Centre for Health Systems Occasional Paper

Canterbury Community Pharmacy Group

Outcomes Framework

Barson, S; Patel, A; Gauld, R. Canterbury Community Pharmacy Outcomes Framework. Dunedin: Centre for Health Systems, University of Otago; 2016.

Occasional report 16/02
Published in August 2016
Centre for Health Systems Department of Preventive and Social Medicine Dunedin School of Medicine University of Otago
P O Box 56, Dunedin, New Zealand

ISSN: 2253-3117 (Online)

This document is available on the University of Otago website
http://www.otago.ac.nz/healthsystems

CHS
Centre for Health Systems

Introduction

This report sets out the Canterbury Community Pharmacy Group Outcomes Framework (CCPG OF). This Framework sets out the measures the Canterbury Community Pharmacy Group could use to demonstrate how its work contributes to wider Canterbury District health outcomes.

The following are set out in this report:

1. the background to the compilation of this report
2. the Canterbury Community Pharmacy Group Outcomes Framework
3. assumptions underlying the CCPG OF
4. a synopsis of research into community pharmacy outcome measures which has informed development of the CCPG OF
5. recommendations on the use of the CCPG OF and for the role of the Canterbury Community Pharmacy Group
6. a list of references.

Background

The Canterbury Community Pharmacy Group (CCPG) is funded by the Canterbury District Health Board to provide community pharmacy professional services. The core of these services are medicines use reviews focused on medication adherence and medication knowledge, medicines therapy assessments focused on the optimisation of prescribed medications, and professional development for community pharmacists.

The Canterbury District Health Board (DHB) is one 20 such Boards in New Zealand responsible for planning, funding and providing primary, secondary, and community healthcare services to a geographically defined district. Approximately 75% of total health spending in a district is publicly funded, with primary and community provision being largely private or non-profit provided (under contract to a DHB), and public health, health promotion, and secondary in- and out-patient care being largely DHB provided. The Canterbury DHB covers the Canterbury district of New Zealand's South Island, centred on the major city of Christchurch, with a district population of approximately 500,000.

The Canterbury healthcare system is notable for its emphasis on horizontal and vertical integration, and for its success in working towards this (for example, see Timmins and Ham, 2013). Its vision is "A connected system – centred around people – that doesn't waste their time" (Canterbury District Health Board, 2014). A feature of Canterbury's system has been efforts to ensure collaborative care between primary, secondary and allied health providers, including pharmacies and pharmacists, particularly for long-term condition management and acute demand management. The CCPG is an exemplar, both within Canterbury and more broadly,

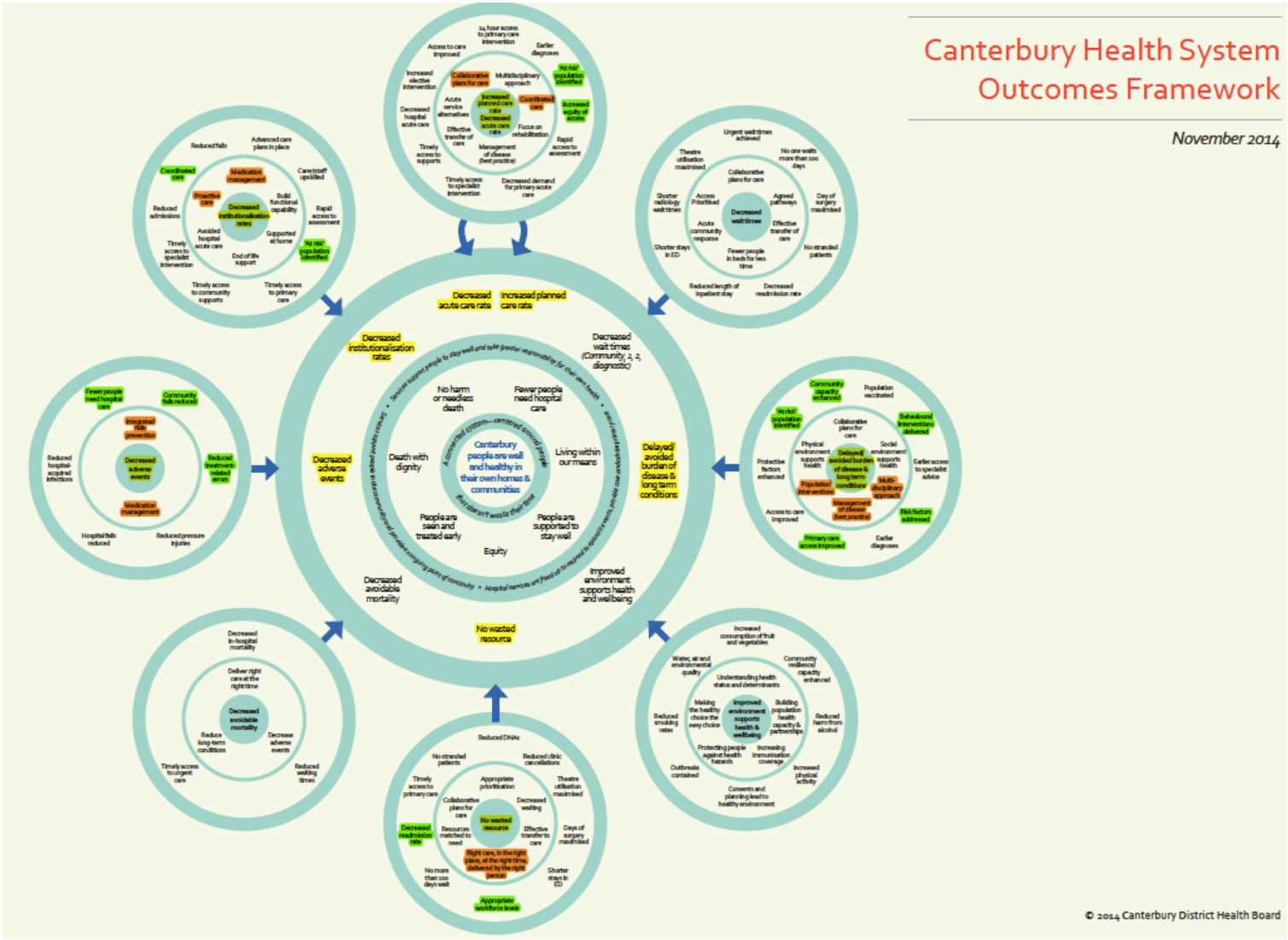
in this context, testing contemporary approaches to the use of community pharmacy in a relatively integrated healthcare system (see the research synopsis section for more on contemporary thinking on community pharmacy). This report was undertaken to establish the measures the CCPG could use to demonstrate how its work contributes to wider Canterbury health outcomes.

More widely, there is potentially much to be learnt about the role of community pharmacy in an integrated healthcare system from a more extensive evaluation of the CCPG.

Canterbury Community Pharmacy Group Outcomes Framework

Key

Please refer to the *Canterbury District Health Board Outcomes Framework for CCPG* on page 4 (a marked up version of the Canterbury Health System Outcomes Framework (Canterbury District Health Board, 2014)).


Canterbury Health System
Outcomes Framework
November 2014
Decreased acute care rate
Increased planned care rate
Decreased institutionalisation rates
Decreased wait times (Community, 1, 2, diagnostic)
Decreased adverse events
Delayed/ avoided burden of disease & long term conditions
Decreased avoidable mortality
Improved environment supports health and wellbeing
No wasted resource
Canterbury people are well and healthy in their own homes & communities
No harm or needless death
Fewer people need hospital care
Death with dignity
Living within our means
People are seen and treated early
People are supported to stay well
Equity
© 2014 Canterbury District Health Board

The CCPG OF has been constructed to follow the measures in the Canterbury Health System Outcomes Framework. Thus, as set out in Figure 1, there are System Outcomes (marked in yellow), which are described by a set of System Goals (marked in orange), to which a set of Activity Outcomes contribute (marked in green).

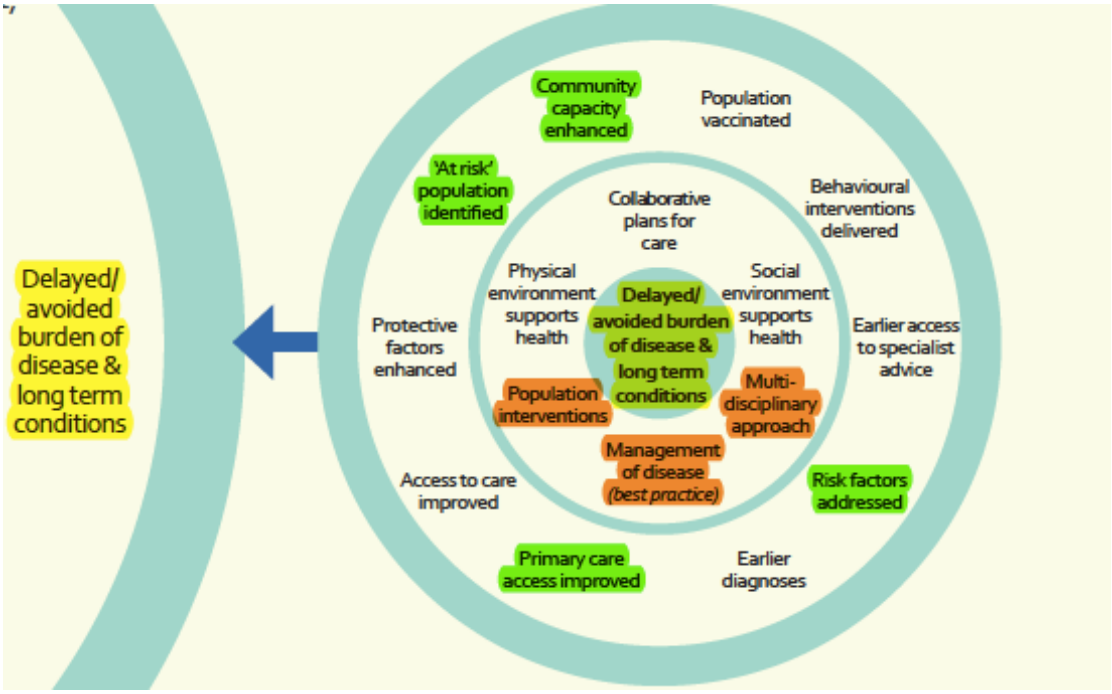


Figure 1: Detail of *CDHB Outcomes Framework for CCPG*

The CCPG OF uses the structure set out on page 4 and consists of two parts: 1. Overview of measures; and 2. Measure detail. The unique identifier number also identifies the source of the data for a measure, as follows:

NUMBER	**NUMBER**
MUR	The Medicines Use Review form in Health Connect South
MTA	The Medicines Therapy Assessment form in Health Connect South
QIP	The Medication Management Service Quality Improvement Plan
WOR	Medication Management Service workforce reporting

Overview of measures

NUMBER	SYSTEM OUTCOME	SYSTEM GOALS	ACTIVITY OUTCOME	CCPG CONTRIBUTORY MEASURES
A unique identifier for each contributory measure	The System Aims of the Canterbury Clinical Network (CDHB) Outcomes Framework (these are highlighted yellow in the pdf document)	The rationale for the measure (a statement of the measure's benefit to the Canterbury system expressed as the appropriate System Goals in the CDHB Outcomes Framework (these are highlighted orange in the pdf document)	The System Measures to which the CCPG OF should *contribute* (these are highlighted green in the pdf document)	The contributory measures recommended for the CCPG that should *contribute* to the system measures

Measure detail

NUMBER	MEASURE DETAIL	TARGET	COMMENT
A unique identifier for each contributory measure	Detail of the contributory measure	The target for the contributory measure	Any comment

Canterbury Community Pharmacy Group Outcomes Framework

NUMBER	SYSTEM OUTCOME	SYSTEM GOALS	ACTIVITY OUTCOME	CCPG CONTRIBUTORY MEASURES
MUR1&2	Delayed/Avoided Burden of Disease and LTCs	Management of disease	Behavioural interventions delivered; Community Capacity Enhanced	Pharmacist & patient reported levels of meds understanding
MUR3&4				Pharmacist + patient reported level of meds understanding (follow up)
MUR12				# of MURs completed
QIP2				Patient reported knowledge/confidence/adherence (3 items)
MUR6			Risk factors addressed	Social and Physical Factors Significantly Affecting Adherence
MUR13[1]				Patient does not take as prescribed
QIP1		Management of disease (& patient experience of care)	Risk factors addressed	MUR patients to have follow up consultation completed
MTA7		Multidisciplinary approach	Primary care access improved	MTA: Practice nurse recorded
QIP3-5				Pharmacist/GP/referrer report patient benefit from MMS
MUR5		Population interventions; Coordinated Care	'At risk' population identified	At risk population status identified
MTA4[2]		From South Island Outcomes Framework	'At risk' population identified	# of patients on 11+ long-term medications

NUMBER	MEASURE DETAIL	TARGET	COMMENT

[1] Note for CCPG: A Follow up process needs to be confirmed when the box in the MUR form is ticked

[2] CCPG is following up on this measure

MUR1	Pharmacist reported pre-existing level of medications understanding (3 items)	NHI/item/score + average/item/score	From CCPG funding proposal (s3) "…improved understanding of their medications. The service focuses on the patient..."
MUR2	Patient reported pre-existing level of medications understanding (3 items)	NHI/item/score + average/item/score	Follow-up 300 people/pa
MUR3	Pharmacist reported level of medications understanding (3 items) at x months post-MUR	NHI/item/score + average/item/score	This measure might not be appropriate as the system doesn't support collection of this data. This is due to the fact many patients with adherence issues are followed up as part of the pharmacy LTC program.
MUR4	Patient reported level of medications understanding (3 items) at x months post-MUR	NHI/item/score + average/item/score	
MUR12	Number of MURs completed	# / time	This is activity reporting that is already done.
QIP2	Patient reported knowledge/confidence/adherence (3 items)	Average score >3	Should be same as MUR "...Pre-existing Level…" question
MUR6	Social and Physical Factors Significantly Affecting Adherence	Qualitative sampling	Free text available only. Sampling recorded factors may be possible.
		# of ticks in each box / # of patients	
MUR13[3]	System follows up when patient does not take as prescribed	100% of patients scoring <3 are enrolled in LTC Service	Check box in both MUR and MTA forms for pharmacists to indicate whether a patient has been or is enrolled in the pharmacy LTC service. Enrolment in this service ensures follow up of adherence issues. We could measure whether patient is in LTC when the pharmacist identifies a adherence score lest than 3.
QIP1	MUR patients to have follow up consultation completed	>90% within 4 months of receipt of referrall	Use IT to report patients in need of follow up CCPG has a better understanding of patient attitudes to service Record demographics to ensure target cohorts are identified Pharmacist needs to indicate if referral is clinically

[3] Note for CCPG: A Follow up process needs to be confirmed when the box in the MUR form is ticked

			appropriate Only patients not in LTC are eligible for follow up via MUR. We could Monitor whether a follow up has been completed or the patient discharged from the MUR pathway if patient not in LTC.
MTA7[4]	Practice nurse recorded	Track % of patients with PN over time (should be 100%)	PNs are more heavily involved in LTC management than GPs See Dolan-Noble et al (2013)
QIP3	GP reports patient benefit from MMS	Average score >3	Also meets measure (1) for Integration Stage 3 work.
QIP4	Referrer reports patient benefit from MMS	Average score >3	Also meets measure (1) for Integration Stage 3 work.
QIP5	Pharmacist reports patient benefit from MMS	Average score >3	Also meets measure (1) for Integration Stage 3 work.
MUR5	Referral to AHP (including falls prevention)	# / time	Carried out by CCPG during the Care Plan follow up call We have tick boxes to record the recommendations or referrals made to other services in both mur and mta forms
MTA4	At risk population status identified	# patients recorded as Mental Health/Frail Elderly/Vulnerable Children/Specific Rural Location	

NUMBER	SYSTEM OUTCOME	SYSTEM GOALS	ACTIVITY OUTCOME	CCPG CONTRIBUTORY MEASURES
MUR8-11	Decreased Institutionalisation Rates	Proactive care & Medication management	Coordinated care	MUR: Referrals made (and to whom)
QIP6		Medication management	Coordinated care	# of GPs recommending MMS service to colleagues
MTA1				# of MTA care plans

[4] CCPG is following up on this measure

MTA2				MTA Care Plan Actioned
MUR5		Population interventions; Coordinated Care	'At risk' population identified	At risk population status identified

NUMBER	MEASURE DETAIL	TARGET	COMMENT
MUR8	Referral to another AHP or support agency	# of referrals AND # of referrals / total referrals	
MUR9	Referral for clinical review by doctor	# of referrals AND # of referrals / total referrals	
MUR10	Referral for clinical review by MTA	# of referrals AND # of referrals / total referrals	
MUR11	Referral to GPs (social issues) for action	# of referrals AND # of referrals / total referrals	
QIP6	# of GPs recommending MMS service to colleagues	>80% of GPs recommend	
MTA1	MTA Care Plan	# / time	This is activity reporting that is already done.
MTA2	MTA Care Plan Actioned	# = yes OR no (valid reason) OR no / time	Follow up with practices to be designed by CCPG From CCPG funding proposal (s7.1), GPs are expected to complete the tasks agreed to in the development of the medication care plan.
MUR5	At risk population status identified	# patients recorded as Mental Health/Frail Elderly/Vulnerable Children/Specific Rural Location	Needs to be added to Health Connect South form

NUMBER	SYSTEM OUTCOME	SYSTEM GOALS	ACTIVITY OUTCOME	CCPG CONTRIBUTORY MEASURES
MUR5	Increased Planned Care Rate/Decreased Acute Care Rate	Population interventions; Coordinated Care	Improved equity of access; 'At risk' population identified	At risk population status identified

NUMBER	MEASURE DETAIL	TARGET	COMMENT
MUR5	At risk population status identified	# patients recorded as Mental Health/Frail Elderly/Vulnerable Children/Specific Rural Location	Needs to be added to Health Connect South form

NUMBER	SYSTEM OUTCOME	SYSTEM GOALS	ACTIVITY OUTCOME	CCPG CONTRIBUTORY MEASURES
WOR1	No Wasted Resource		Appropriate workforce levels	# of MUR accredited pharmacies
WOR2				# of MTA accredited pharmacists
WOR3				# of MTA accredited pharmacies
QIP7			Decreased readmission rate	Patients admitted with pending MUR receive post-discharge MUR

NUMBER	MEASURE DETAIL	TARGET	COMMENT
WOR1	# of MUR accredited pharmacies	# / time	CCPG funding proposal (s3)
WOR2	# of MTA accredited pharmacists	# / time	CCPG funding proposal (s3)
WOR3	# of MTA accredited pharmacies	# / time	CCPG funding proposal (s3)
QIP7	Patients admitted with pending MUR receive post-discharge MUR	100% within four weeks of discharge	More than 30% of medicine-related hospital admissions occur due to medication nonadherence (See Lam and Fresco 2015) "Medication management is at the core of advanced discharge planning and transitional care. This reflects three realities: adverse events are a major cause of avoidable hospital readmissions; more post-discharge adverse events are related to drugs than other causes; and lack of adherence to medications prescribed at discharge has been shown to be a driver of post-discharge adverse drug events." (Network for Excellence in Health Innovation, 2012)

NUMBER	SYSTEM OUTCOME	SYSTEM GOALS	ACTIVITY OUTCOME	CCPG CONTRIBUTORY MEASURES
MUR7	Decreased Adverse Events	Medication management	Fewer people need hospital care	MUR: Adverse drug reactions
MTA3		Medication management &	Fewer people need hospital care;	MTA: Adverse drug reactions

		Reduced treatment-related errors	Reduced treatment-related errors	
MTA5		Integrated falls prevention	Community falls reduced	Referral to AHP (including fall prevention)
MTA65	South Island Outcomes Framework measure (Reduction in pharmaceuticals per head of population			Change in number of meds taken

NUMBER	**MEASURE DETAIL**	**TARGET**	**COMMENT**
MUR7	Adverse drug reactions	100% notfied to prescriber	Notification to be done via the MUR report.
MTA3	Adverse drug reactions	100% notfied to prescriber	Notification to be done via the MTA report.
MTA5	Referral to AHP (including falls prevention)	# / time	Carried out by CCPG during the Care Plan follow up call
MTA6	Change in number of meds taken	Count per patient AND sum	Is a South Island Outcomes Framework measure: "Reduction in pharmaceuticals per head of population"

[5] CCPG is following up on this measure

Assumptions

1. That the contributory measures should attempt to measure the purpose and benefits of the interventions, and do so over time where possible.
2. That some measures should focus on a contribution to system integration and holistic patient management.
3. That the Canterbury system accepts that the contributory measures *contribute* to goals and aims. Achieving the goals and aims cannot be *attributed* to meeting the target of a measure, especially in regard to measures related to system integration.
4. That a small set of key measures is desirable.
    a. Some business reporting will be outside the CCPG OF.
5. That a mix of outcome, process and balance measures is desirable.
    a. Note: it is recommended below that balancing measures[6] come from stakeholder consultation.
6. That the measures must be efficient to use by pharmacists and efficient to manage by CCPG and the system.
    a. That all Health Connect South data are reportable.

Synopsis of research

We searched PubMed, Scopus and Google Scholar for "*community pharmacy outcome framework*", yielding one unrelated article. We then searched PubMed, Scopus and Google Scholar for "*community pharmacy outcome measures"*, restricting the results to *reviews*. These searches returned a very large number of articles, the vast majority on clinical and pharmacy service quality measures (for example, (ACMP, 2007)), rather than on integration or contribution to whole-of-system measurement. Given this, we identified studies in the research-informed grey literature published by well-regarded organisations, as this literature is targeted at practitioners and application.

In general, the summary research of the effectiveness of community pharmacy interventions suggests the effect is not strong in either direction, but that the complexity of the context in which the interventions occur makes the factors contributing to this effect difficult to assess (Blalock et al, 2012).

However, there is wide-spread agreement that the core health problems community pharmacy professional services exist to solve – adherence and polypharmacy – are substantial and important health system problems. For example: "…polypharmacy is an accepted risk for poor health outcomes, including hospitalizations and mortality." (Sinnott and Bradley, 2015) This is particularly the case for the most complex long-term conditions patients, a cohort of central concern to the Canterbury health

[6] These measure whether "…changes designed to improve one part of the system caus[e] new problems in other parts of the system…". (Institute for Healthcare Improvement, 2016)

system, and who tend to have multiple chronic conditions and inappropriate polypharmacy:

> *An emerging consensus among academics, professional organizations, and policymakers is that community pharmacists, who work outside of hospital settings, should adopt an expanded role in order to contribute to the safe, effective, and efficient use of drugs—particularly when caring for people with multiple chronic conditions.* (Mossialos et al, 2015)

Again, the effect of specific interventions on outcomes for people with multiple chronic conditions is difficult to ascertain, but there is good quality evidence that "…multifaceted or comprehensive interventions are associated with better outcomes" and "[c]lear evidence of benefit is found for improved prescribing, medication adherence and use." (Vrijhoef and Thorlby, 2016)

Work is beginning to address the difficulty of measuring multiple chronic conditions and to set out best practice measurement. For example, the National Quality Forum, under contract to the United States Department of Health and Human Services, has produced a very detailed report on measurement that includes consideration of community pharmacy interventions (National Quality Forum, 2012).

In summary, community pharmacy services address crucial factors for improved system and patient outcomes, but it is currently very difficult to attribute this to specific interventions. Given this situation, quality improvement principles suggest the way forward is for the constant refinement of community pharmacy services by using PDSA cycles. Blalock et al (2012) make two practical suggestions that will help health systems such as Canterbury and services such as CCPG in this regard [emphasis added]:

> *…developing strong collaborative relationships with physicians and other prescribers is likely to be critical to the success of pharmacist-delivered intervention.*
>
> *Future research in this area should systematically assess patient receptivity, including knowledge of services, outcome expectations (both positive and negative), perceived barriers to care, and skills that may be needed to either access or fully participate in care delivery.*

The findings above accord with our discussions with practitioners and patients on the issues they face in long-term condition management and the suggestions they have for improving services and patient outcomes. They also indicate that there is an important function to be played in the community pharmacy component of an integrated healthcare system by an organisation performing quality improvement and workforce development.

Recommendations

1. That consultation with key stakeholders now take place on the CCPG OF, and that feedback from this be used to inform to prioritise the framework measures.
    a. That this consultation be used to elicit balancing measures.
2. That consideration is given to how the framework is socialised with wider stakeholders once completed. Their understanding and support will be crucial to improving community pharmacy outcomes.
    a. One way of doing this would be to include the CCPG OF in the CDHB Outcomes Framework animated slideshow.
    b. Working with sentinel pharmacies, using a PDSA cycle, to iterate improved services could be one way to demonstrate benefit. This would support the Integration Stage III work underway.
3. That CCPG work with CDHB to ensure the role of pharmacy services in meeting national System Level Measure targets is agreed, including consideration of contributory measures.
4. That CCPG transitions to supporting community pharmacy quality and workforce development activities, as these are key enablers of improved community pharmacy outcomes. This is especially the case if national funding for community pharmacy services moves directly to pharmacies/pharmacists.
    a. Demonstrating the evidence for the value of pharmacists as members of a multi-disciplinary team, and the communication of this throughout the system, should be a priority activity.
    b. CCPG should pursue the on-going development of community pharmacy services and the gathering of evidence of their effect, by using PDSA cycles.
5. That supported patient self-management and patient reported outcomes measures be considered priority future activities for CCPG, as there is strong evidence for their use in the management of multiple chronic conditions.

References

Academy of Managed Care Pharmacy, *Catalog of Pharmacy Quality Indicators v.2.0*, 2007.

Blalock, S. et al, *The Effect of Community Pharmacy–Based Interventions on Patient Health Outcomes: A Systematic Review*, Medical Care Research and Review, 70(3), 235-266, 2012.

Canterbury District Health Board, *Canterbury Health System Outcomes Framework*, 2014. http://ccn.health.nz/Resources/OutcomesFramework.aspx

Doolan-Noble, F., Gauld, R., Waters, DL., De La Barra, S., *Patient and provider perspectives on the provision of chronic illness care in the Southern Region*, Centre for Health Systems, University of Otago, 2013.

Institute for Healthcare Improvement, *Science of Improvement: Establishing Measures*, www.ihi.org/resources/pages/howtoimprove/scienceofimprovementestablishingmeasures.aspx, last accessed 27 May 2016.

Lam, W. L., and Fresco, P., *Medication Adherence Measures: An Overview*. BioMed Research International, Volume 2015, 2015. http://dx.doi.org/10.1155/2015/217047

Mossialos, E. et al, *From "retailers" to health care providers: Transforming the role of community pharmacists in chronic disease management*. Health Policy, In press, 2015.

National Quality Forum, *Multiple Chronic Conditions Measurement Framework*, 2012. http://www.qualityforum.org/Projects/Multiple_Chronic_Conditions_Measurement_Framework.aspx

Network for Excellence in Health Innovation, *Improving Medication Adherence and Reducing Readmissions: A NEHI Issue Brief*. 2012. http://www.nacds.org/pdfs/pr/2012/nehi-readmissions.pdf

Nkansah, N. et al, *Effect of outpatient pharmacists' non-dispensing roles on patient outcomes and prescribing patterns (Review)*, The Cochrane Library, Issue 7, 2010.

Sinnott, C. and Bradley, C., *Multimorbidity or polypharmacy: two sides of the same coin?*, Journal of Comorbidity, 2015;5:29–31, 2015.

Timmins, N., and Ham, C., *The quest for integrated health and social care: A case study in Canterbury, New Zealand*, The King's Fund, 2013.

Vrijhoef, H., and Thorlby, R., *Developing care for a changing population: supporting patients with costly, complex needs*, Nuffield Trust, 2016.