevant to local population (English, Māori, Pacific, Asian)
• Community, church or marae based forums to raise awareness Māori and Pacific patient, family/whānau
• Prescriber poster
• Offer to attend meetings/seminars – internally and externally (UA3 and Probus for instance).
**Communication Action Plan**

The main communication tools in the Central Region will be:

<table>
<thead>
<tr>
<th>Letter, FAQs, Prescriber Poster and Patient Leaflet</th>
<th>Date for Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHB Managers and clinical leaders with responsibility for:</td>
<td></td>
</tr>
<tr>
<td>• Acute inpatient services (such as Medical Wards)</td>
<td></td>
</tr>
<tr>
<td>• Assessment, Treatment and Rehabilitation Units</td>
<td></td>
</tr>
<tr>
<td>• Mental Health for Older Person Services</td>
<td></td>
</tr>
<tr>
<td>• Specialist Services (DHB dependant)</td>
<td></td>
</tr>
<tr>
<td>• Fracture clinics</td>
<td></td>
</tr>
<tr>
<td>Central Region Clinical Board</td>
<td></td>
</tr>
<tr>
<td>Central Region Consumer Representative Forum</td>
<td></td>
</tr>
<tr>
<td>Primary Health Organisations</td>
<td></td>
</tr>
<tr>
<td>Local Medical Centres, GP practices</td>
<td></td>
</tr>
<tr>
<td>Community Pharmacists</td>
<td></td>
</tr>
<tr>
<td>Health Safety and Quality Commission</td>
<td></td>
</tr>
<tr>
<td>National Health Board</td>
<td></td>
</tr>
<tr>
<td>Letter, FAQs, Patient Leaflet</td>
<td></td>
</tr>
<tr>
<td>NASC Agencies</td>
<td></td>
</tr>
<tr>
<td>Alzheimer’s NZ - Local branches</td>
<td></td>
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<tr>
<td>Aged residential care facilities</td>
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<tr>
<td>Home based support providers</td>
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<tr>
<td>Age Concern – Local branches</td>
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<tr>
<td>Roadshows / Forums</td>
<td></td>
</tr>
<tr>
<td>Road shows for prescribers</td>
<td></td>
</tr>
<tr>
<td>Grand Rounds within DHBs</td>
<td></td>
</tr>
<tr>
<td>Community forums such as marae’s, churches</td>
<td></td>
</tr>
</tbody>
</table>


Appendix 3: Cumulative Medicine Risk Analysis

This cumulative medicine risk assessment is utilised by Professor Tim Maling for the OPTIMED Service in Wairarapa. The cumulative risk score assists in targeting the population most likely to benefit from a formal Medication Management Plan.

Wairarapa District Health Board

OPTIMED PATIENT CONSULTATION

PATIENT NAME:

DOB:

NHI:

GP:

PHARMACY:

DATE:

PATIENT CONSENT (Verbal – (1) the interview, (2) electronic recording, (3) sharing of medical information with other health professionals) YES / NO

A) RISK MANAGEMENT RECOMMENDATIONS (RMR)

(1) MEDICATION INTERACTIONS

<table>
<thead>
<tr>
<th>Drug–drug interaction</th>
<th>Drug–disease interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>1)</td>
</tr>
<tr>
<td>2)</td>
<td>2)</td>
</tr>
<tr>
<td>3)</td>
<td>3)</td>
</tr>
<tr>
<td>4)</td>
<td>4)</td>
</tr>
</tbody>
</table>

Score: Score:

(2) MEDICINES RISK MANAGEMENT

<table>
<thead>
<tr>
<th>Medication</th>
<th>Actions *</th>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

* All actions are agreed with GP: Stop (subject to specified withdrawal conditions); Modify (dose, frequency, formulation); Review (GP decision); New Medicine (new indication, or substitute for same indication); Patient education; Hosp Specialist opinion.

Additional comment/ instructions
PATIENT NAME:

B) PATIENT RECORD

(1) CUMULATIVE MEDICINES RISK ANALYSIS

<table>
<thead>
<tr>
<th>Long term (chronic) conditions (Paste from MedTech front page).</th>
<th>High risk life style factors (underline if present. This list is not finite and other factors should be added as appropriate.)</th>
<th>Current Medicines list (Paste from MedTech front page. Use generic names in bold’. Reconcile with current pharmacy dispensing and Patient’s Hx. X</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>LTC score =</td>
<td>Age 70+</td>
<td>Meds per day =</td>
</tr>
<tr>
<td>Treatment detail e-GFR :</td>
<td>Living alone</td>
<td>Frequency score =</td>
</tr>
<tr>
<td>Chol/LDL:</td>
<td>Deafness</td>
<td>Meds Complexity (MC) score =</td>
</tr>
<tr>
<td>HbA1c status</td>
<td>Tinnitus (severe)</td>
<td></td>
</tr>
<tr>
<td>Gout Hx + urate</td>
<td>Vertigo</td>
<td></td>
</tr>
<tr>
<td>BP control</td>
<td>Vision impaired</td>
<td></td>
</tr>
<tr>
<td>Echocard. Findings</td>
<td>Postural unsteadiness</td>
<td></td>
</tr>
<tr>
<td>Last hosp adm.</td>
<td>Incontinence Prostatism</td>
<td></td>
</tr>
<tr>
<td>Current Specialist OP follow-up</td>
<td>Constipation</td>
<td></td>
</tr>
<tr>
<td>Major problem (as perceived by patient)</td>
<td>Mobility aids</td>
<td></td>
</tr>
<tr>
<td>Medication issues</td>
<td>Falls (3mon)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nutrition impaired</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smoking (current)</td>
<td></td>
</tr>
<tr>
<td>LSF score =</td>
<td>X</td>
<td>High risk medicines (Underline if currently dispensed. This list is not finite and other drugs should be added if considered high risk for this patient)</td>
</tr>
</tbody>
</table>

X

ACE - I or ARB
Alpha blockers
Amiodarone
Antihistamines
Antipsychotics
Antidepressants
Anticholinergics
Azathioprine
Azole antifungals
BDZs
Carbamazepine
CCBs
Clopidogrel
Colchicine
Cyclosporin
Dabigatran
Digoxin
LMW Heparin
Insulin
K+sparing Diuretics
Lithium
Methadone
Methotrexate
Morphine
Nitrites (GTN, ISMN)
NSAIDs
Oxycodeone
Perhexiline
Phenytion
Prednisone
Sotalol
Statins
Timoptol (optic)
Tramadol
Warfarin

HRM score:
**PATIENT NAME:**

### (2) MEDICINES HISTORY

| Medication changes – (include reasons if known (last 3 months)) |  |
| Complimentary meds (current) |  |
| Drug allergies (if any present score 1) | Drug | Reaction | Score |
| Adverse reactions (if any present score 1) | Drug | Reaction |  |
| **Drug intolerance (how well does the patient cope with their drug burden).** (score 1 if any difficulty) |  |
| Uncertainty expressed with medication (score 1 if explanation required for any medicine) |  |
| Non-adherence with total drug regimen. (score 1 for 3 or more missed doses wkly, 0 if < 3 missed doses) | Factors causing loss of adherence |
| **Medicines Use Review - MUR** (score 1 if patient has not had MUR in last 3 months) | Community Pharmacy (details) |
| Dispensing aids (score 1 if difficulties or using tapes, blister packs, etc.) | Difficulties |
| Non-adherence score (Pharmacy calculates) | Method |
| Medicines history score |  |
| **TOTAL CUMULATIVE RISK Score** |  |
Appendix 4: Pharmacy Council of NZ Definition of Medicines Management

The chart below describes levels of medicine management review according to Pharmacy Council of NZ.

<table>
<thead>
<tr>
<th>Pharmacy Council of NZ Medicines Management Competence Framework</th>
<th>Relevant Council Competence Standards plus any additional requirements as specified in Council endorsed standards specific to the service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pharmacist Scope of Practice</strong></td>
<td><strong>Levels of Medicines Management Services</strong></td>
</tr>
<tr>
<td><strong>Boundary Determinants</strong></td>
<td><strong>A</strong></td>
</tr>
<tr>
<td>Patient Interview</td>
<td>Unstructured/Informal</td>
</tr>
<tr>
<td>Documentation Process</td>
<td>Ad hoc</td>
</tr>
<tr>
<td>Reactive or Proactive Service</td>
<td>Reactive</td>
</tr>
<tr>
<td>How instigated</td>
<td>Opportunistic</td>
</tr>
<tr>
<td>Service User(s)</td>
<td>For individuals</td>
</tr>
<tr>
<td>Access to Individual patient information</td>
<td>No access to patient medical information from healthcare teams</td>
</tr>
<tr>
<td>Support Provider (to pharmacist)</td>
<td>Poor support required</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Collaboration with healthcare team</td>
</tr>
<tr>
<td>Accreditation</td>
<td>Some services require formal provider accreditation e.g. MUR</td>
</tr>
<tr>
<td>Qualifications: NZ BPharm or equivalent</td>
<td>Qualifications: NZ BPharm or equivalent &amp; Accreditation: MUR</td>
</tr>
<tr>
<td>Service Examples</td>
<td>Medicines Provision (formerly Dispensary)</td>
</tr>
</tbody>
</table>

Chart 9: Medicines Management Competency Framework