A Multi-interventional Approach to Polypharmacy – Pilot Results 2015
Acknowledgements

The Health of Older People Network would like to acknowledge the significant contribution of the working group members in piloting the Multi-interventional Approach to Polypharmacy for the Central Region:

Dr Ian Hosford, Joint Chair (Hawke’s Bay DHB); Louise Allsopp, Joint Chair (Whanganui DHB); Jo Rangooni Consumer Representative (Whanganui); Dr Jan Gregson (Whanganui DHB); Fiona Corbin (Whanganui Regional Health Network); Sala Tiko-Temo (Whanganui Regional Health Network); Jennie Fowler (Whanganui DHB); Julie Nitschke (Whanganui Regional Health Network); Dr John Cantillon (Springvale Medical Practice Whanganui); Karl Pollard (Whanganui DHB); Karen Veldhoen (Whanganui Regional Health Network); Megan Geertson (Whanganui DHB); Dr Tom Thompson (Whanganui DHB); Professor Tim Maling (OPTIMED Wairarapa); Kilian O’Gorman (Whanganui DHB).

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Thanks are extended to Professor Tim Maling for providing the pilot with resources and comparative data from the Wairarapa DHB Optimed Service.

All of these people freely gave their time to this project over and above their already busy working lives.
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Foreword

The Multi-interventional Approach to Polypharmacy Working Group has read widely and used specialist skills before planning, implementing and evaluating their Multi-interventional Approach project in Whanganui.

In New Zealand it is estimated that 30 percent of people over 75 years take five or more medicines and approximately 10 percent take 10 or more medicines. Polypharmacy reduces quality of life, and increases the risk of entry to hospital, a rest home, or the grave.

Our pilot found a need to increase awareness of the risks of polypharmacy among prescribers and consumers. Because there are no ‘evidence-based guidelines’ for stopping medicines, especially where someone else has prescribed them, we worked to have all prescribers question their prescribing.

Research found, and we agree, that where there is effective communication between Specialists, GPs, Pharmacists and Consumers and health delivery is ‘patient-focused,’ health outcomes for our families improves. Compartmentalised work habits do not lead to the ‘Best Practise’ needed by consumers.

A strong focus of the pilot has been to encourage all prescribers to question their prescribing and all consumers to question prescribers. There is an expectation that the information given can be understood. Questioning may save a life, or at least improve health outcomes.

Case reviews lead by clinical pharmacists included visits to homes and rest homes. The major finding was that where the adjustment of medicines was discussed with prescribers and where the communication was effective, improved outcomes occurred for the person whose medicines were adjusted. There is a need for the community to be more aware of the value of the knowledge of the pharmacist, especially when used with the different expertise of a GP or Specialist.

With today’s emphasis on self managing one’s health, people need quality information. Local community groups have appreciated learning how polypharmacy may impact on them or their whānau.

We know the Regional Executive Committee will carefully consider the findings of our pilot. It is hoped that their passion for improving health in the region will ensure that addressing individual patient priorities regarding medicine, will lead to a noted improvement in the health of older adults in the region.

Josephine A Rangooni
Consumer Representative
May 2015
Executive Summary

The Whanganui Multi-interventional Approach to Polypharmacy (MiAP) pilot was established following the work of the Central Region Polypharmacy Working Group. The group recommended this approach in their report ‘Multi Interventional Approach to Reducing Polypharmacy in the Central Region 2012’. Their recommendations followed an extensive international literature review, a review of Polypharmacy projects within New Zealand and consultation with key stakeholders, including consumers. Their findings and conclusions are documented in their report.

Whanganui DHB agreed to pilot the recommendations. They established a Specialist Medicines Advisory Service (SMAS) and a process for referral and assessment. This was followed by an extensive campaign to raise awareness, as recommended in the 2012 Report.

The data was obtained after a review of 70 of 75 patients seen by the SMAS between August 2013 and June 2014. This cohort was:

- living in age-related residential care (63%)
- referred by their General Practitioner or his/her Practice Nurse (89%)
- had a mean age of 77.4

Outcomes from the SMAS are:

- Medication modifications were recommended in 86% of patients.
- Discontinuation of medicines was recommended in 57% of patients.
- New medicines were recommended in 20% of patients.
- Medicine reviews by GPs were recommended in 57% of patients seen by SMAS.
- By the six-month post-medicines review, 73% of recommendations had been actioned by the patients’ GP.

At the endpoint of the study, following assessment by the SMAS, there was a reduction in the mean medication risk score from 25.5 to 23.4, mainly due to the reduction in mean medication complexity score.

A resource utilisation estimate was performed. The cost of the intervention was estimated to be $181 per patient.

Data from a similar project (OPTIMED\(^1\)) shows that by reducing the number of medications there will be reduced medication and pharmacy costs. Based on the number of medications reduced, the MiAP savings were $364 per patient in the first year with the potential to have accumulating savings in future years, where the recommendations remained in place. A subsequent OPTIMED audit showed an 88% persistent of the original recommendations, thus supporting potential extrapolation of the initial cost savings noted above. No data was available on any reduction or

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\(^1\) The OPTIMED service, An audit of outcomes from 2009–2011, Timothy Malling, James Mitchell and Mark Weatherall, Wellington School of Medicine and Health Sciences, January 2012.
increase in admission to hospital due to adverse drug events, so there are no associated admission costs or savings included in the analysis.

Qualitative analysis from 27 patient surveys received suggests good acceptance from patients, who valued the increased understanding and potential benefits that they got from the service.

As a result of the experiences in developing this approach to polypharmacy in the elderly, running this service in Whanganui and from the analysis of data obtained from the service it is possible to conclude:

- Developing this sort of service is possible within the DHB structure in the Central Region and consideration should be given to extending the service to other DHBs in the Central Region.

- Even in a relatively short period of time it is possible to see reduced medicines risk as a result of this service. These results are similar to those found for the audits of the OPTIMED service in the Wairarapa. Hawke’s Bay DHB has shown similar cost savings and has already employed Clinical Pharmacists to review medicines risk associated with polypharmacy and inappropriate prescribing.

- Running costs are reasonable and have the potential to save money by reducing inappropriate prescribing with the associated pharmaceutical costs. There is also potential to reduce hospital admissions for adverse medicines events.

- Whanganui DHB and Whanganui Regional Health Network should contemplate continued investment in the MiAP and expansion of the SMAS.

- A multi-interventional approach to polypharmacy supports DHBs and primary health organisations to manage polypharmacy in its population. This approach also supports Long Term Condition management and could be targeted to support ‘Health Ageing’ measures within the Integrated Performance and Incentive Framework 2015/2016.
Empowering people to question their medicine regime

Brenda is a 71 year old lady who lives in her own home. She self-referred to our pharmacist after hearing about the polypharmacy service through a friend. Brenda told our pharmacist that she suffers from chronic abdominal pain, heart disorder and she has an ileostomy. Some of Brenda’s medicines are blister packed while others are not.

The things that concerned Brenda the most were pain, a runny nose and lack of sleep. Brenda said that she drinks a lot of coffee and that she was admitted to hospital last year with dehydration.

Our pharmacist recommended several self-care measures for Brenda to follow. These included:
- drinking more water and less coffee
- not drinking coffee after 6pm
- taking paracetamol regularly
- using her steroid nasal spray regularly.

The pharmacist did not recommend any changes to Brenda’s cardiac medicines. The consultation empowered Brenda to make the changes necessary to manage her own health and improve her quality of life. All of the changes made could be done by Brenda herself and did not require changes to Brenda’s prescriptions.

To keep Brenda’s GP in the loop, the pharmacist communicated all of the agreed actions to him.
Section 1: Raising awareness campaign

The ‘Multi Intervventional Approach to Reducing Polypharmacy in the Central Region 2012’ report made recommendations to raise awareness of the risks of polypharmacy. These were to develop a campaign to raise awareness of polypharmacy with

- Consumers and their family/whānau. The rationale being 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.
- Prescribers encouraging a considered approach to prescribing in the specialist and primary care settings, particularly with older adults.

In August 2013, the MiAP project team presented to a wide variety of stakeholders on the proposed launch of the MiAP pilot. This was the first formal engagement with the wider community on the MiAP.

Information packages provided to GPs/medical centres, age-related facilities and villages, community pharmacies and specialists. This resource package included

- what the project was trying to achieve
- description of the service model
- process charts should the prescriber, community pharmacist or aged care facility wish to refer to the SMAS
- “Am I taking too many medicines” hand-outs for patients (Appendix 1)
- “Are my patients taking too many medicines?” poster for prescribers (Appendix 2)
- team bios and contact details for the SMAS team.

During the pilot 2,500 “Am I taking too many medicines?” brochures and 60 “Are my patients taking too many medicines?” posters were printed.

Table 1 identifies the engagement activities undertaken throughout the pilot.
Table 1: Engagement Activities to Raise Awareness

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Engagement Activities</th>
</tr>
</thead>
</table>
| GP Practice / Medical Centres  | • Formal notification of the pilot to the Royal NZ College of GPs, Pharmacy Guild, College of Physicians and the Health Quality and Safety Commission.  
|                                | • Specific targeting of three GP practices based on their location and known client base.                                                                 
|                                | • General targeting of 14 other GP practices in the region.                                                                                               
|                                | • Formal letter of notification to GPs/medical practices                                                                                            |
|                                | • Regular reminders in emails from the WRHN.                                                                                                             |
|                                | • Local engagement between the pharmacy facilitators and primary care teams.                                                                           |
| Age-related facilities / Villages | • Specific targeting of four aged care facilities based on their location and known client base.                                                      |
|                                | • General targeting of 11 other facilities/villages within the region.                                                                                  |
| Community Pharmacies           | • Specific targeting of four community pharmacies based on their location and known client base including consideration of pharmacies with high registration to the community pharmacy long-term conditions service.  |
|                                | • General targeting of 12 other community pharmacies within the region.                                                                                 |
| Consumers (community dwelling) | • The consumer representative on the pilot undertook a variety of direct interventions to promote the message of “Am I taking too many medicines?” through attendance at a variety of forums such as NZ Rural Women’s (Rangatikei), Rural Health Centre (Waimarino) and Kaumatua in Marton. |
|                                | • Provided with consumer brochure “Am I taking too many medicines?”                                                                                     |
|                                | • A stock of consumer brochures were made available in the hospital pharmacy and on relevant wards for distribution to consumers.                         |
|                                | • Posters were displayed at inpatient and outpatient waiting rooms at the DHB.                                                                            |
|                                | • Whanganui DHB website promoted “Too many medicines” service and provided downloadable brochure “Am I taking to Many Medicines?”  
|                                |   http://www.wdhb.org.nz/listing/page/too-many-medicines-service/m/0/pre/3026/                                                                             |
|                                | • Media release from WhaDHB and PHO was undertaken with coverage in the Whanganui Chronicle and the Rangitikei free papers.                           |
|                                | • Team members promoted the “Am I taking too many medicines?” at the Age Concern expo in November 2013, where it is estimated 1,000 people attended.  |
### Stakeholder Group: Engaged Groups

<table>
<thead>
<tr>
<th>Prescribers and health professionals</th>
<th>Presentations/discussions were undertaken at the following forums and with the following teams:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Joint clinical governance meeting.</td>
</tr>
<tr>
<td></td>
<td>- Combined Medical Forum.</td>
</tr>
<tr>
<td></td>
<td>- Practice Managers’ Forum.</td>
</tr>
<tr>
<td></td>
<td>- Mental Health Providers’ Forum.</td>
</tr>
<tr>
<td></td>
<td>- Hospital pharmacists.</td>
</tr>
<tr>
<td></td>
<td>- InterRAI assessors.</td>
</tr>
</tbody>
</table>

Posters were displayed in WhaDHB in-patient clinic rooms.

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**Note:** Due to changes of the hosting service for Whanganui DHB website that occurred during the pilot analytics are unavailable on the number of visitors to the site during the pilot.

In addition to raising awareness locally, information was provided to:

- Royal New Zealand College of GPs
- Pharmaceutical Society New Zealand
- Pharmacy Guild
- Health Quality and Safety Commission.

### Outcomes from Raising Awareness Campaign

The project team have been unable to determine the success of the raising awareness campaign with consumers. However as evidenced above there were multiple channels through which the message was communicated and 2,500 brochures distributed during the pilot. There is evidence that people did learn about polypharmacy and the SMAS service by self-referral to the SMAS and through prescriber feedback of people presenting directly to them.

The “Am I taking too many medicines?” brochure (Appendix 1) included a perforated section for consumers to remove and place in feedback boxes in a general practice or community pharmacy. However no responses were received through this process\(^2\). The project team would not recommend this to other DHBs as it did not achieve the desired result of getting feedback from consumers in the community.

A targeted raising awareness campaign occurred. However the consumer response to understanding or learning more about polypharmacy and taking action at an individual level is undetermined.

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\(^2\) Note the pilot period occurred during a period of significant change for Community Pharmacy (CPSA2012)
Less pills to swallow

Judy is an 83 year old lady who lives in a Whanganui rest home. Judy has dementia. She was referred to our pharmacist by the rest home nurse because she was confused, agitated and had a high falls risk. The nurse wanted to know if Judy’s medication was contributing to her confusion.

Judy’s husband died about a year ago and it was after his death that Judy had become more confused. At this time, new medications were added to her daily regime to help Judy with her grief. Judy then became more unsteady on her feet.

When the pharmacist reviewed Judy, she identified that Judy was on two different types of vitamin D and four different medicines which made her drowsy. Judy was unable to swallow her potassium tablets due to their large size.

Our pharmacist recommended reviewing and stopping one of the vitamin D tablets and titrating down and stopping two of the medicines that contributed to unsteadiness and drowsiness as there no longer appeared to be a clinical reason for them. In addition, the pharmacist recommended changing the potassium tablets to soluble tablets.

The pharmacist also recommended stopping Judy’s cholesterol medication and reducing and stopping omeprazole. A clear plan was put in place for the GP to follow and ensure that changes to Judy’s medicines were made safely.

Instead of taking 33 pills a day Judy now takes 23. When we checked with the rest home nurse, Judy has shown a small improvement in her unsteadiness and agitation and more importantly has not had any falls. Judy’s level of confusion has also shown a small improvement.
Section 2: MiAP Analysis

It has been demonstrated in New Zealand and internationally that targeted and individualised assessment by a multi-disciplinary 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. These are major features of the MiAP intervention to support sustainability of the changes initiated by the intervention.

A target population was identified to support referrals to the SMAS. Considerations for referral were

- prescriber uncertainty or general concern about medicine complexity
- older adults on six or more medications with several long-term conditions
- likely drug interactions and adverse events.

Other high risk patient factors which could trigger a referral could be

- treatment goals have changed such as when a person becomes frail, develops terminal illness or later stages of dementia
- difficult swallowing medication
- high level of falls (two or more falls in three months)
- medication issues that cannot be managed alone by the community pharmacist
- organ function changes (renal and liver).

Methodology

The MiAP project followed patients who were referred to the SMAS team between August 2013 and June 2014. It was decided at the beginning of the project to do the analysis after complete data was available for 75 patients. This decision was based on 75 being an achievable number to assess and follow up in the time available. Referrals were mainly from GPs, as well as from long-term condition nurses, community pharmacists, specialists, one self referral and other agencies. Patients were followed up at six months.

SMAS data was collected in a database in excel by the SMAS Pharmacist with each data element clearly defined for ease of collection and analysis. Deceased patients were excluded from the final analysis.

This analysis uses data from the SMAS database, data from the OPTIMED audit undertaken in the Wairarapa (particularly relating to medication costs), evidence from a literature search on polypharmacy (particularly about outcome measures) and qualitative data from a patient survey.

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3 Five patients died of causes unrelated to the intervention during the period of the pilot.

4 The OPTIMED service, An audit of outcomes from 2009-2011, Timothy Malling, James Mitchell and Mark Weatherall, Wellington School of Medicine and Health Sciences, January 2012.
Results

Patient sample

The patient sample is described here for the MIAP project and the OPTIMED audit. The SMAS analysis uses cost data from the OPTIMED audit so it is important to demonstrate and describe the general similarities between the two groups and also where there are differences.

Table 2: The MiAP and OPTIMED patient samples

<table>
<thead>
<tr>
<th></th>
<th>MIAP</th>
<th>OPTIMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time period</td>
<td>Aug 2013 to Jun 2014</td>
<td>Mar 2009 to Dec 2009</td>
</tr>
<tr>
<td>Number of patients referred</td>
<td>75</td>
<td>62</td>
</tr>
<tr>
<td>Number of patients excluded from analysis</td>
<td>5</td>
<td>3*</td>
</tr>
<tr>
<td>Number of patients included in analysis</td>
<td>70</td>
<td>59</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>77.4 ±12.1</td>
<td>70.7 ±5.1</td>
</tr>
</tbody>
</table>

*DNA clinic.

In the SMAS patient sample

- 75 patients were referred from August 2013 to June 2014
- 5 were excluded (n=5 had deceased)
- 70 patients were followed up and included in this analysis
- 63% from Age Related Residential Care (ARRC), 37% community based clients
- 87% had a first assessment within 1-2 months of referral
- Mean age was 77.4 ±12.1 years, the median age was 81 years.

The age distribution of the 70 patients included in the analysis can be seen in Figure 1. The average age of patients in the SMAS group was seven years older than the OPTIMED group.
Figure 1: Age distribution of MiAP patients

Referrers

Half of referrals to the SMAS team were for clients living in rest homes under specific GPs. Referred to as GP-ARRC in the table below these GPs were aware of MiAP and approved of SMAS Pharmacists doing a medication review on the residents (there were 13 GP-ARRC referrers to SMAS). The other GP referrals were ones specifically referred from the GP to SMAS (n=10 GP referrers to SMAS).

Table 3: Referrals to the SMAS team by type of referrer

<table>
<thead>
<tr>
<th>Referrer</th>
<th>Number of referrals</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP-ARRC</td>
<td>38</td>
<td>51%</td>
</tr>
<tr>
<td>GP</td>
<td>20</td>
<td>27%</td>
</tr>
<tr>
<td>Practice Nurses*</td>
<td>8</td>
<td>11%</td>
</tr>
<tr>
<td>Community Pharmacists</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Specialists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>Geriatrician</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self referral</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>NGO**</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Hospital pharmacist</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>100%</td>
</tr>
</tbody>
</table>

* Gonville Health Long Term Condition nurses. **Whanganui community Living Trust.

In total 23 individual GPs (58% of GPs) within the Whanganui DHB region utilised the SMAS for their patients, demonstrating a general willingness and desire to engage with the service.
Appendix 3 and Appendix 4 identify the referral, intervention and communication process for patients seen by the SMAS team for community dwelling patients as well as aged care patients.

Outcomes

The SMAS pharmacist collected data and calculated the adverse drug reaction (ADR) risks. The ADR risks were calculated at the initial assessment and outcome stage using the OPTIMED patient consultation template and included the measures shown in Table 4:

Table 4: Medication risk scoring

<table>
<thead>
<tr>
<th>Medication Risk category</th>
<th>How this is calculated</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM – high risk medicines</td>
<td>The number of HRM, medicines listed on the OPTIMED patient consultation template as high risk (or other drugs if considered high risk for a particular patient).</td>
</tr>
<tr>
<td>LSF - high risk lifestyle factors</td>
<td>The number of LSF, factors listed on the OPTIMED patient consultation template (or factors added as appropriate, e.g. current smoking, excess alcohol intake).</td>
</tr>
<tr>
<td>LTC – Long-term conditions</td>
<td>The number of long term conditions that a person has (refer to the OPTIMED template for detail)</td>
</tr>
<tr>
<td>MC – medication complexity</td>
<td>The number of long-term medicines PLUS the frequency of taking the medicines.</td>
</tr>
<tr>
<td>Mhx – medication history</td>
<td>Medication history such as drug reaction, allergies, (refer to the OPTIMED template for detail).</td>
</tr>
<tr>
<td>PMI – potential medicine interaction</td>
<td>Sum of drug/drug interaction + drug/disease interaction.</td>
</tr>
<tr>
<td>Total Cumulative Risk</td>
<td>Sum of LTC + LSF + HRM + MC + Mhx + PMI</td>
</tr>
</tbody>
</table>

Part of the OPTIMED patient consultation template showing the scoring criteria can be found in Appendix 5.

Table 5 shows the mean medication risk scores for the SMAS patient cohort at assessment (baseline) and at the outcome stage (endpoint). The baseline data is generally comparable to the baseline data from the OPTIMED audit. The higher medication complexity scores at baseline and endpoint for the SMAS patients compared to OPTIMED are likely as a result of a higher mean age in the SMAS group.

**Key finding:** Overall there has been a reduction in mean medication risk score for the MiAP patient cohort from baseline to endpoint from 25.5 to 23.4. This is mainly due to a reduction in mean medication complexity score.

Table 5: Mean medication risk scores for risk categories

<table>
<thead>
<tr>
<th>Risk category</th>
<th>MiAP</th>
<th>OPTIMED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>P value</td>
</tr>
</tbody>
</table>

Co-ordinated by:
The cumulative medication risk score includes the categories amenable to change by the medication review service, that is, high risk medicines, medication complexity and potential medicine interaction. This score changed from 25.5 at baseline to 23.4 at endpoint (p 0.0002).

Table 6 shows the number of medicine recommendations from the Specialist Medicine Advisory Service (SMAS) team for the 70 patients in the sample. The most common recommendation was modifications – recommended for 60/70 patients (86%) and involving 130 medications.

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Patients</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop (immediate or gradual withdrawal of medicine/s)</td>
<td>27 39%</td>
<td>49</td>
</tr>
<tr>
<td>Modify (dose/frequency/formulation)</td>
<td>60 86%</td>
<td>130</td>
</tr>
<tr>
<td>Review (GP decision to modify/stop depending on patient status – ‘watching’)</td>
<td>40 57%</td>
<td>76</td>
</tr>
<tr>
<td>New Medicine (new indication, or substitute)</td>
<td>14 20%</td>
<td>15</td>
</tr>
</tbody>
</table>

*high risk lifestyle factors appear lower in the MIAP data than OPTIMED. **medicine complexity is higher for the MIAP cohort than OPTIMED, likely age related.
GP compliance at six months after SMAS was determined by a review of patient chart/Medtech to see if the recommendations made by the Clinical Pharmacist were implemented by the GP. Of the 70 patients in the pilot, the GP had either initiated changes or was monitoring status for 51 patients (73%).

**Key finding:** At six months GPs had either initiated changes or were ‘watching’ 73% of the patients.

**Linkages between MiAP and the Community Pharmacy LTC Service**

During the MiAP pilot a new community pharmacy service was launched and funded through the Community Pharmacy Services Agreement (CPSA2012). The “Long Term Conditions Pharmacy Service” is provided to patients with a diagnosed Long Term Condition (LTC), who have poor medicine adherence and who are assessed as having the capacity and willingness to benefit from additional support.

All patients living in the community and seen by the SMAS with identified adherence issues were referred to their community pharmacist for assessment of eligibility to the LTC service.

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5 ‘Watching’: GP decision to modify/stop depending on patient status.
A reduction in pills improves quality of life for carers + patient

Holly is a 78 year old lady living in her own home supported by her family and a carer. Holly was referred to our pharmacist by her practice nurse who was alerted to the fact that Holly was finding it hard to swallow her medications provided by Holly’s community pharmacist.

Holly has dementia, peripheral oedema, hypertension and some pain from a motorcycle accident 30 years ago.

When she was referred to our service Holly was taking the following medicines:

- Omeprazole — 20mg in the morning
- Potassium chloride SR — 600mg daily
- Metoprolol CR — 95mg daily
- Amitriptyline — 25mg at night
- Multivitamins — one tablet in the morning
- Aspirin EC — 150mg daily
- Furosemide — 60mg in the morning
- Simvastatin — 10mg at night
- Paracetamol — 1000mg twice a day
- Cholecalciferol — 1.25mg once a month

Our pharmacist met with Holly and her family to look at the reasons why Holly was taking each medicine. The pharmacist also considered Holly’s diet and looked at the evidence for and benefit of prescribing each medicine. Not only were some of Holly’s medicines hard for her to swallow, she also did not like taking them and sometimes her carer had to struggle to get Holly to accept them.

Because Holly eats lots of bananas she did not need to take extra potassium. In addition furosemide was initially prescribed because Holly got swollen ankles after her motorcycle accident. However she has not had a problem since and sometimes gets dehydrated from the furosemide. Our pharmacist considered Holly’s medical history and recommended the aspirin was stopped slowly and simvastatin and amitriptyline were also stopped. Holly did not have any gastric symptoms so the pharmacist also recommended that omeprazole was reduced and stopped. Holly had a good diet and did not really need multivitamins either.

Overall, by working closely with Holly, her family and carer and Holly’s family doctor our pharmacist was able to decrease Holly’s medication regime from 12 tablets a day to only one and a half, soon to be reduced to one, plus Holly also has paracetamol suspension available if she needs it.

Holly’s family say it is a “blessing” to have had someone review all of mum’s medications. Holly has been much more receptive to the few medicines that she now takes and there have been no arguments or distress caused around Holly taking her medications. This has improved the relationships for the whole family, including Holly. Holly’s blood pressure has been fine, but her dementia continues to deteriorate. Holly’s daughter said that she was not sure why her mum needed all those medications for so many years.
Section 3: Costs and Cost Savings

Costs

Resource utilisation

The following resource utilisation was recorded in the SMAS database:

- **Pharmacist time** – Pharmacists spent three hours per patient on average.

- **GP time**:
  - **GP face to face in a multi disciplinary team (MDT) meeting** occurred for 37 of the 70 patients (53%), ranging from 5 to 15 minutes. Of the patients who had GP time recorded the mode was 10 minutes. As 33 patients had no GP time recorded the mean is used as the average to calculate the GP resource usage costs (mean is approximately 5 and a half minutes).
  - **GP meeting (face to face)** occurred for 12 of the 70 patients. This was a follow up with the GP after the patient had been seen by the Clinical Pharmacist. As no time was recorded against this a resource usage of 10 minutes has been assumed for the 12 patients.

- No time was recorded against a consultant.

Resource cost

GP time is costed at $65 per 15 minute consult and hospital pharmacist at $50 per hour. So the average cost per patient is $31.57 ($24.14 + $7.43) for GP time and $148.57 for pharmacist time, a total of $180.14 per patient.

Table 7: Resource utilisation – Pharmacist and GP time

<table>
<thead>
<tr>
<th>Resource</th>
<th>Number of patients</th>
<th>Time taken</th>
<th>Cost per patient</th>
<th>Cost per number of patients</th>
<th>Average cost per patient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Hours</td>
<td>Minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacist</td>
<td>3</td>
<td>1</td>
<td>30</td>
<td>$75.00</td>
<td>$225</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>3</td>
<td>0</td>
<td>$150.00</td>
<td>$9,750</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>$200.00</td>
<td>$200</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>30</td>
<td>$225.00</td>
<td>$225</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70</strong></td>
<td></td>
<td></td>
<td><strong>$10,400</strong></td>
<td><strong>$148.57</strong></td>
</tr>
<tr>
<td>GP in MDT meetings</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>$21.67</td>
<td>$22</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>0</td>
<td>10</td>
<td>$43.33</td>
<td>$1,343</td>
</tr>
</tbody>
</table>

Total = $1690/70 patients

---

Printing costs

The “Am I taking too many medicines?” hand-out for patients and the “Are my patients taking too many medicines?” poster for prescribers were printed in-house at the DHB. The cost per unit for the poster was $0.43 each (A3 size and colour print) whilst the patient handout was $0.39 each (A4 size, colour). The total print cost was $1,000. The remaining stock is still an asset for the DHB.

Cost saving

Weekly medicine cost saving

The weekly cost of medicines before and after the SMAS intervention was outside the scope of the MiAP project and was not collected. However the OPTIMED audit did collect this data and analysed the before and after costs of intervention. This data from 2012 will be used here to give an indication of possible medicine cost savings. At the six-month assessment the OPTIMED audit calculated a $7.00 per week saving per patient, a saving of 38% from the initial average cost of approximately $18.00 per week.

Hospital admissions

No analysis was done on the possible impact on hospital admissions of the MiAP project or costing of this. A literature search of the topic was undertaken for an evidence based approach. This found a Cochrane Review in 2012 which concentrated on 10 studies and concluded that evidence of the effect of the polypharmacy interventions on hospital admissions (four studies) was conflicting.

Cost analysis

Using the OPTIMED $7.00 per patient per week medicine saving this equates to an average saving of $364.00 per patient per year, $25,480 per year for the 70 patients (or more for a larger cohort). This would suggest the upfront resource usage of pharmacist and GP time plus print costs ($181.00 per patient) would be recouped within six months (refer table 8).

---

Table 8: Costs & savings for the SMAS intervention per patient in the first year

<table>
<thead>
<tr>
<th>Year</th>
<th>Savings</th>
<th>GP + Pharmacist + print cost</th>
<th>Ratio of savings to cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>$364</td>
<td>$181</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Key finding:* The savings are twice the size of the cost within the first year of intervention with the potential for further savings over the longer term.

The OPTIMED data suggests the weekly medicine savings would be sustained over a longer period, with the analysis covering a period of two years. Within two years the opportunity cost of not resourcing the pharmacist and GP time could be a cost per patient of $728.00 (two years of the $7.00 per week medicine cost, $50,960 for the 70 patients). That is four times the cost of resourcing the SMAS intervention (refer table 9).

Table 9: Costs & savings for the SMAS intervention for the 70 patients extrapolated over 2 years

<table>
<thead>
<tr>
<th></th>
<th>Cumulative savings</th>
<th>GP + Pharmacist + print cost</th>
<th>Ratio of savings to cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>$25,480</td>
<td>$12,667</td>
<td>2.0</td>
</tr>
<tr>
<td>Year 2</td>
<td>$50,960</td>
<td>-</td>
<td>4.0</td>
</tr>
</tbody>
</table>

If the savings are extrapolated out to five years there is a potential for $127,400 in cumulative savings for the 70 patients ($25,480 per year) compared to the one-off cost of $12,667 – a saving of ten times the initial cost. This is an extrapolation of short term data so there is uncertainty around the longer term savings, which could be greater or lesser.
Timing is everything

James is an 81 year old man who lives in his own home by himself. James asked his GP to review his medication as he would like to take fewer pills. He takes medication for his heart and blood pressure.

A locum GP referred James to our pharmacist for advice on changing his medicines. When she met with James, our pharmacist found that he is waiting for a hip replacement and this will occur over the next few months. James’ heart condition and blood pressure are currently stable.

Our pharmacist elicited that James’ primary focus was his hip replacement and reviewing his medication was his secondary concern. The pharmacist and James discussed the risks of decreasing his heart medications at this time and together they decided to wait and catch up again after James has had his surgery. They drew up a plan of options for the GP to consider after James’ surgery.

James has now had his hip operation and is recovering well. As he is still recuperating, no medication changes have yet been made.
Section 4: Qualitative analysis of pilot

Seven case studies were undertaken to add strength to the results seen within the qualitative analysis and highlight the person-centred approach taken by the SMAS.

Three people resided in aged care and four were living in the community. These case studies were completed by the project team\(^8\), and bring to life the people seen and provide the basis for understanding the outcomes from intervention.

These case studies are presented throughout the report including Appendix 6.

Patient survey responses

A patient survey (Appendix 7) was sent out to 27 community-based\(^9\) polypharmacy patients and 15 surveys were returned, a response rate of 56%. Overall patients stated they were satisfied with the service (n=13, 1 unsure, 1 did not answer) and of the eight yes/no/unsure questions asked in the survey the majority of patients responded with a yes showing that the intended outcomes of the intervention had been achieved. Figure 2 shows the responses to these questions in more detail.

---

\(^8\) Case studies were completed by team members who did not deliver patient interventions during the pilot

\(^9\) ARC patients were not included in the patient survey as they were not interviewed or provided education, instead the majority of the work occurred with the staff, GP and medical record.
Qualitative data was recorded that asked what was good about the service. The responses can be seen in table 10. Comments refer to helpful explanations, patient’s improved knowledge of their medications, and reassurance regarding the purpose for the medication.

Table 10: What was good about the service?

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I thought she was very helpful with the things I asked her about.&quot;</td>
</tr>
<tr>
<td>&quot;Very easy to talk to and her explanations were very clear. We now have a better understanding of the medications.&quot;</td>
</tr>
<tr>
<td>&quot;My feelings are to take as few medications as possible and the interview helped assure me that mine were relevant. Sometimes side effects can occur with some medications and I wonder if help in that direction could be given by practitioner or pharmacists. I do ask for that information and am surprised by the info given in the print out. You could become paranoid with some the side effects that could occur??&quot;</td>
</tr>
<tr>
<td>&quot;Very pleasant and easy to talk to&quot;</td>
</tr>
<tr>
<td>&quot;During our visit I found the pharmacist extremely approachable and friendly. She listened to what and how I administered my medication.&quot;</td>
</tr>
<tr>
<td>&quot;I remember feeling impressed that someone was taking such an interest in my situation. Unfortunately I scarcely remember much else as the event was over six months ago now. But as a result of her visit my medication was reduced and I was grateful for that.&quot;</td>
</tr>
<tr>
<td>&quot;Very enlightening and instructive.&quot;</td>
</tr>
<tr>
<td>&quot;The follow-up medical record card.&quot; – Probably referring to the medication record card supplied.</td>
</tr>
<tr>
<td>&quot;I was able to have my daughter here with me and felt very comfortable. I recommend someone should be with the patient.&quot;</td>
</tr>
<tr>
<td>&quot;Excellent ideas and strategies for medications and taking of these. Knowledge or medications and explanations of the use and affects etc. very well explained. Time taken to answer questions and concerns. Dealt with in an excellent manner. Kind and empathic. I was very happy with this service and felt more 'in touch' with my meds and the ? for them.”</td>
</tr>
<tr>
<td>&quot;I was given a greater understanding of the purpose of the medication.&quot;</td>
</tr>
</tbody>
</table>

The question was also asked what could be better. Of the 15 patients there were six responses, of which only two had suggestions for improvement (refer table 11). One patient wanted information on why they are prescribed some medications and the other was concerned that the sleeping pill dose reduction was suboptimal.

Table 11: What could be better?

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Explain why we have to keep taking some pills.&quot;</td>
</tr>
<tr>
<td>&quot;My sleeping pills were cut in half, Triazolam 0.125mg. Not sleeping on that amount. I had been taking Triazolam 0.25mg.&quot;</td>
</tr>
</tbody>
</table>
| "I do not feel that she could’ve done anything differently."

"I have no worries or problems over anything. All very good." |
| "Not a thing." |
| "No it was very well constructed and my individual needs were full(y) listened to and met." |
Working together in the best interest of the patient - it is not always about stopping medicines

Reg is an 83 year old man living in a Whanganui rest home. He has a history of prostate cancer, hypertension, anxiety and depression and alcohol dependence. Reg suffers from dementia.

Reg was referred to our service by the nurse at his rest home. He was taking ten medicines a day when our pharmacist saw him. These included an antidepressant and antipsychotic as well as additional medicines to keep him calm and help him sleep. Reg was also taking two medicines related to his prostate and bladder and something for his dementia. As Reg’s medication regime was very complex, our pharmacist contacted his GP before she did anything. The GP had been working for years with the rest home to get Reg’s behaviour stable and advised us to be very cautious in suggesting any changes, so our pharmacist referred Reg on to our geriatrician.

Our geriatrician saw Reg in her outpatient clinic. As the staff caring for Reg reported that he was settled and his behaviour could be managed easily, the geriatrician made the decision not to make any immediate changes to his medicines. She did make some recommendations for future changes should Reg’s condition change.

In Reg’s case, it was not appropriate to stop or reduce any of his medicines. If the team had been focused only on reducing polypharmacy, this could have been detrimental to Reg and cause his quality of life to deteriorate.
Section 5: Prescriber survey responses

A prescriber survey (Appendix 8) was sent out via the communication teams at WhaDHB and WRHN to 17 Primary Care Practices, 60 Practice Nurses and 60 Senior Medical Officers. Eight surveys were returned, a response rate of less than 10%.

The number of responses is too small to make generalisations, however a couple of key points in respect to raising awareness of polypharmacy are:

- 63% (n=5/8) of respondents were aware of the campaign around polypharmacy.
- Three respondents reported patients self-presented requesting a review of their medications during the pilot (2 = 0-5 patients presented, 1 = 5-10 patients presented).

The question was asked of prescribers ‘What support would help you with reviewing polypharmacy?’ Table 12 shows the mixed response to this question.

Table 12: What support would help you with reviewing polypharmacy?

<table>
<thead>
<tr>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Ongoing access to this type of service.&quot;</td>
</tr>
<tr>
<td>&quot;Feedback from pharmacist after pharmacist has reviewed the patient.”</td>
</tr>
<tr>
<td>“GP[s should be the ones making amends to patients’ polypharmacy because they will be titrating dosages and continuing/discontinuing medications according to patient response longitudinally.”</td>
</tr>
<tr>
<td>“Regular presence of a pharmacist in ED.”</td>
</tr>
<tr>
<td>“More readily available guidelines for specific medications to support discussion and rationalisation with patients, NNT etc.”</td>
</tr>
</tbody>
</table>

The question was asked, ‘If you could change anything about our polypharmacy service, what would it be?’ Responses are recorded in table 13.

Table 13: If you could change anything about our polypharmacy service, what would it be?’

<table>
<thead>
<tr>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Perhaps a phone line or email for quick queries.”</td>
</tr>
<tr>
<td>“A regular visible pharmacist in ED.”</td>
</tr>
<tr>
<td>“I think this is something that primarily needs to be targeted at the GP practices (they have the most frequent access to the patient drug history) and the rest/nursing homes (these patients are most likely to benefit from it).”</td>
</tr>
<tr>
<td>“ED is tricky as we have a short period of patient care and the patients often do not even know why they are on the drugs they are taking.”</td>
</tr>
<tr>
<td>“Facilitating General Practice in this role as the primary prescribers but also recognising that specialists/hospital prescribers are often drivers for increased complexity of prescribing.”</td>
</tr>
</tbody>
</table>
Working together as a team

Maggie is a 63 year old lady living in supported accommodation in the community. She has a history of bipolar disorder and generalised anxiety disorder for which she sees a psychiatrist.

Maggie was referred to our pharmacist by her community support worker who was concerned that Maggie was stumbling, anxious, not sleeping and low in mood. When our pharmacist talked with Maggie and her support worker she found out that their main concern was Maggie’s insomnia.

As Maggie has sleeping tablets prescribed by her psychiatrist, instead of making any recommendations, our pharmacist decided to see if Maggie could see her psychiatrist sooner than was originally planned. The pharmacist also communicated with Maggie’s community pharmacist to ensure Maggie had access to ongoing adherence support.

Maggie saw her psychiatrist who did not recommend any changes to her medication, but instead suggested additional sleep hygiene measures which are being reinforced by Maggie’s support worker and community pharmacist.
Section 6: Conclusions

As a result of the experiences in developing this approach to polypharmacy in the elderly, running this service in Whanganui and from the analysis of data obtained from the service it is possible to conclude:

- Developing this sort of service is possible within the DHB structure in the Central Region and consideration should be given to extending the service to other DHBs in the Central Region.

- Even in a relatively short period of time it is possible to see reduced medicines risk as a result of this service. These results are similar to those found for the audits of the OPTIMED service in the Wairarapa and at Hawke’s Bay DHB.

- Running costs are reasonable with the potential to save money by reducing inappropriate prescribing with the associated pharmaceutical costs and have the potential to reduce hospital admissions for adverse medicines events.

- Whanganui DHB and Whanganui Regional Health Network should contemplate continued investment in the MiAP and expansion of the SMAS.

- A multi-interventional approach to polypharmacy supports DHBs and primary health organisations to manage polypharmacy in its population, supports ‘Long Term Condition’ management and could be targeted to support ‘Health Ageing’ measures within the Integrated Performance and Incentive Framework 2015/2016.
Appendix 1: Am I taking too many medicines?

**Feedback form**

The NHB strives to deliver the best services we can and continually look to improve.

Your feedback is both welcomed and valued as part of our continual efforts to improve the services our community receives.

Name: __________________________
Address: __________________________

Phone number: __________________________
Email: __________________________

Have you had this brochure? Yes or No: __________________________

Do you agree to one of our representatives contacting you to discuss your experience of the service? Yes or No: __________________________

Other comments: __________________________

---

**My medication list**

Make sure you include those you buy from the health shop, pharmacist, pharmacy or supermarket.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Time</th>
<th>Frequency</th>
</tr>
</thead>
</table>

---

**Checklist**

- Are you experiencing dizziness? 
  - Yes
  - No

- Do you feel confused at times?
  - Yes
  - No

- Are you feeling sick at any time during the day?
  - Yes
  - No

- Are you constipated?
  - Yes
  - No

- Are you experiencing some incontinence?
  - Yes
  - No

- Have you had a fall recently?
  - Yes
  - No

- Are you feeling unstable on your feet?
  - Yes
  - No

- Do you understand how each of your medicines is helping to improve your health?
  - Yes
  - No

- Do you take your medicines in a different way from how they are prescribed?
  - Yes
  - No

- Have you completed the list on the back of this brochure trimming all your medicines?
  - Yes
  - No

---

**If you are taking a number of different medicines, particularly if you are older, you have a higher risk of serious medicine-related side effects.**

- If you are taking a lot of different pills, there could be signs that your medicines may not be working well together.

- Dizziness, feeling confused, sick or constipated, experiencing incontinence or being prone to falling are examples. And you may have other symptoms that cause you concern.

- Not knowing why you’re taking each of your medicines is also another good reason to have them reviewed. It’s important to feel comfortable with the medicines you’re taking and this means understanding what each medicine is doing to improve your health.

---

**What do I need to do?**

- If you have concerns, please make an appointment to see your doctor or pharmacist.

- To help your doctor provide informed advice, please take all your medicines or a list of your medicines (which you can fill out on the back of this brochure) to your appointment with the doctor, pharmacist or specialist. Make sure you include those you buy from the health shop, pharmacist, pharmacy or supermarket.

- At your appointment you can discuss with your health professional how the pills make you feel and whether changing the dose or cutting some out would help.

---

**Warning – do not stop taking your medication without professional advice.**

**For more information**

Speak to your GP or pharmacist.
Appendix 2: Prescriber Poster

Are my patients taking too many medicines?
Extensive national and international research has shown that the more medicines a person is on, the more likely they are to have problems from those medicines. This is particularly the case in older people (especially those over the age of 75), and those who are frail and have a number of serious medical conditions.

The problems that people may experience from too many medicines include:

- Falls (and fractures)
- Confusion
- Nausea
- Incontinence
- Constipation

Resulting in many admissions to hospital each year.

What can I do about this?

- Always consider the possibility that a patient’s symptoms may be medication related
- Ask patients if they have any concerns about their medication regime and then discuss
- Ensure you are comfortable that each medicine has a relevant indication
- Consider whether discontinuing or reducing the dose of medicines is appropriate
- Agree on a course of action with the patient – they are more likely to follow a plan if their opinion on it has been sought
- Seek the advice of a clinical pharmacist or specialist if you are not sure whether a medicine is causing problems or is able to be discontinued
Appendix 3: Community Referrals Process

Figure 3 shows the multi-interventional approach for people residing in the community. Strengths of the MiAP approach is the shared decision-making process which is a major feature of the MiAP intervention (direct interview of the patients) and the importance of closing the communication loop to sustain the changes initiated by the intervention.

Figure 3: Community Referral Process for the SMAS
Appendix 4: Age Residential Care SMAS Process

Figure 4 shows the multi-interventional approach for people residing in residential care. Strengths of the MiAP approach are raising awareness at the beginning of the process and comprehensive feedback to prescribers and care staff.

Figure 4: Age residential care process for SMAS
# Appendix 5: Part of the OPTIMED patient consultation template

## 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. 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)</th>
<th>HIGH RISK MEDICINES (Underline if currently dispensed. Other drugs should be added if considered high risk for this patient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Age 70+ Cognitive impairment Living alone Deafness Tinnitus (severe) Vertigo (recurrent) Visual impairment Postural unsteadiness Impotence Incontinence Prostatic symptoms Constipation Mobility aids Falls (last 3 months) Swallowing difficulty Malnutrition Ethanol excess Smoking (current)</td>
<td>Meds per day: Frequency score: Meds Complexity (MC) score:</td>
<td>ACE-I ARB Beta blocker Amiodarone Antihistamine Antipsychotics Antidepressant Anticholinergic Azathioprine Azole antifungal BDZs Clopidogrel Colchicine Cyclosporin Dabigatran Digoxin Diltiazem Felodipine LMW Heparin Insulin K⁺-sparing diuretic Lithium Methadone Methotrexate Morphine Nitrate NSAID Oxycodone Perhexiline Phenytoin Prednisone Sotalol Statins Tramadol Warfarin HRM score:</td>
</tr>
</tbody>
</table>

### LTC score:

- Clinical detail
  - e-GFR:
  - Chol:
  - LDL:
  - HbA1c:
  - Urate:
  - LFTs:
  - HB:
  - BP:
  - Echocard:
  - RFTs:
  - TFTs:

### Last Hosp adm.

### Current Specialist OP

### Major problem
(as perceived by patient)

### Therapeutic objectives
(Prioritise in context of symptomatic status, life expectancy, and preventive treatment targets)

### Medication management issues
### Medicines history

| Medication changes (last 3 months, include reasons for changes) |  |
| Complimentary meds (current) |  |
| **Drug allergies** (Score 1 if any present) | **Drug** | **Reaction** | **SCORE** |
| **Adverse reactions** (score 1 if any present) | **Drug** | **Reaction** |  |
| **Tolerance of daily medication - how well does the patient cope** (score 1 if any difficulty) |  |
| **Uncertainty with specific medication** (score 1 if explanation required for any medicine) |  |
| **Non-adherence with total drug regimen.** (score 1 if 3 or more missed doses wkly) | **Factors causing loss of adherence** |  |
| **Medicines history score (MHx)** |  |
| **TOTAL CUMULATIVE RISK** score | **LTC + LSF + HRM + MC + MHx + PMI** |  |
Sometimes we need to reverse changes made

Wendy is an 87 year old lady living in a rest home. She has a history of cognitive decline, is visually impaired and is a high falls risk. Wendy has had numerous falls and several fractures. She was referred to our pharmacist by the nurse at her rest home.

During the review of Wendy’s medications, our pharmacist found that Wendy was prescribed two beta-blockers; metoprolol for atrial fibrillation and ischaemic heart disease and propranolol for intention tremor. Wendy’s tremor was visible, but controlled. In addition, Wendy was prescribed her nitrate twice a day which did not allow for a “nitrate-free” period to prevent tolerance. The dose of Wendy’s cholesterol medication was too high. It interacted with another of her medications, meaning that the dose should be lowered. No changes to Wendy’s medications had been made for at least the last three years.

Our pharmacist made recommendations to

- stop the propranolol and increase metoprolol if necessary
- change the nitrate to once a day
- decrease the simvastatin dose.

Unfortunately, when the propranolol was stopped Wendy’s tremor worsened so the GP restarted it.

Looking back at Wendy’s case, we can question whether it was right to stop the propranolol, rather than change the metoprolol. As the metoprolol was at a much higher equivalent dose than the propranolol, it would have been more difficult to cross titrate this way. What we do know is that there have been no clinical trials conducted in elderly patients, so we always need to make small adjustments and carefully monitor the effects of any changes.

It is important to keep patients (where appropriate) and their families aware of our thinking so that they can help monitor for improvement or deterioration. We also need to be prepared to change our thinking based on recurrence of symptoms.
Appendix 7: Consumer Survey

Please answer the following questions in relation to the service/visit by

____________________________ (clinical pharmacist) on

___________________________ and return in the enclosed postage paid envelope.

Thank you for your help.

1. Did you understand the purpose of your appointment/visit with the pharmacist? (tick appropriate box)
   
   □ Yes □ No □ Unsure

2. Did you have adequate opportunity to talk about your medicines and ask questions?
   
   □ Yes □ No □ Unsure

3. Do you feel that the pharmacist listened to you and addressed any questions, issues or concerns you had about your medicines?
   
   □ Yes □ No □ Unsure

4. Do you feel comfortable/agree with any actions that occurred as a result of the appointment/visit with the pharmacist?
   
   □ Yes □ No □ Unsure

5. In general, since the appointment/visit with the pharmacist do you feel more:

   Knowledgeable about your medicines? □ Yes □ No □ Unsure

   Better able to take your medicines as directed? □ Yes □ No □ Unsure

   More confident taking your medicines? □ Yes □ No □ Unsure

   Less worried about things to do with taking medicines? □ Yes □ No □ Unsure

6. Overall, how satisfied are you with the pharmacist’s service?
☐ Satisfied    ☐ Unsure    ☐ Not Satisfied

Please tell us about anything you thought was **good** about the pharmacist’s visit/service?


Please tell us about anything you think **we could do better** in relation to the pharmacist’s visit/service?


Thank you again for completing this survey. Please return in the enclosed postage paid envelope.
Appendix 8: Prescriber Survey

Too many medicines? service survey  JAN 2015

Taking a number of different medicines, particularly for older people, increases the risk of serious medicine-related side effects. For those of your patients who take a lot of different medications, there could be signs their medicines may not be working well together.

With this in mind, Whanganui DHB and Whanganui Regional Health Network (WRHN) began a pilot of the Central Region’s Too many medicines? service last year. The service is all about raising awareness and reducing harm resulting from people taking a lot of medicines, and/or a combination of medicines that might not be working well together. This includes over the counter medications such as paracetamol, aspirin and ibuprofen.

At this point of the pilot, we are seeking feedback on the level of awareness prescribers now have of polypharmacy and the Too many medicines? pilot service.

Please help us by taking a moment to complete this short survey. Please click where applicable. Completed surveys can be emailed to communications@wdhb.org.nz

Are you aware of the local campaign around polypharmacy? □ YES □ NO
If NO, there is no need to answer the remaining questions.

If YES, where did you hear about the service?
□ WIPE presentation □ Medical practice education session □ Patient request of service
□ Visit from pharmacist, WDHB or WRHN staff □ Too many medicines? service poster

Have any patients presented to you requesting the service? □ YES □ NO
If YES, how many? □ 0 - 5 □ 5 - 10 □ 10+

Have you referred any patients on:
To the pharmacist? □ YES □ NO
To the geriatrician/physician? □ YES □ NO

How have you found the service?
□ Excellent □ Good □ Average □ Poor

How confident do you feel reviewing your patients’ polypharmacy?
□ Very confident □ Quite confident □ Not very confident □ Not confident at all

What support would help you with reviewing polypharmacy?

If you could change anything about our polypharmacy service, what would it be?

Completed surveys can be emailed to communications@wdhb.org.nz