# Entry Cover Sheet

## Commitment to Quality Improvement and Patient Safety

Delivering consistent high quality health care, managing the risks of providing health care and reducing incidents of unintentional harm is at the heart of what we do. This award recognises initiatives to improve services and better meet the needs of our community, and deliver the best care possible.

| **Entrants must complete all sections below:** | |
|---|---|
| **Title of entry**<br>**Maximum of 70 characters**<br>Be specific, eg "Reducing the risk of post-operative pulmonary complications". Title length must not exceed 70 characters. | Safe and effective medicine use - Clinical Pharmacists influence prescribing |
| **Synopsis of entry**<br>**Maximum of 150 words**<br>A brief paragraph providing an overview of your entry.<br>Synopsis must not exceed 150 words. | December 2016 saw the appointment of a clinical pharmacist to Wairoa, this completing the rollout of the Hawke's Bay DHB's ***Clinical Pharmacists in General Practice Programme***. A more timely and intensive interaction between general practitioner and nurse prescribers, and skilled clinical pharmacists is effectively addressing the issue of high levels of polypharmacy and associated medicine-related harm throughout Hawke's Bay. 'Best practice' prescribing is fast becoming the norm.<br><br>The 'proof of concept' pilot (2011-14) proved so successful that in 2014 the Hawke's Bay DHB approved $0.9million to extend the programme across Hawke's Bay.<br><br>There are now ten clinical pharmacists working with prescribers in twenty-one general practice settings, covering 84% of the enrolled patient population. The health outcomes for patients have exceeded all expectations. |

2017 HB Health Awards,
Communications Service
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<table>
<tr><td></td><td>For the GP prescribers and the practices: 'This is the way to work - why has it taken us so long to make this discovery?'</td></tr>
<tr><td>Name of organisation/s<br>Is entry submitted on behalf of one or a number of organisations?<br>It is very important that you describe who is involved in this entry. This information is used in promotional materials, acknowledgements and inscribed onto awards, plaques and certificates.</td><td>This entry is submitted by Hawke's Bay District Health Board - Clinical Pharmacist team. In doing so the team wishes to acknowledge the participating general practices and Health Hawke's Bay (PHO). We have all worked together to deliver this successful programme.<br><br>The key personnel include:<br>Chief Pharmacist/Programme Leader - William Allan<br>Clinical Pharmacist Team Leader - Dr Anne Denton<br>Clinical Facilitator (PHO) - Sara Salman<br><br>The team:
<table>
<tr><th>Clinical Pharmacists</th><th>General Practices</th></tr>
<tr><td>Brendan Duck</td><td>Totara Health Nelson Street/Flaxmere</td></tr>
<tr><td>Vanessa Brown</td><td>Greendale Family Health Centre;<br>Taradale Medical Centre;<br>Clive Medical Centre</td></tr>
<tr><td>Jenni Jones</td><td>Hastings Health Centre</td></tr>
<tr><td>Peter McIntosh</td><td>Te Mata Peak Practice; Dr Colin Wakefield;<br>Dr Maurice Jolly</td></tr>
<tr><td>Mara Coler</td><td>The Doctors Hastings/ Gascoigne/Waipawa</td></tr>
<tr><td>Jessica Dodd</td><td>The Doctors Napier, Greenmeadows and EIT</td></tr>
<tr><td>Rachael McNeill</td><td>Tamatea Medical Centre</td></tr>
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<tr><td>Contact person<br>Name of person/s who can be contacted in regards to this entry.</td><td>Dr Anne Denton</td></tr>
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</table>

| APPROVAL SECTION for Hawke's Bay District Health Board applications | | |
|---|---|---|
| **Service Director entry review and endorsement** | Name: Carleine Receveur<br>Signature: _____<br>Date: _____ | |
| **Executive Manager entry review and endorsement** | Name: Dr Andrew Phillips<br>Signature: _____<br>Date: _____ | |
| **APPROVAL SECTION for Primary Care / NGO Organisations applications** | | |
| **Your organisation's CEO or GM entry review and endorsement** | Name: Wayne Woolrich<br>Signature: _____<br>Date: _____ | |

OURHEALTH HAWKE'S BAY
Whakawāteatia

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# Commitment to Quality Improvement and Patient Safety

Delivering consistent high quality health care, managing the risks of providing health care and reducing incidents of unintentional harm is at the heart of what we do. This award recognises initiatives to improve services and better meet the needs of our community, and deliver the best care possible.

| | |
|---|---|
| **Your organisation** | This successful programme represents the combined efforts of the Hawke's Bay DHB Clinical Pharmacist team and participating General Practices, supported by Health Hawke's Bay.<br><br>In meeting the DHB's challenge to address the high levels of polypharmacy evident in Hawke's Bay, and reduce medicine-related harm, often resulting in high rates of patient falls, emergency department (ED) presentations, hospital admissions etc., it was clear that a truly collaborative approach was required. Skilled clinical pharmacists now work alongside general practitioner and nurse prescribers, as active members of the general practice teams.<br><br>The shared vision, shared journey and shared determination to improve prescribing practices in primary care, is ensuring the *safe and effective prescribing and use of medicines* throughout Hawke's Bay. General practitioners, their teams and their patients are realising the benefits of this way of working. Twenty-one general practices, covering 84% of the enrolled patient population, now have access to the expertise of nine on-site, non-dispensing clinical pharmacists.<br><br>The pharmacists are funded and employed by HBDHB. The practices provide the place of work, access to prescribers, patient management systems and patients. The clinical pharmacists participate fully in 'practice life'.<br><br>The programme embraces the Vision and Values of *Healthy Hawke's Bay - Te Hauora O Te Matau-A-Maui*. |
| **Commitment to Quality Improvement and Patient Safety** | ***THE CHALLENGE:***<br>A 2010 report into medicine utilisation in Hawke's Bay revealed:<br>• High community pharmaceutical costs driven by an ever increasing rate of volumes of items dispensed<br>• High levels of polypharmacy (items per head of population - 3rd highest of DHBs)<br>• An aging population, aging at a rate greater than the New Zealand average - polypharmacy is highest in those aged 65 years and over, and particularly over 85s<br>• Evidence that polypharmacy causes harm to older people, with up to 30% of hospital admissions in people over 65 years being associated with medicine- |

related problems
- Evidence that discontinuing unnecessary medicines is one of the most effective interventions for reducing adverse drug reactions and improving quality of life.

Also, international research (UK, Canada and US) is increasingly supporting the effectiveness of clinical pharmacists working with prescribers and patients in primary care settings.

***THE RESPONSE:***
***'Clinical Pharmacists in General Practice'*** commenced in 2011 with a two-year pilot that saw three half-time, non-dispensing clinical pharmacists seconded to three different general practice settings (Havelock North, Flaxmere and Greenmeadows). Guided by the growing body of international research, HBDHB saw this as an opportunity not only to lead the way nationally, but to do it better, by developing a truly integrated approach to managing medicines in Primary Care.

The pilot proved so successful that 2014 saw HBDHB approve a $0.9 million per annum investment to extend the programme across Hawke's Bay. Recognised in the 2014 Hawke's Bay Health Awards the programme received five awards, including the Supreme Award. The team received national recognition at the NZ Pharmacy Awards 2015 - Professional Service of the Year.

January 2017 marks the successful completion of the programme rollout, following the appointment of the tenth clinical pharmacist to Wairoa (December 2016).

It is time to celebrate the successes of the extended programme and to acknowledge the teams that have toiled long and hard to prove this is indeed 'the way to work'.

***PROGRAMME AIMS:***
***1. Prescribing practices support safe and effective use of medicines***
- Best practice prescribing of medicines (timely and expert medicines advice readily available to prescribers)
- Reduced polypharmacy and medicine-related harm (right medicines prescribed, adverse effects and drug interactions detected early and managed appropriately)
- Optimal management of complex long term conditions (with patient populations reviewed and care managed proactively by the general practice team)
- Identify and work with patients most at risk of medicine-related harm or poor medicine adherence (through medicine reviews, patient education and ongoing support where required)
- Transitions between care environments (hospital discharges, Aged Care admissions) managed well and errors reduced (care synchronised, improved communication, errors detected early and corrected).

| | |
|---|---|
| | ***2. Health gain for patients and patient populations***<br>• Appropriate medicines and treatment regimens support health outcomes<br>• Reduced medicines and adverse effects of polypharmacy<br>• Fewer falls, ED presentations and hospital admissions<br>• Delayed admissions to residential care.<br><br>***3. Reduced costs and savings for the wider 'health economy'***<br>• Fewer medicines drive lower pharmaceutical costs<br>• Less wastage of pharmaceuticals - appropriate volumes prescribed<br>• Fewer medicine-related adverse events resulting in costly hospitalisation, specialist care etc.<br><br>***SUCCESSES:***<br>For the general practice teams this programme has delivered:<br>• Unexpected gains for GPs and nurse prescribers who now have ready access to expert medicines advice<br>• On-the-spot access to medicines advice for the wider team; support in managing patients with complex long term conditions through nurse-led clinics; input into aged care patient assessments; participation in onsite staff education, and<br>• Better care for patients who are experiencing significant improvements in their health, as a result of the clinical pharmacist working directly with them and their prescriber(s) to find solutions to complex and distressing medical issues.<br><br>For the Clinical Pharmacists, the opportunity to extend their scope of practice in primary care has widened the professional horizon for this previously under-recognised and extremely valuable clinical resource.<br><br>**See Appendix 1: Patient case studies.** |
| **Benefits and results** | ***MONITORING SUCCESS:***<br>The programme recognises the importance of capturing, measuring and recording the clinical pharmacists' activities and results. While initially onerous, this is now part of 'business as usual' for the team who find the quarterly feedback with it's sharing of patient stories and clinical successes, extremely motivating. Formal quarterly reports are made available to the Practice teams, the HBDHB and are regularly reviewed by the Clinical Council. **See Appendix 3: *Summary Quarterly Report - January, February, March 2017***<br><br>The Pilot programme was formally evaluated, the evaluation reports providing methodologies and baseline results for future analyses. The NZ Triple Aim (Figure 1) quality improvement framework has provided focus for the programme, being the tool used to guide key performance indicator (KPI) development and monitoring. It also provided the backbone for the formal evaluation of the Pilot. |

**Figure 1. The New Zealand Triple Aim for quality improvement**


The programme continues to deliver against the three dimensions of NZ Triple Aim.

***BENEFITS AND RESULTS:***

***1. Improved quality, safety and experience of care***

Clinical pharmacists are now actively involved in the 'clinical life' of the participating practices, providing on the spot medicines advice, assistance with treatment planning, along with patient medicine reviews, education and support.

**Table 1. Summary of Clinical Pharmacist Activities for 12 months 2016/17**

| Activity | January to March 2017 | October to December 2016 | July to September 2016 | April to June 2016 |
|---|---|---|---|---|
| Referrals | 478 | 357 | 438 | 436 |
| Clinical Reviews | 192 | 181 | 191 | 216 |
| Disease Management | 75 | 52 | 79 | 56 |
| Medicine Information Enquiries | 183 | 191 | 179 | 200 |
| Continuous Quality Improvement Activities | 5 | 4 | 4 | 6 |

**Figure 2. Clinical Pharmacist Review Recommendations, for the twelve months April 2016 – March 2017**

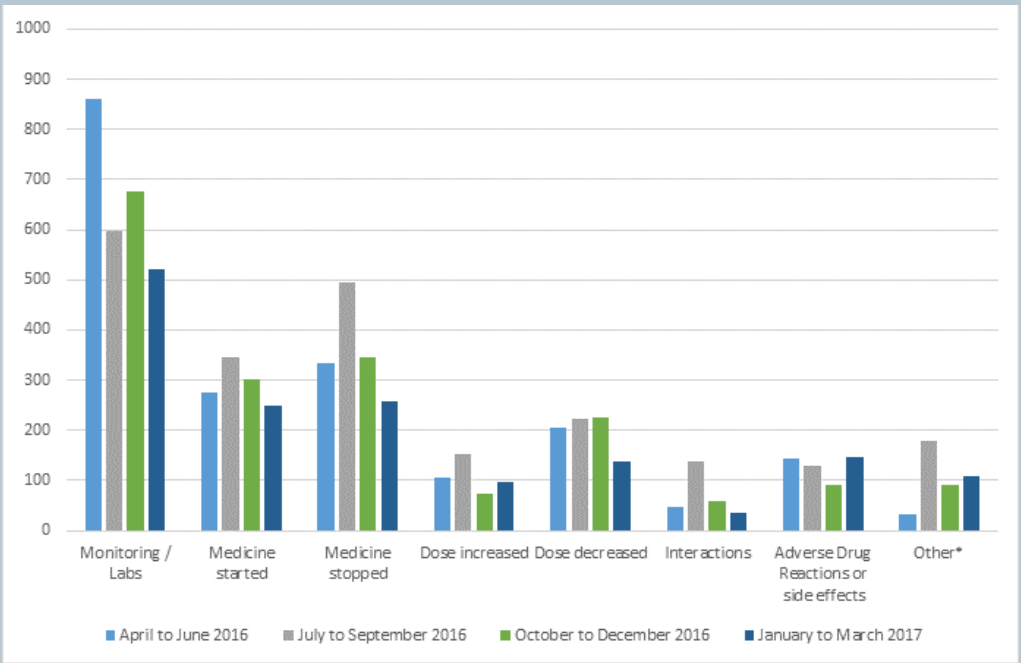



**Table 2. Analysis of Clinical Pharmacist patient contact**

| Details of Contact | January to March 2017 | October to December 2016 | July to September 2016 | April to June 2016 |
|---|---|---|---|---|
| Medicine Review | 192 | 181 | 191 | 216 |
| Home visits | 95 | 127 | 101 | 147 |
| Patient education (including medicine cards) | 167 | 186 | 108 | 169 |
| Adherence | 26 | 34 | 38 | 49 |
| Review follow-up | 174 | 212 | 165 | 236 |
| Aged Residential Care rounds | 159 | 153 | 193 | 36 |
| Therapy Initiation | 112 | 143 | 152 | 158 |
| Medicine Monitoring | 147 | 106 | 162 | 109 |

For detailed patient stories and case studies refer to **Appendix 1**.

For evidence of reduced polypharmacy refer to **Appendix 2**.

***2. Health gain for patients and patient populations***

***Example:***

Māori and Pacific people are particularly vulnerable to Type 2 Diabetes Mellitus (T2DM), and have considerable disparities in clinical outcomes. The focus at Totara

Health is to reduce disparities and improve clinical outcomes for high needs patients. Thus management of patients with T2DM is a priority (Table 3).

**Table 3. Long-term disease management clinical parameters for patients reviewed by the Clinical Pharmacist at Totara Health from January to March 2017**

| Measure | Number of patients | Average Before | Average After | Average Improvement |
|---|---|---|---|---|
| Blood pressure | 91 | 150/83mmHg | 140/81mmHg | 10/3mmHg |
| LDL - cholesterol | 27 | 3.4mmol/L | 2.4mmol/L | 1mmol/L |
| HbA1c | 73 | 84mmol/mol | 68mmol/mol | 14mmol/mol |

***3. Continuous Quality Improvement Activities***

Clinical pharmacists have increasingly become integral players in the Continuous Quality Improvement activities undertaken by the practices, including assisting with Cornerstone Accreditation. Drug utilisation evaluations (DUE; clinical audits) now actively involve clinical pharmacists and happen more regularly, being triggered by GP requests, Health Quality and Safety Commission (HQSC) or PHARMAC medication safety alerts, or where patients do not meet best practice guidelines as identified by DrInfo (a practice reporting tool). Any changes in prescribing practices triggered by these audits are managed quickly and effectively through patient record alerts and recalls.

***Example:***

**Methotrexate**

*In response to a national HQSC alert highlighting the risks associated with methotrexate therapy, the clinical pharmacists reviewed patients taking methotrexate. The clinical pharmacists found that the instructions for more than half of the patients did not comply with the HQSC alert recommendations, i.e. the day of the week the methotrexate is to be taken on should be stipulated on the prescription, nor were the recommended monitoring regimens in place. The clinical pharmacists provided advice to the GPs to rectify this and in addition, developed and implemented a protocol for methotrexate prescribing and monitoring to maintain safety improvements.*

***4. Cost savings mirror reducing pharmaceutical volumes & demands on acute care***

The evaluation of the pilot programme showed a conservative 4:1 return on investment in Year 2 - $850k savings attributable to clinical pharmacist activities. At December 2015, with 3.5 FTE clinical facilitators in post, there was an estimated $2 million cost avoidance on the combined pharmaceutical budget attributed to the programme, an outstanding result.

Examples of avoided ED visits, hospitalisations and delayed admissions to age-related residential care are frequently reported. These all are savings for the 'health economy'.

| | |
|---|---|
| **Future plans** | ***THE FUTURE:***<br>A business case supporting investment in a further 2.0 FTE clinical pharmacists in 2018/19 is under development.<br><br>***LESSONS LEARNED*:**<br>• Good prescribing is the key to successful treatment and health outcomes<br>• Breaking down traditional interprofessional barriers takes time and courage on all sides<br>• You must choose the right pharmacist, with right skill level, right match for the practice<br>• Do not underestimate the importance of relationships, good communication, trust and respect<br>• Medicine safety and effectiveness is as much about patients' understanding their medicines as it is about prescribing practices<br>• Ongoing professional support and leadership is essential – the clinical pharmacist role can be isolating and highly challenging - 'being part of a clinical pharmacist team has proved invaluable'<br>• Continuous measurement and reporting of activities and successes are critical motivators for all<br>• Periodic review - keeps the vision and direction fresh, and clinical practice at the cutting edge.<br><br>***MESSAGES FOR OTHERS:***<br>• Integrating pharmacists within general practice makes a significant contribution to the health care of the communities we serve - pharmacists' knowledge and skills must be better harnessed<br>• Clinical pharmacists working as part of general practice teams 'is the way to work'. |

## Appendix 1: Patients' stories illustrating some outcomes from the Clinical Pharmacist Facilitators Working in General Practice

***CASE STUDY: Admission to Residential Care avoided***

*The GP asked the CP to review Mr DM's medicines due to his increased confusion, fatigue and decreased food intake. GP felt he was "probably pre-terminal and needed to go into a rest home, as his wife can't cope anymore".*

*Recent blood test results showed a decrease in renal function. CP reviewed and suggested stopping one medicine and decreasing the dose of two medicines with a check renal function in two weeks.*

*CP telephoned two weeks later to follow up. Mr DM answered the phone, said he was so pleased with how much better he felt, his head was no longer foggy, he was a lot more awake, able to eat again, managing well at home, independent with daily activities. His speech was slow but clear.*

*It was decided not to make any further medicine changes for now and for the CP to follow up again in two weeks. When the CP phoned two weeks later Mr DM answered the phone again. He was able to carry out normal conversation, he said-"he was feeling great". Blood test showed that his renal function had improved.*

*Mr DM was going to Australia the following week to have his 80$^{th}$ birthday celebrations with his whole family.*

*GP comment: "By having the CP involved this patient is able to remain at home for probably another 1 to 2 years instead of being admitted to a rest home".*

***CASE STUDY: GP requests medicine reconciliation for complex medicine regimen***

*Mr W an 82 year old was referred to the CP for a medicine review. After meeting with Mr W and completing a review of his medicine changes, the CP found that 18 months previously when he had been admitted to Hawke's Bay Hospital, then Wellington Hospital Cardiology ward his medicines were charted incorrectly resulting in the prescribing of two calcium channel blockers, which had continued for 18 months.*

*There was also a five-year history of cardiology clinic letters with the incorrect medicines listed.*

*After the CP review, one calcium blocker was discontinued and as a result Mr W's ankle oedema improved significantly as did his general health. Mr W's blood pressure improved from 156/70 mmHg to 140/56 mmHg, reducing his cardiovascular risk.*

*The GP was very appreciative of this review as the GP "would never have had time to invest looking into this issue". Hence the error continuing for 18 months.*

***CASE STUDY: Stability and appropriateness of medicine queried***

*Mr CE is 86 years old; he had recently been transferred to hospital level care (within the ARRC facility). Previously, all medicines had been crushed to aid administration. The registered nurse was concerned about crushing Mr CE's medicine which consisted of 13 different medicines, including amitriptyline and omeprazole capsules.*

*Mr CE had deteriorated prior to transfer. As a result of a review of medicines by the CP, all preventative medicines (including aspirin) were stopped and advice was given on formulating amitriptyline and omeprazole into suspension form to improve stability. Mr CE is now receiving 5 medicines appropriately, improving efficacy, reducing the risk of adverse effects and improving Mr CE's comfort.*

***Case Study: Contraindication identified – avoided emergency department admission***

*Mr BM is 81 years old and had been recently discharged from hospital following a fracture of the neck of the femur and prescribed tramadol for pain management. Mr BM had developed seizures following a stroke in 2012 that were currently well managed with phenytoin.*

*Tramadol is contraindicated in patients with a past history of seizures, due to reduction in the seizure threshold. The CP advised Mr BM's GP to stop tramadol and commence regular paracetamol and as needed codeine to manage Mr BM's pain.*

*Stopping tramadol avoided the triggering of a seizure and potential emergency department admission.*

***CASE STUDY: Resistant hypertension and fear of adverse effects***

*Mr EC is a 53 year old with significantly elevated blood pressure (180/100mmHg). Mr EC was identified by the CP's review of patients with diabetes and uncontrolled hypertension. Mr EC was currently taking three antihypertensives and the patient's notes indicated he did not wish to take any further medicines.*

*Mr EC was at significant risk of a cardiovascular event and it was considered that further management would be beneficial. The CP met with Mr EC and discovered he feared adding more antihypertensives due to a previous adverse effect which caused psychotic behaviour five or so years previously. The CP reviewed Mr EC's history and identified the offending medicine. Mr EC was commenced on a fourth line antihypertensive and educated on the benefits of blood pressure control on cardiovascular risk.*

*Mr EC's adherence has also improved and his blood pressure is now 130/80 mmHg, reducing the risk of a cardiovascular event by 85%.*

***CASE STUDY: High level of patient education leads to improved adherence***

*Mr TJ is a 63 year old, referred to the CP for adherence support. Mr TJ has had diabetes for seven years, during this time he has refused medicine. Mr TJ had recently been admitted to hospital with heart failure secondary to poorly controlled hypertension. The CP met with Mr TJ and discussed his goals for his health and life, and with some encouragement Mr TJ commenced on seven medicines for diabetes, heart failure and hypertension.*

*The CP worked with Mr TJ to improve his understanding of the medicines and the benefits in achieving his goals. Two months after starting these medicines, Mr TJ's heart failure is controlled and there is improvement in the following clinical measures:*

- *blood pressure down from 195/110 to 140/90mmHg reducing the risk of a cardiovascular event (e.g. heart attack) by 85%;*
- *LDL has reduced from 4.9 to 2.5mmol/L, reducing the risk of a cardiovascular event by 55%;*
- *$HbA_{1c}$ has decreased from 123 to 70mmol/mol, reducing the risk of microvascular damage (eye and kidney damage) by 160%.*

*Mr TJ now has confidence in his medicine and is eager to learn more.*

***Case study: Frequent hospital presentations and interventions avoided***

*Mrs VA is 73 years old, she was referred by her GP due to long-term issues with hypertension, who noted that "Multiple combinations have been tried but nothing seems to help".*

*Mrs VA has "nocturnal" hypertension, i.e. her blood pressure rises as the day goes on and reaches as high as 204/98 mmHg around midnight. She had a heart attack in 2010 and has frequent panic attacks, precipitated by her rising blood pressure.*

*When the CP saw Mrs VA, she was taking 12 medicines six times during the day.*

*In the previous 12 months she had spent two nights in hospital due to "cardiac issues", had had an urgent appointment at the cardiology clinic for an ECG and investigations, had been to ED for a six hour stay for further "cardiac issues", received 24 hour blood pressure monitoring at home and attended a sleep clinic to complete a sleep study.*

*The CP met with Mrs VA for a medicines review. The CP explained to her how each of her medicines worked and answered the questions that Mrs VA had regarding her medicines. The CP then looked at when each medicine reached its peak effect and how long that medicine worked for. After discussion with Mrs VA's GP and explaining to Mrs VA the best timing of each medicine, her dosing regimen was changed to reduce her medicines dosing to three times per day – there were no dose or medicine changes at this time.*

*One month post review, Mrs VA felt her blood pressure was under control for the first time in years. She was sleeping better and had not had any panic attacks.*

*Six months post review, Mrs VA has had no hospital admissions or outpatient interventions, her BP was now controlled at around 132/68 mmHg with the maximum recorded overnight of 145/80 mmHg.*

*She has not had any dose reductions but now she is taking the medicines three times a day instead of six, feels her life no longer revolves around medicines. Mrs VA reports a definite improvement in her quality of life since the CP's intervention.*

## Appendix 2: Reduction In Polypharmacy

The Health Quality and Safety Commission (HQSC) has published an *Atlas of Variation - Polypharmacy* (http://www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/atlas-of-healthcare-variation/polypharmacy-in-older-people/). The atlas provides high level data on polypharmacy across all 20 DHBs for 2014; when Hawke's Bay had only 2 FTE clinical pharmacist facilitators in post. New Zealand deprivation (NZDep) data are not available.

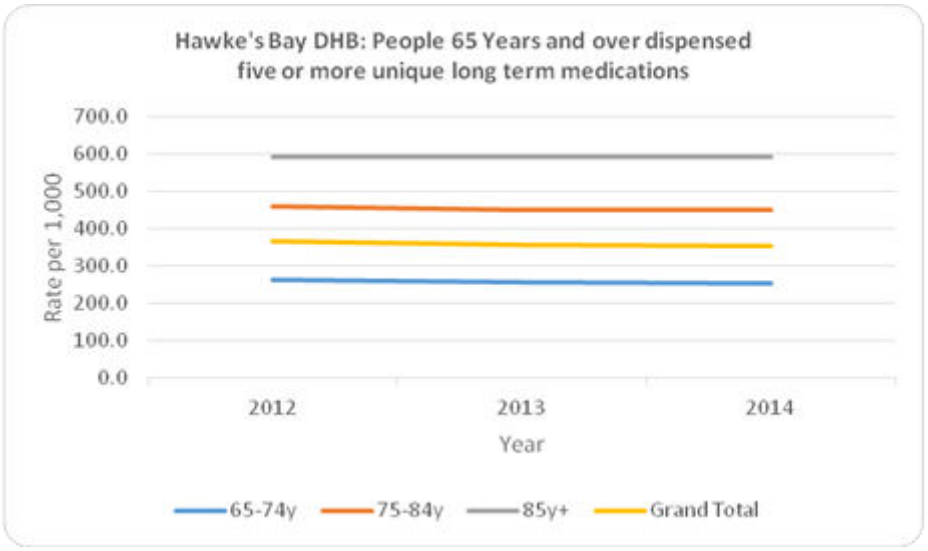
The data present a mixed picture of the polypharmacy trends in Hawke's Bay. Overall there is a slightly decreasing trend in the incidence of polypharmacy across the four indicators (Figures 1 and 2, Table 1). One of the challenges for measuring improvement in polypharmacy is that polypharmacy increases with age and the general population is ageing. It has been suggested that holding the rates steady might be considered a win.[1]

Most of the change in polypharmacy rates in Hawke's Bay has occurred in the 'young old' (65-74 year olds). This is consistent with the HQSC's Expert Advisory Group (EAG) advice[1] on tackling polypharmacy:

> '*Polypharmacy is more likely to be appropriate in the robust 'young elderly' while problematic polypharmacy is more likely to occur in the frail 'old elderly'. Hence a focus on the 85+ age group may be most appropriate, where the doses used may be as important as the number of medicines*.'

The indicators in the atlas are high level, and do not include for instance changes in dose that may have occurred.

**Figure 3. Indicator 1: People 65 Years and over dispensed five or more unique long term medications**




[1] Personal communication. Catherine Gerard, Evaluation Manager, Health Quality & Safety Commission.

**Figure 4. Indicator 4: People aged 65 and over dispensed 11 or more long term medications Index of net drug cost as a moving annual total**

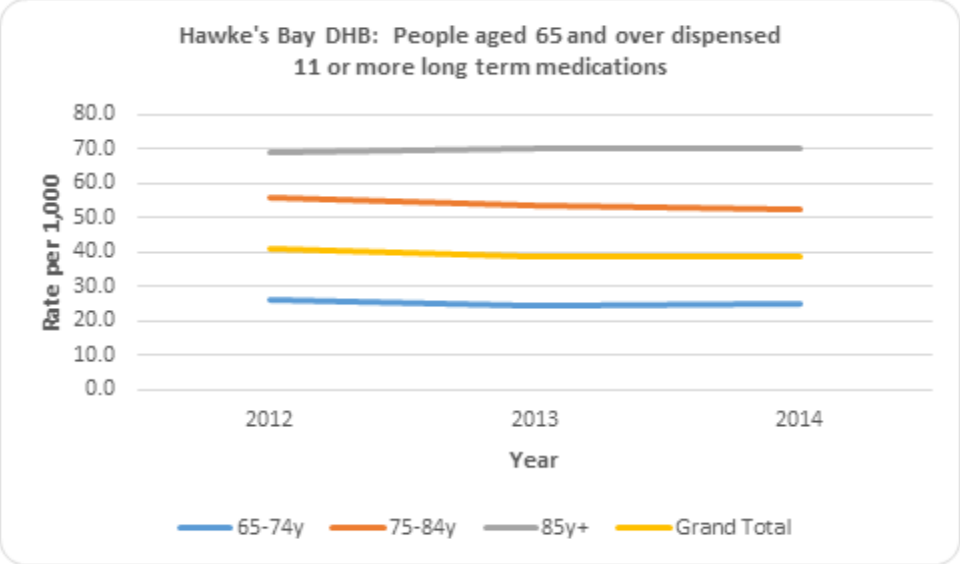



**Table 4. Change in polypharmacy indicator by ethnicity**

| Ethnicity | Indicator 1<br>People 65 Years and over dispensed five or more unique long term medications | Indicator 2<br>People aged 65 and over dispensed five, six or seven unique long term medications | Indicator 3<br>People aged 65 and over dispensed 8,9 or 10 unique long term medications | Indicator 4<br>People aged 65 and over dispensed 11 or more long term medications |
|---|---|---|---|---|
| Māori | Decreasing | Increasing | Decreasing | Fluctuating |
| Pacific | Fluctuating | Increasing | Decreasing | Fluctuating |
| Asian | Fluctuating | Fluctuating | Decreasing | Increasing |
| Other | Decreasing | Decreasing | Decreasing | Decreasing |
| Total | Decreasing | Decreasing | Decreasing | Decreasing |

Following pages

**Appendix 3. *Summary Quarterly Report - January, February, March 2017* for patient case studies.**


REPORT TO

HAWKE'S BAY DISTRICT HEALTH BOARD

# CLINICAL PHARMACISTS
# WORKING IN GENERAL PRACTICE

SUMMARY QUARTERLY REPORT

JANUARY, FEBRUARY, MARCH 2017

## EXECUTIVE SUMMARY

This report outlines the activities of the Clinical Pharmacists working in general practices across Hawke's Bay between 1st January and 31st of March 2017.

This quarter has seen a Clinical Pharmacist start at Tuki Tuki Medical Centre in Central Hawke's Bay for two days a week.

We welcome the appointment of Sara Salman to the position of Clinical Advisory Pharmacist based at Health Hawke's Bay.

The quality projects for amiodarone, simvastatin and lithium continue into the next quarter.

**Table 1: Summary of some of the Clinical Pharmacist Activities for 12 months 2016/17**

| Event | January to March 2017 | October to December 2016 | July to September 2016 | April to June 2016 |
|---|---|---|---|---|
| Referrals | 478 | 357 | 438 | 436 |
| Clinical Reviews | 192 | 181 | 191 | 216 |
| Disease Management | 75 | 52 | 79 | 56 |
| Medicine Information Enquiries | 183 | 191 | 179 | 200 |
| Continuous Quality Improvement Activities | 5 | 4 | 4 | 6 |

**Clinical pharmacist-related activities have included:**

- 478 referrals were received for services provided by the clinical pharmacists. See Figure 1 for a summary of the source of referrals.
- 192 clinical reviews were completed, and 174 patients were followed up by the clinical pharmacist following medicine review. See Figure 3 for a summary of the recommendations made following medicine review.
- 146 patients were reviewed during multidisciplinary Age Related Residential Care (ARRC) visits.
- 75 patients were referred to the clinical pharmacist for optimisation of disease management. Patients reviewed and followed-up demonstrated:
    - An improvement in systolic blood pressure of 10mmHg and diastolic of 3mmHg
    - An improvement in LDL cholesterol with an average lowering of 1mmol/L
    - An improvement in HbA1c of 14mmol/mol
- 183 medicine information enquiries were completed
- 5 Continuous Quality Improvement (CQIs) activities were undertaken during the January to March Quarter. These included Simvastatin, Amiodarone and Lithium ongoing from previous quarters plus Low dose Aspirin for CVD prevention and Low HbA1c in the elderly.

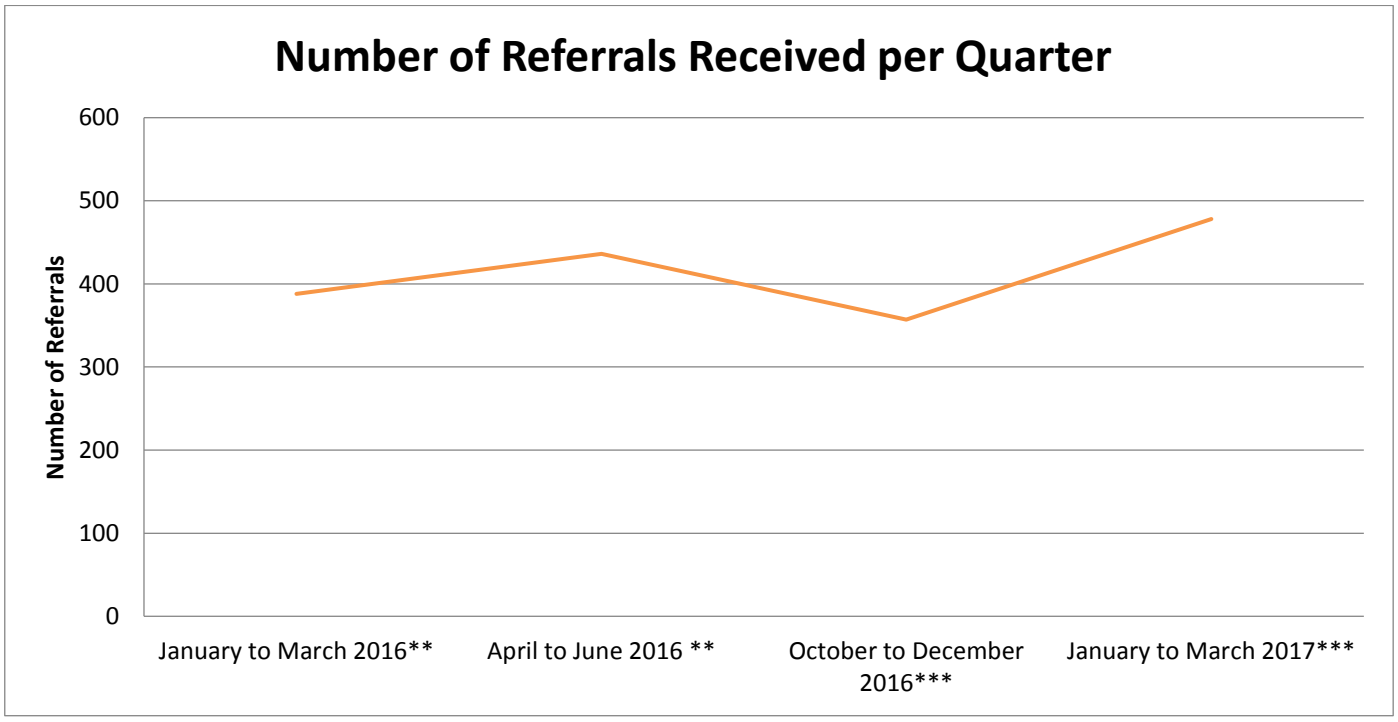
**He Kauanuanu – showing respect for each other, our staff, patients and consumers**

The Clinical Pharmacist received a referral from a community pharmacist about Mr S, who had a car accident and sustained multiple injuries to arms, legs, chest and brain and as a result is now semi-immobile. Mr S suffers from pain and sometimes becomes very agitated at night (a behavioural change due to the accident) which is affecting his sleep. He was prescribed a low dose antipsychotic during the afternoon and an antidepressant at teatime. His wife became very concerned as Mr S is now very drowsy at teatime and unable to take his antidepressant.

After a home visit the pharmacist discussed a medicine regime which was agreeable to Mr S and his wife with paracetamol at 4pm, antidepressant at 6pm (also used for pain) and the antipsychotic at 9pm for the agitation. On follow up, Mr S is not sleepy at teatime, his pain is reasonable and he is having 6-7 hours of sleep at night.

## REFERRALS

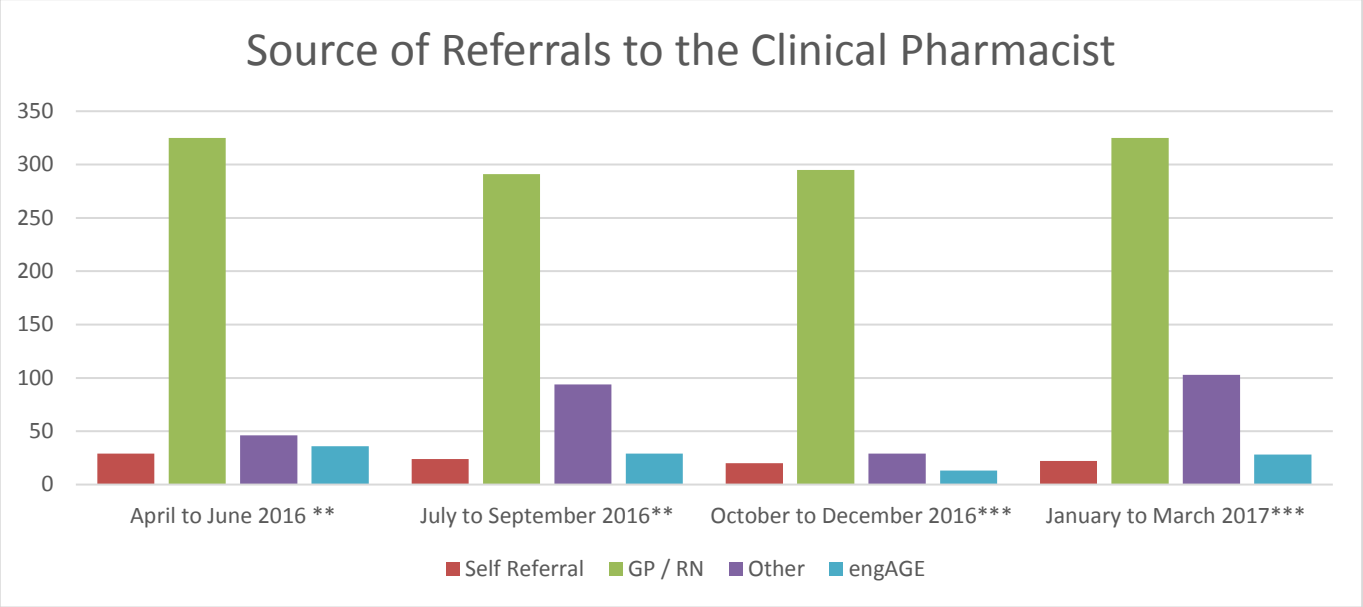
**Figure 1. Number of Clinical Pharmacist referrals per reporting quarter**




** Date includes The Doctors Napier + Hastings, Tamatea Medical, and Hauora Heretaunga
*** Date includes Wairoa Practices

The last quarter has seen an increase in the number of referrals above baseline. This reflects an overall increase in activity over all practices, including Wairoa medical practices now the new clinical pharmacist has become established.

**Figure 2. Sources of Referrals to the Clinical Pharmacist**




Notes: Other includes external organisations (e.g. Community Pharmacies), Aged Residential Care and Aged Care Cluster.
** Date includes The Doctors Napier + Hastings, Tamatea Medical, and Hauora Heretaunga
*** Date includes Wairoa Practices

## COLLABORATIVE CARE

The clinical pharmacists continue to be active members of the engAGE multidisciplinary team. An example of collaborative care and the clinical pharmacist role is shown in the case below.

**Patient centred collaboration between primary and secondary care teams – displaying all four of the Hawke's Bay District Health Board's values: Tauwhiro, Rāranga te tira, He Kauanuanu, Ākina**

Mrs M 70, was referred to the Clinical Pharmacist by the Orbit social worker after two recent presentations to the Emergency Department at the hospital within a week. The first - a significant fall, causing two black eyes and a laceration requiring 6 stitches. Mrs M was also in significant pain due to the aggravation of a previous injury of vertebral fractures. The second presentation was two days later with unbearable left-sided pain caused by a fractured rib, missed on the previous admission.

Mrs M was discharged on diclofenac 50mg three times a day, tramadol 100mg four times a day and paracetamol 1g four times a day for pain relief. She was also on metoprolol 47.5mg daily for high blood pressure.

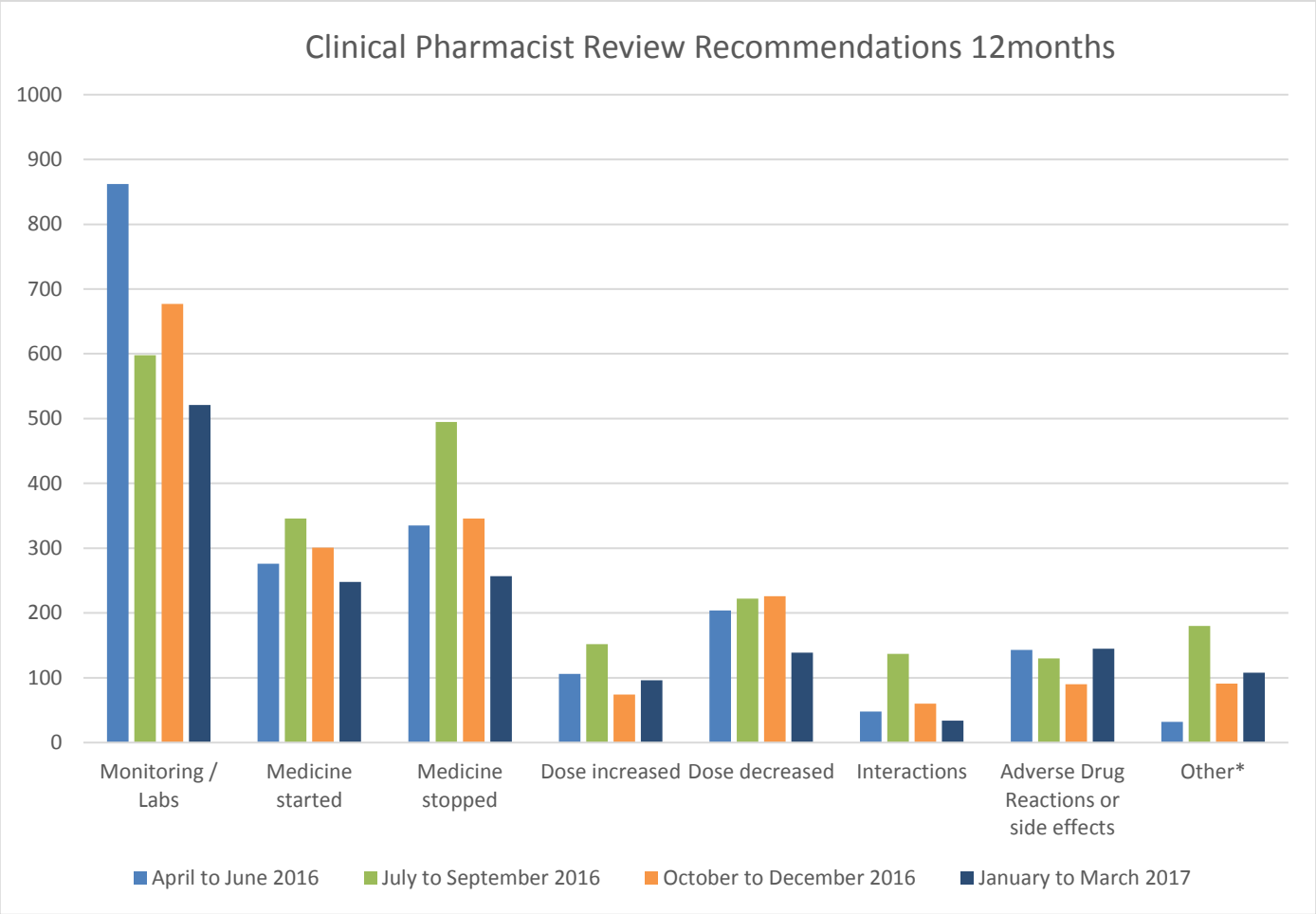
When the Clinical Pharmacist reviewed Mrs. M, she remained in significant pain. Her lying blood pressure was 136/84mmHg and her standing blood pressure (at 1 min) 120/87mmHg. Her last 6 falls in the past year were all related to standing up and had 6 fractures in the past 2 years.

Recommendations were made by the Clinical Pharmacist to decrease the metoprolol and start a bisphosphonate for bone protection. Mrs M had a bone density in February 2017 qualifying her for a bisphosphonate infusion which was organized after completion of blood tests.

A referral was made to the community physiotherapist for a more appropriate walker and to the ACC case worker for home management help in the short term.

## MEDICINE REVIEWS

**Figure 3. Clinical Pharmacist Review Recommendations**




## MEDICINE RELATED PROBLEMS

**Table 2. Classification of medicine-related problems**

| Classification | January to March 2017 | October to December 2016 | July to September 2016 | April to June 2016 |
|---|---|---|---|---|
| Grade 4 (Optimisation of medicine) | 295 | 253 | 491 | 252 |
| Grade 5 (Moderate-severe risk) | 8 | 14 | 18 | 12 |
| Grade 6 (Life threatening) | 0 | 0 | 0 | 0 |
| Inappropriate medicine | 41 | 48 | 35 | 44 |
| Supra therapeutic dose | 78 | 95 | 106 | 55 |
| Sub therapeutic dose | 35 | 34 | 46 | 37 |
| Indication with no medicine | 15 | 13 | 17 | 20 |

## DISEASE MANAGEMENT

**Table 3: Long-term disease management clinical parameters for patients reviewed by the Clinical Pharmacist at Totara Health from January to March 2017**

| Measure | Number of patients* | Average Before | Average After | Average Improvement |
|---|---|---|---|---|
| Blood pressure | 91 | 150/83mmHg | 140/81mmHg | 10/3mmHg |
| LDL - cholesterol | 27 | 3.4mmol/L | 2.4mmol/L | 1mmol/L |
| $HbA_{1c}$ | 73 | 84mmol/mol | 68mmol/mol | 14mmol/mol |

*NOTE: Number of patients is not cumulative; some patients may be represented multiple times in the table.

## PATIENT CONTACT

**Table 4: Analysis of Clinical Pharmacist patient contact**

| Details of Contact | January to March 2017*** | October to December 2016*** | July to September 2016** | April to June 2016** |
|---|---|---|---|---|
| Medicine Review | 192 | 181 | 191 | 216 |
| Home visits | 95 | 127 | 101 | 147 |
| Patient education (including medicine cards) | 167 | 186 | 108 | 169 |
| Adherence | 26 | 34 | 38 | 49 |
| Review follow-up | 174 | 212 | 165 | 236 |
| ARRC rounds | 159 | 153 | 193 | 36 |
| Therapy Initiation | 112 | 143 | 152 | 158 |
| Medicine Monitoring | 147 | 106 | 162 | 109 |

** Date includes The Doctors Napier + Hastings, Tamatea Medical, and Hauora Heretaunga

*** Date includes Wairoa Practices

## MEDICINE INFORMATION

**Table 5: Number of medicine information queries answered by the Clinical Pharmacist**

| Quarter | Practice Name | | Total |
|---|---|---|---|
| January to March 2017 | Greendale | 13 | 183 |
| | HHC | 19 | |
| | TMPP | 15 | |
| | Totara | 22 | |
| | Taradale | 18 | |
| | Dr Jolly | 0 | |
| | Dr Wakefield | 0 | |
| | Clive | 7 | |
| | The Doctors Napier | 13 | |
| | The Doctors Hastings | 44 | |
| | Gascoigne | 12 | |
| | Hauroa Heretaunga | 9 | |
| | Tamatea Medical | 5 | |
| | Wairoa | 6 | |

## TRANSITIONAL CARE MEDICINE MANAGEMENT

Transition between primary and secondary care, and from home/secondary care to aged residential care is associated with an increased risk of adverse events. Following discharge/admission the clinical pharmacist facilitator is ideally placed within primary care to reconcile and review patients' medicines to reduce the risk of adverse events.

**Table 6: Transitional Care Medicine Management**

| Quarter | Practice Name | Number of Transitional Care Patients reviewed | Total |
|---|---|---|---|
| January to March 2017 | Greendale | 0 | 70 |
| | HHC | 4 | |
| | TMPP | 1 | |
| | Totara | 12 | |
| | Taradale | 1 | |
| | Dr Jolly | 1 | |
| | Dr Wakefield | 0 | |
| | Clive | 1 | |
| | The Doctors Napier | 4 | |
| | The Doctors Hastings | 1 | |
| | Gascoigne | 2 | |
| | Hauora Heretaunga | 14 | |
| | Tamatea Medical | 4 | |
| | Wairoa | 25 | |

## CONTINUOUS QUALITY IMPROVEMENT ACTIVITIES

**Lithium**

Long-term use of lithium has been associated with thyroid disorders, mild cognitive impairment and kidney damage. The need for continued therapy should be assessed regularly and patients should be maintained on lithium only if benefit persists.

This audit identified patients for whom lithium was prescribed in primary or secondary care (by another external clinician).

Patients were reviewed to identify the following:

- Inclusion of lithium in the patient's medicine regular medicines list in Medtech, irrespective of usual prescriber
- Monitoring is occurring for all patients prescribed lithium:
  - 6 monthly serum creatinine (eGRF), electrolytes (particularly sodium), TSH, serum calcium and lithium levels, if the patient is stable.
- More frequent review of lithium levels is needed in:
  - older persons;
  - people taking medicines that interact with lithium;
  - people who are at risk of impaired renal or thyroid function, raised calcium levels or other complications;
  - people who have poor symptom control;
  - people with poor adherence;
  - people whose last plasma lithium level was 0.8 mmol per litre or higher

An interim report for the lithium CQI for this quarter has been presented by the clinical pharmacist team:

**Table 7: Summary of lithium CQI clinical data to March 2017 (Data from 1 practice)**

| Number on Lithium | Medicine interactions identified | Recommendations | | |
|---|---|---|---|---|
| | | Sick day advice alert added | Recalls for monitoring | Added to 'Long term medicine list' |
| 10 | 7 | 10 | 10 | 2 |

**Table 8. Summary of Completed Continuous Quality Improvement Activities**

| Continuous Quality improvement Activity | Number of Practices | Number patients in enquiry | Number of recommendations | Narrative | Recommendations |
|---|---|---|---|---|---|
| Simvastatin - post audit | 1 | 57 | 6 | Following the simvastatin audit conducted in the last quarter of 2016, patients remaining on inappropriate doses of simvastatin or with renal impairment were re-audited this quarter.<br>The outcomes of the original audit showed improved medication safety for specific patient groups (renally impaired, those on interacting medications), improved clinical skills across the practice, a reduction in the inappropriate prescribing of simvastatin and an increased recognition of the clinical skills of the pharmacists with further integration across the multi-disciplinary team. | • 15 fewer patients remaining on 80mg simvastatin (N=23, now 8)<br>• Simvastatin was reduced or stopped in **all** patients with renal impairment (CL<30mL/minute) as per recommendation from the pharmacist<br>• Two further recommendations to change statin<br>• Three further recommendations to stop the statin<br>• One further recommendation for another medicine-related problem |
| Low HbA1c in over 75 year olds | 3 | 30 | 22 | Older adults with diabetes were reviewed for low HbA1c. Low HbA1c in the elderly has been associated with increased mortality.<br>• All patients with diabetes over the age of 75 years (N=253) with HbA1c of less than 55 on antidiabetic treatment (N=30) were audited. | Recommendations included:<br>• Dose reductions<br>• Medicine discontinuation, alert for GP to re-check HbA1c (recalls etc.) and requests for updated height and weight measurements. |
| Aspirin | Please see Appendix 1 on this audit carried out in one of the practices. | | | | |

# APPENDIX 1. CONTINUOUS QUALITY IMPROVEMENT ACTIVITY: LOW DOSE ASPIRIN FOR CVD PREVENTION; HAUORA HERETAUNGA

CLINICAL PHARMACIST DESK: MARTIN MUNYARADZI HBDHB CLINICAL PHARMACIST FACILITATOR

FEBRUARY 2017

**HAUORA HERETAUNGA; LOW-DOSE ASPIRIN FOR CVD PREVENTION : MAJOR CONSIDERATIONS AND REVIEW RESULTS**

## Background

The benefits of low-dose aspirin for secondary prevention of cardiovascular disease (CVD) are well established. However, it does not appear to be quite as effective for primary prevention. The annualised number needed to treat (NNT) for primary and secondary prevention of cardiovascular events with low-dose aspirin has been estimated to be 1667 and 67 respectively. The role of aspirin in patients with diabetes at low 5-year CV risk is controversial. The aim of the aspirin continuous quality improvement (CQI) activity was to confirm that low-dose aspirin has a current and appropriate clinical indication for all Hauora Heretaunga patients and provide therapeutic recommendations where appropriate.

## Practice points

- For primary prevention, The New Zealand Cardiovascular Guidelines recommend low-dose aspirin when 5-year CV risk is > 20%.
- For secondary prevention, low-dose aspirin is recommended for all patients unless contraindicated.
- Clopidogrel (75 mg/day) is at least as effective and as safe as aspirin and is an alternative for people with an aspirin contraindication or intolerance.
- Low-dose aspirin is not routinely recommended for diabetic patients at low risk of cardiovascular events.
- Low-dose aspirin is no longer recommend for atrial fibrillation.

## Aspirin for primary and secondary prevention of CV events

Historically, The New Zealand Guidelines recommended low-dose aspirin when 5-year CV risk was > 15%. Since the 2009 publication of the Antithrombotic Trialists' Collaboration study, aspirin is now recommended when 5-year CV risk is > 20%. The Antithrombotic Trialists' Collaboration meta-analysis involving 95,000 participants investigated aspirin for the primary and secondary prevention of cardiovascular events. For primary prevention, aspirin reduced serious vascular events by 0.07% per year compared with placebo, mainly due to a 0.05% reduction in nonfatal myocardial infarction. This small absolute reduction did not differ according to the level of 5-year CV risk. The annual NNT for aspirin to reduce serious vascular events was 1667. However, aspirin significantly increased major gastrointestinal and extracranial bleeds (0.1% per year with aspirin compared to 0.07% per year with placebo). For secondary prevention, aspirin yielded a greater absolute reduction in serious vascular events (6.7% vs 8.2% per year); this gave an NNT of 67.

## Aspirin for primary prevention of CVD in people with diabetes

People with diabetes have a two to four fold increase in the risk of dying from CVD complications. As a result, some have argued that diabetes should be considered equivalent to a previous cardiovascular event. However, evidence from primary studies has consistently shown that aspirin therapy in diabetic patients does not improve cardiovascular outcomes. For example, a 2009 meta-analysis comparing aspirin to placebo in primary prevention of CVD in diabetics found no statistically significant reduction in the risk of major cardiovascular events, cardiovascular mortality, or all cause mortality. Some guidelines such as The National Institute for Health and Care Excellence (NICE) and the American Diabetes Association do not recommend the routine use of aspirin for people with diabetes at low risk of cardiovascular events.

## Aspirin for atrial fibrillation (AF)

Prior to the availability of non-vitamin k antagonist oral anticoagulants , warfarin was the only oral anticoagulant for people with AF. Consequently, people who were intolerant to warfarin were managed with aspirin. However, compared to oral anticoagulants, aspirin is significantly inferior for preventing strokes/embolism in AF. Aspirin is generally recommend when a patient cannot tolerate oral anticoagulants and/or are at a very low risk of stroke/embolism. For example, a patient with a $CHA_2DS_2$-VASc score of 1 and is intolerant to oral anticoagulants, aspirin may be a appropriate.

## Key findings

In January and February 2017, a total of 165 patients on aspirin were reviewed. The findings are as follow:

**Figure 1: Patients on aspirin grouped by indication and diabetes**

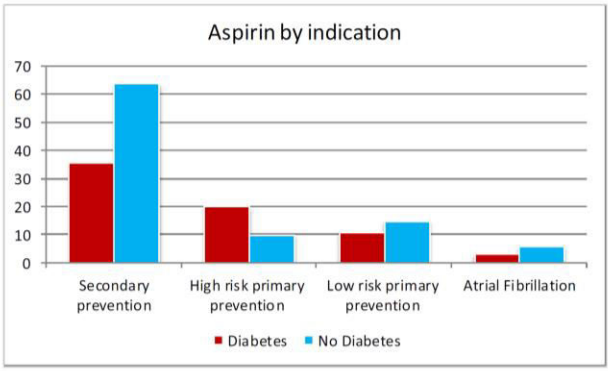



Figure 1: High risk primary prevention = patients with a calculated 5-year CV risk > 20% with no history of a cardiovascular event. Low risk primary prevention = patients with a calculated 5-year CV risk < 20% with no history of a cardiovascular event.

## Recommendations

As shown on table 1, a total of 33 recommendations were made.

**Table 1: Summary of recommendations**

| Recommendations | Number of recommendations |
|---|---|
| Stop aspirin | 30 |
| Start aspirin | 1 |
| Other | 2 |

## Conclusion

The aspirin CQI activity showed that 80% of Hauora Heretaunga patients had a current and appropriate indication for low-dose aspirin.

## Selected references

1. Baigent C, Blackwell L, Collins R, Emberson J, Godwin J, Peto R, et al. Aspirin in the primary and secondary prevention of vascular disease: collaborative meta-analysis of individual participant data from randomised trials. Lancet (London, England). 2009;373(9678):1849-60.
2. De Berardis G, Sacco M, Strippoli GF, Pellegrini F, Graziano G, Tognoni G, et al. Aspirin for primary prevention of cardiovascular events in people with diabetes: meta-analysis of randomised controlled trials. BMJ (Clinical research ed). 2009;339:b4531.
3. New Zealand Guidelines Group (NZGG). New Zealand Cardiovascular Guidelines Handbook: A summary resource for primary care practitioners. 2nd ed. Wellington: NZGG, 2012.
4. The National Institute for Health and Care Excellence (2015) Type 2 diabetes in adults: NICE guideline (NC28)

## APPENDIX 2. THE CLINICAL PHARMACIST FACILITATION TEAM AND THE PRACTICES WHICH THE FACILITATORS ARE INITIALLY ASSOCIATED WITH (WITH NOMINAL NUMBER OF HOURS PER WEEK ALLOCATED) AS AT MARCH 2017

| Phase | Nominal engAGE cluster | Practice | Clinical pharmacist Facilitator / Hours per week | | | | | | | | | | Commencement Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Anne Denton | Brendan Duck | Vanessa Brown | Peter McIntosh | Jenni Jones | Mara Coler | Jessica Dodd | Martin Munyaradzi | Rachael McNeill | Megan Adie | |
| 1 | | Team Leader | 20 | | | | | | | | | | |
| 1 | Hastings A | Totara Health | | 24 | | | | | | | | | June 2011 |
| 2 | Totara Healthcare Hawke's Bay Hastings Health Centre | The Hastings Health Centre | | | | | 32 | | | | | | January 2015 |
| 1 | Taradale | Greendale Family Health Centre | | | 14 | | | | | | | | June 2011 |
| 2 | Taradale Greendale Dr Paul Hendy | Taradale Medical Centre | | | 14 | | | | | | | | September 2014 |
| 1 | Havelock North | Te Mata Peak Practice | | | | 24 | | | | | | | June 2011 |
| 2 | Te Mata Peak Dr Jolly Dr Wakefield | Dr Maurice Jolly | | | | 4 | | | | | | | February 2015 |
| 2 | | Dr Colin Wakefield | | | | 4 | | | | | | | February 2015 |
| 3 | Hastings B The Doctors Hastings Gascoigne Medical The Doctors Waipawa | The Doctors Hastings | | | | | | 40 | | | | | January 2016 |
| 3 | Napier Central | The Doctors Napier | | | | | | | 18 | | | | January 2016 |
| | The Doctors Napier | | | | | | | | | | | | |

| Phase | Nominal engAGE cluster | Practice | Clinical pharmacist Facilitator / Hours per week | | | | | | | | | | Commencement Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Anne Denton | Brendan Duck | Vanessa Brown | Peter McIntosh | Jenni Jones | Mara Coler | Jessica Dodd | Martin Munyaradzi | Rachael McNeill | Megan Adie | |
| | Central Medical<br>Carlyle Shakespeare Road | | | | | | | | | | | | |
| 3 | | Hauora Heretaunga | | | | | | | | 24 | | | January 2016 |
| 3 | <u>Napier West</u> | Tamatea | | | | | | | | | 24 | | January 2016 |
| 3 | Tamatea Medical<br>The Doctors Greenmeadows<br>The Wellness Centre Maraenui Medical | The Doctors Greenmeadows | | | | | | | 18 | | | | January 2016 |
| 3 | | Clive | | | 4 | | | | | | | | January 2016 |
| 4 | | Wairoa | | | | | | | | | | 32 | November 2016 |
| 4 | | Tuki Tuki Medical Centre | | | | | | | | 16 | | | March 2017 |
| | | Total hours | 20 | 24 | 32 | 32 | 32 | 40 | 36 | 40 | 24 | 32 | |
| | | FTE (total = 8) | 0.5 | 0.6 | 0.8 | 0.8 | 0.8 | 1.0 | 0.9 | 1.0 | 0.6 | 0.8 | |