



Complex care, consultant physicians and better patient outcomes

**Streamlined complex care in the community
October 2019**

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The RACP framework for physician engagement in the diagnosis, treatment and management of patients with chronic and complex care needs describes health reforms needed for better quality and safer patient outcomes. This work is led by the Integrated Care sub-group of the Health Reform Reference Group. The Lead Fellows are Associate Professor Nick Buckmaster and Dr Tony Mylius. The members of the group are: Dr Gerard Adrianus, Dr Mohamed Haroon Kasim, Dr Carol McAllum, Dr Niroshini Kennedy, Professor Chris Poulos, Associate Professor Anthony Russell, Dr Tai Tak Wan, and Ms Debra Letica

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Complex care, consultant physicians and better patient outcomes

A new framework for Physician Engagement

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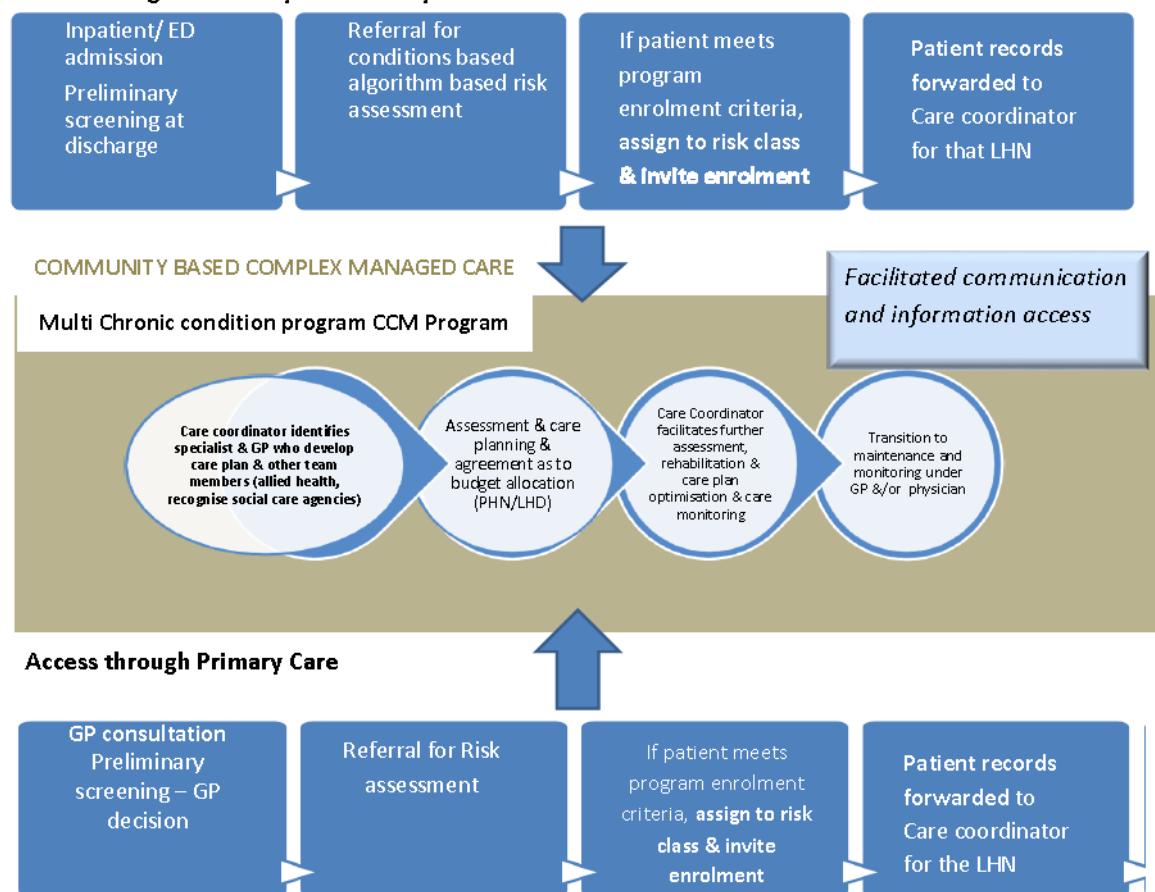
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Executive Summary

Chronic conditions often require care through the primary, secondary and tertiary sectors, and benefit from good, real-time communication between health care professionals across these sectors¹. Consultant physicians are an integral part of care management of patients with chronic multi-morbidities and their collaboration with general practitioners (GPs) in diagnosing and managing such patients and preventing chronic disease exacerbations is inadequately recognised under current arrangements. Fundamental to this is 'system supported connectivity' between primary care and consultant physician services and especially, ensuring that consultant physicians, wherever their place of employment (hospitals or in private practice), are better engaged in the management and treatment of patients with multiple chronic conditions including through offering greater flexibility in where services are delivered.

To address this gap, the RACP proposes the development of an integrated model of chronic care management to recruit, manage and treat patients with chronic multi-morbidities, henceforth to be known as the Model of Chronic Care Management (MCCM). This is a non-Fee for Service model that has two pathways to the integrated care program for multi-morbidities: from primary care or from secondary care (see the patient flowchart below for a depiction of a typical patient flow from enrolment to care delivery under the MCCM).

Access through Secondary and Tertiary care



¹ Sampson, R., Barbour, R. and Wilson, P., 2016. The relationship between GPs and hospital consultants and the implications for patient care: a qualitative study. BMC family practice, 17(1), p.45.

The target population are those with cardiovascular related multi-morbidities at high risk of hospitalisation and therefore requiring both a general practitioner and consultant physician to prevent exacerbation of their conditions rather than patients who can be appropriately serviced predominantly by GPs. It excludes patients who make frequent presentations to the hospital and who are so 'high risk' that no significant improvements can be made in reducing their level of future hospitalisations. Patients meeting risk assessed criteria would have their care delivered and managed by a core multidisciplinary team of clinicians.

While the core team which would be automatically assigned to every enrolled patient would comprise a care coordinator, GP and consultant physician, it would also include other healthcare practitioners (e.g. allied health, specialist nurses) as appropriate depending on the specific needs of the patient. The care coordinator role is a new role that is integral to the patient centeredness of this proposed model by being the common point of contact for the patient and each of the care providers included in each patient's care plan; assembling the appropriate clinician team based on the expected needs and convenience of the enrolled patient taking into account geographical location, accessibility and availability; and organising patient appointments which are most convenient for the patient whether this is in a community setting or virtually (where clinically appropriate).

In addition, the team would also be allocated a budget which could be used to purchase other healthcare services not provided by core team members on as 'as needed' short-term basis consistent with the patient care plan such diagnostic and imaging services and additional sub-specialty services. While these more 'short term' service providers would continue to bill under the fee for service system, every member of the core team whose ongoing services may be required on a long term (minimum 12 month) basis would be paid on a per patient basis (or where they are participating as already salaried public hospital employees, their employer would collect that payment in lieu of their time). As each patient enrolled under this model may not necessarily require full time care by each team member, participating clinicians (or their employers) may at their discretion collect 'per patient' payments from more than one patient depending on how much time they can fit in paid work through this model.

In either case, the per patient payments may be set at a level reflecting the commitment of time (both patient and non-patient facing) required over the course of the year depending on the risk level allocated to the patient. This reduces current financial disincentives under fee for service and activity-based systems against investing sufficient time in the kinds of non-face-to-face and non-procedural services which are essential to the management of patients with chronic comorbidities.

This model would be funded by pooling funding from Commonwealth and State governments into funds at the local hospital network area which would be jointly managed by their associated local hospital network (LHN) and primary health network (PHN), and Aboriginal Community Controlled Health Organisations (ACCHOs). One possible source of funds could be a modest share of current Activity Based Funding of public hospitals contributed by both tiers of government. Other sources that could be considered include current MBS payments for Chronic Disease Management items and practice nurse incentive payments (to fund the specialist nurses that may be required in the model).

List of acronyms and use of terms

ABF	Activity based funding
ACCHHS	Aboriginal Community Controlled Health Services
Consultant physician ¹ versus specialist	Consultant physician: A medical practitioner who is a Fellow of the Royal Australasian College of Physicians (FRACP) and has access to A4 consultant physician items. Specialist: A medical practitioner in a specialty that has access to either A3 specialist attendance items or specialty-specific attendance items.
	Consultant specialist: An umbrella term for specialists and consultant physicians, used to distinguish from General Practitioners (GPs).
LHD	Local Hospital District (NSW), includes hospital and specialty areas
LHN	Local Health Network (may refer to the organisation which links hospitals together as well as the specific geographical area. Where reference is made to the geographical area we use the term 'LHN area')
MSAF	Medical Specialist Access Framework (RACP 2018), which addresses the equitable delivery of specialist medical care to Aboriginal and Torres Strait Islander peoples
PCCMF	Prevention and Chronic Condition Management Fund, proposed by the Productivity Commission, for each local health district which would then be jointly managed by the Local Hospital Network and Primary Health Network (refer Executive Summary)
PHN	Primary Health Network
RACP	Royal Australasian College of Physicians

¹ Derived from MBS Review Taskforce 2018 Report from the Specialist and Consultant Physician Consultation Clinical Committee

1. Introduction

Chronic conditions often require care through the primary, secondary and tertiary sectors, and benefit from good, real-time communication between health care professionals across these sectors². Without appropriate expert complex care, delayed, uncoordinated treatment of people with multi-morbidities can lead to preventable unplanned, reactive hospital admissions due to exacerbations of one or more of their conditions. The risk of admission to hospital is further exacerbated when there are also coexisting mental health conditions and socioeconomic disadvantage³. Of significance to health system planning is that the value of the consultant physician has historically been overlooked and poorly supported by the public health care system, to the detriment of chronic condition management at a time when the proportion of patients with multiple chronic conditions has increased⁴⁵⁶.

People with chronic multi-morbidities in particular raise additional challenges for the Australian healthcare system because:

- Health systems are still configured to work in single condition oriented silos^{7 8}.
- The cost of managing multi-morbidity increases the financial burdens of patients, especially those with less discretionary income.⁹
- There are problems associated with care coordination and communication (including disagreement) between clinicians. This impacts service access and increases the responsibilities on patients to navigate the health system.
- Patients are not sufficiently included as active participants in the care delivery process, and generally receive inadequate support to improve their level of health literacy.
- Adverse medication events can be costly to the health system due to poor information transfer and lack of coordination across sectors.

Increasing the integration and coordination of health services is therefore vitally important to the improved management of chronic conditions in the community including those with chronic multi-morbidities. Models of care need to be implemented that better integrate hospital-based specialists and GPs for these patients¹⁰. Fundamental to this is 'system supported connectivity' between primary care and consultant physician services and especially, ensuring that consultant physicians, wherever their place of employment (hospitals or in private practice), are better engaged in the management and treatment of patients with multiple chronic conditions including through offering greater flexibility in where services are delivered. This requires an emphasis on both patient centred care design and proper multidisciplinary care. Precedents for these models can be found in the pioneering integrated care models that have been operating successfully in Aboriginal Controlled Community Health Organisations (ACCHOs) which exhibit the effectiveness, team engagement and continuity of care enabled by a strongly patient-centred approach.

This paper proposes the development of an integrated model of chronic care management to recruit, manage and treat patients with chronic multi-morbidities, henceforth to be known as the Model of Chronic Care Management (MCCM). The MCCM would have a governance and funding framework which, consistent with

² Sampson, R., Barbour, R. and Wilson, P., 2016. The relationship between GPs and hospital consultants and the implications for patient care: a qualitative study. *BMC family practice*, 17(1), p.45.

³ Payne, R.A., Abel, G.A., Guthrie, B. and Mercer, S.W., 2013. The effect of physical multimorbidity, mental health conditions and socioeconomic deprivation on unplanned admissions to hospital: a retrospective cohort study. *Canadian Medical Association Journal*, 185(5), pp.E221-E228.

⁴ Australian Institute of Health and Welfare, Chronic disease Overview - <https://www.aihw.gov.au/reports-statistics/health-conditions-disability-deaths/chronic-disease/overview> accessed 4 July 2018

⁵ Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.

⁶ Caughey GE, Vitry AI, Gilbert AL, Roughead EE. Prevalence of comorbidity of chronic diseases in Australia. *BMC Public Health* 2008;8(1):221.

⁷ Aspin C, Jowsey T, Glasgow N, et al. Health policy responses to rising rates of multi-morbid chronic illness in Australia and New Zealand. *Aust N Z J Public Health* 2010;34(4):386–93.

⁸ Leeder, S.R., Jowsey, T. and McNab, J.W., 2018. The experiences of patients and carers living with multimorbid, non-communicable diseases. *Australian journal of general practice*, 47(1/2), p.24.

⁹ Millar, E., Stanley, J., Gurney, J., Stairmand, J., Davies, C., Semper, K., Dowell, A., Lawrenson, R., Mangin, D. and Sarfati, D., 2018. Effect of multimorbidity on health service utilisation and health care experiences. *Journal of Primary Health Care*, 10(1), pp.44-53.

¹⁰ Jackson, C.L., Donald, M., Russell, A.W. and McIntyre, H.D., 2017. Establishing a new model of integrated primary and secondary care based around general practice: a case study of lessons learned and challenges. *Australian Health*

the emphasis on collaboration, comprises pooled funding by Commonwealth and State governments that would be jointly managed by the local hospital network and primary health network in each local health district.

Under this approach, patients meeting risk assessed criteria would have their care delivered and managed by a ‘core’ multidisciplinary team of clinicians. The target population are those with cardiovascular related multi-morbidities at high risk of hospitalisation and therefore requiring both a general practitioner and consultant physician to prevent exacerbation of their conditions rather than patients who can be appropriately serviced predominantly by GPs.

The clinicians comprising the core multidisciplinary team would be recruited from across the healthcare system, including non-hospital based private practitioners and would be funded on a capitation payment basis for each recruited patient in their care – in practice this would mean that each team member or their employing organisation or practice (depending on whether this is a hospital or private practice) would be allocated a fixed payment which could be paid as a salary for their patient care. Every enrolled patient would be allocated at least a care coordinator, general practitioner and consultant physician as part of their ‘core’ team and in addition would also, depending on their specific needs, also be allocated at least one allied health professional and specialist nursing. In addition, the team would also be allocated a budget which could be used to purchase other short term healthcare services consistent with the patient care plan which could include diagnostic and imaging on behalf of their patients, and additional sub-specialty, allied health and nursing services.

As it is proposed that this Model, including the method of funding healthcare services, would only apply to the treatment and management of assessed and enrolled patients and cover only that set of chronic comorbidities for which they have been enrolled, the enrolled patients would access currently available medical services delivered through normal channels for other conditions and needs.

The design of the model of chronic care management has the following features:

- Because it targets patients of intermediate risk, it expands the interdisciplinary composition of primary care teams beyond GP services to encompass long-term roles for consultant physicians and specialists as well as nurses and allied health practitioners
- introduces flexibility in the scope of practice of non-physician team members
- embeds the patient and family/carers at the centre of the multi-disciplinary team in an integrated care approach
- fosters a stronger partnership approach between members of the multidisciplinary team (including patient and family/carers).

While the paper describes how this model can work using the diagnosis, management and treatment of cardiovascular disease related multi-morbidities as an example we would envisage it being gradually expanded to cover other identifiable needs and conditions.

College Fellows based in New Zealand have contributed their insight and experience in integrated care work within New Zealand’s health system. This model responds to:

- Feedback from members of the RACP’s own Consumer Advisory Group describing the time consuming and confusing processes which many of them and their relatives have experienced when trying to navigate the healthcare system.
- The need for fundamental permanent better connectivity between consultant physicians and primary healthcare. Numerous new integrated care trials have not been compatible with current activity-based funding mechanisms, despite varying degrees of success. For instance, there are NSW integrated care demonstrator programs that still depend on special funds for financial sustainability because they are not sustainable within current funding regimes. The experience of ACCOs in integrated models of care have not been applied to improve service delivery.
- The need to move away from a single disease, single provider orientation to one that serves a significant population of health service consumers whose healthcare requires the addressing of complexity (consultant physician services must be a key component).
- The introduction of funding penalties for hospitals with multiple readmissions above the average of their peers currently being developed by the Independent Hospital Pricing Authority (IHPA).

2. Why system reform is needed

Integrated care is not defined uniformly and consistently although there is common agreement as to what non-integrated care looks like, which is characterised by fragmented and episodic care, and poor levels of communication between organisations and sometimes within organisations.¹¹ A working definition is:

“Integration is a coherent set of methods and models on the funding, administrative, organizational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors. The goal of these methods and models is to enhance quality of care and quality of life, consumer satisfaction and system efficiency for people by cutting across multiple services, providers and settings. Where the result of such multi-pronged efforts to promote integration leads to benefits for people, the outcome can be called integrated care”¹²

Integration at the micro-level aims to achieve a seamless care experience for the individual, made possible, for example, through personalized care plans. Integration at the meso-level aims to provide integrated care for a particular care group or populations with the same disease or conditions. Integration at the macro-level can be described as provision of integrated care to an entire population through stratification of needs and tailoring services according to these needs¹³. **For patients with multi morbidity, integration of care is relevant at all these levels.**

Overall, the current process of referral from practitioner to next linear referral to a single practitioner is neither efficient nor satisfactory to patients or practitioners. “Point to point” referrals and the accompanying communications most often involve only two practitioners, one of which is usually the referring GP, and not a whole team. Anyone else who should be involved is closed off to the communications¹⁴.

This section discusses why the two main funding mechanisms for publicly subsidised healthcare often do not support integrated care for patients that frequently need services from both sectors, i.e. patients with chronic conditions;

- activity-based funding (public hospitals) and
- the Medicare Benefits Schedule (MBS) (subsidising a range of health professional services).

Arguably, this division of funding structure associated with place of service delivery (public hospital versus private practice) has served to make it difficult for patients to experience integrated care when it comes to condition complexity (when this is needed most). We see this in the disconnected way consultant physician services are accessed – by both GPs and other health professionals, for advice and diagnosis, and patients navigating the health care system.

For patients with chronic conditions, it is now a pressing need to have GPs and physicians enabled to work collaboratively for common patients, from the same care plan. It is logical to administer more consultant physician healthcare from within the ambulatory care sector. This is possible and can address many systemic issues, as we describe in section 3.

2.1 Activity Based Funding

Activity Based Funding (ABF) is the primary means through which the Commonwealth funds public hospital services which are then ‘free’ at point of use to the public patient. ABF is generally seen as an improvement over the previous system where hospitals were funded with ‘block grants’ which were tied to population growth and directly based to hospital activity¹⁵. Under ABF, hospitals are funded based on the defined costs of providing specified services to their patient mix (as determined by IHPA). Each year a Pricing Framework is

¹¹ World Health Organisation 2016 Integrated care models: an overview

http://www.euro.who.int/_data/assets/pdf_file/0005/322475/Integrated-care-models-overview.pdf [accessed 6/02/2019]

¹² Kodner DL, Spreeuwenberg C. Integrated care: meaning, logic, applications, and implications – a discussion paper. Int J Integr Care. 2002 Nov 14;2(4) (<http://www.ijic.org/article/10.5334/ijic.67/>)

¹³ World Health Organisation 2016 Integrated care models: an overview

http://www.euro.who.int/_data/assets/pdf_file/0005/322475/Integrated-care-models-overview.pdf [accessed 6/02/2019]

¹⁴ Georgeff, M. and Goldstein, S., 2013. Collaboration and Connectivity: Integrating Care in the Primary Health Care Setting

¹⁵ Note that that not all hospital services are funded based on activity and the smaller rural and regional hospitals are also still essentially funded based on ‘block grants’ (though differentiated based on proxies for volume of hospital activity).

developed to underpin the National Efficient Price (NEP) and National Efficient Cost (NEC) of units of hospital activity. The prices determined are meant to account for anticipated complexity, type, volume and intensity of care provided to patients with particular diagnoses. IHPA's determination for each financial year may also include weights for 'outliers' (either short stay or long stay depending on the procedure). The IHPA determined price weights are only for the Commonwealth contribution to the funding of each identified public hospital service. In addition, the respective States also set an activity price for their share of contribution to the funding of each service (or to continue to block fund for their contribution, as the case may be). In practice the ABF allocated to State public hospitals each year is determined before each current year based on a prospective workload. There is an annual reconciliation accounting process to address any variation.

Under ABF, hospitals are paid a fixed amount for each unit of defined service activity they undertake, regardless of patient length of stay (subject to some exceptions with respect to outliers, as noted previously). This means that hospitals can keep any savings if they can operate more efficiently than average, for instance by discharging the patient after a shorter length of stay (LOS) than the costed LOS. This should increase the incentives of hospitals to cultivate any operational efficiencies that are available. This is borne out by the evidence to date – for instance, the Productivity Commission has observed that since the introduction of ABF, national growth in the average cost of providing hospital services has slowed significantly¹⁶ and attributes this to the increased efficiency promoted by ABF.

However, there are also weaknesses associated with ABF. For example, hospital funding does not include activities that aim to minimise or prevent admitted services. In fact, Local Hospital Networks (LHNs) can be penalised for directing hospital funds towards prevention activity¹⁷. The Productivity Commission describes the example of Western Sydney LHN which established a team of physicians to work with GPs to improve the management of patients with chronic diabetes. Because expenditure on this program was not considered an 'activity' attracting ABF, the initiative had to rely on the temporary injection of funds under the NSW Government's integrated care demonstration scheme.

This disincentive operates within the hospital itself and not just at the LHN level. If a service provided at a hospital costs less than the price paid under ABF, the hospital gains net revenues for that service, and therefore will also have incentives to expand provision of that service, just because it delivers greater revenue flows.

Thus, ABF pays for output independently of overall clinical outcome. With some exceptions (discussed below), there are also no incentives for providers of clinical services to better 'join up' services in an appropriate clinical pathway or in an alternative setting if they are being funded on an ABF basis.

One exception to this is that IHPA is developing bundled payments for defined hospital services whereby a single payment would cover a full package of care over a defined period of time, spanning multiple episodes and settings of care. This could encourage more integrated care of some in-patient services. There are health service packages that may be applied for innovative models of care that qualify under IHPA's definition of 'in scope public hospital services'. Finally, there is also provision under ABF to fund so-called Tier 2 clinics for non-admitted outpatient services. However, these exceptions do not result in one consistent systemic approach that encourages collaboration both between the different tiers of government and across different healthcare service providers in the manner that is being proposed in this paper.

2.2 MBS Fee for service

Currently, GPs, physicians (working in a private consultant capacity) and allied health professionals are paid on a fee for service (FFS) basis for items on the government determined Medicare Benefits Schedule (MBS). In a Fee for Service (FFS) working environment, activity items that are included as 'paid activities' will predominate the working day. Notwithstanding some attempts at incentivising greater flexibility and collaboration such as the MBS chronic disease management items, there will always be inherent limits to the extent to which a FFS system can properly incentivise non patient facing activities which are equally important to patient care and management and collaborative activities that can underpin a more integrated oriented health system. For example, there is a degree of inflexibility in the way in which services can be delivered because the conditions under which the practitioner can claim the MBS payment tend to be strictly delineated (as they rightly should be). This limits the incentive for them to engage in collaboration or service innovation such as by developing more preventative approaches. This is true even in the case of exceptions to this

¹⁶ Productivity Commission, Integrated Care, Shifting the Dial: 5 year Productivity Review, Supporting Paper No. 5.

¹⁷ Productivity Commission, Integrated Care, Shifting the Dial: 5 year Productivity Review, Supporting Paper No. 5

general approach such as some of the MBS chronic disease management items that have been created. For example, though there are item numbers for creation of a GP management plan, there are none for follow up monitoring and outcome consultation.¹⁸

2.3 The consultant physician role in chronic disease management has been overlooked

Physician specialties cover a broad spectrum of clinical practice and these are commonly involved in multidisciplinary teams. Physicians have special training and expertise in the longitudinal care of patients with multiple and complex conditions. They play a critical role where there are complex health issues, psychosocial problems, and difficulties associated with effectively planning care in cases involving conflicting health priorities. In addition to organ and condition related specialties, there are generalist disciplines, such as paediatricians, geriatricians, general medicine physicians, palliative medicine and rehabilitation medicine physicians, that are critical to primary health care or ambulatory care.

Specifically, consultant physicians are an integral part of the healthcare of patients with chronic multimorbidities. The type of healthcare includes complex condition diagnosis, treatment, management, stabilization, priority determination, along with acute care. Physicians are responsible for providing a considerable proportion of health services through the MBS and through hospitals, private and public. Over one third of respondents in the 2015-16 ABS patient experience survey had seen a medical specialist in the previous 12 months, and frequency increases with age. The reported patient experience of physician care underlines the perceived value of physicians. In the latest ABS Patient Experience Survey, of those who saw medical specialist in the last 12 months, 80% reported that the medical specialist always listened carefully to them, 83% reported that they always showed them respect and 80% reported that they always spent enough time with them. These rates have remained consistent with 2016-17 (79%, 82% and 80% respectively)¹⁹. Physicians play a lead role in coordinating care, being the most likely health professional to coordinate care after a GP²⁰.

Due to the issues with the FFS system discussion previously, this vital role, especially for those patients with chronic co morbidities, has been curtailed due to the lack of incentivized opportunities for consultant physicians to collaborate with GPs in an ambulatory care setting.

Public access to specialist care tends to be equated with the hospital setting. Examples of this oversight are:

- Lack of incorporation of the role of consultant physician expertise in previous and current models of health reform to promote better integrated care such as Health Care Homes and GP centric MBS item changes.
- Absence of support for specialist service deployment across practice sectors in the healthcare system. Specialists divide their time between public hospital inpatients, private rooms, private hospitals and public outpatient clinics²¹. More flexible ways of supporting physician services would increase timely accessibility for both patients and other health providers.
- Community-based physicians do not receive the range of practice incentives that are currently available to GPs that support ambulatory health care service provision such as practice nurse incentive payments, interoperable practice management software and communications systems and contribution to chronic care management plans.

¹⁸ House of Representatives Standing Committee on Health 2016, Inquiry into Chronic Disease Prevention and Management in Primary Health Care.

¹⁹ Australian Bureau of Statistics 4839.0 - Patient Experiences in Australia: Summary of Findings, 2017-18

²⁰ 2015-16 ABS Patient Experience Survey [<http://www.abs.gov.au/ausstats/abs@.nsf/mf/4839.0> Accessed 10/8/2017] 36% of people saw a medical specialist in the previous 12 months. Of these 32% went once, 39% went two to three times and the remaining 29% went four or more times. The proportion of people who saw a medical specialist generally increased with age.

• 16% of people saw three or more health professionals for the same condition. Of those 70% of people reported that a health professional helped coordinate their care. The health professional most likely to coordinate care was a GP (61%), followed by a medical specialist (24%).

²¹ AIHW Medical Practitioners Workforce 2015

2.4 Previous experiences with integrated care

We acknowledge that there have been previous models of integrated care funded and implemented in Australia that address many of the gaps highlighted in the ABF and FFS systems. Aboriginal health services provide early models of working in multidisciplinary and integrated ways since their inception in the 1970s²². These are models of comprehensive primary health care, that have been developed with government and research partners²³. Importantly these models within ACCHOs most often include features such as cultural safety, community engagement, health promotion, as well as health and social services. Family-centredness is deemed critical, so that care is inclusive of the patient and an extended range of carers. In fact, health care delivery in ACCHOs has many similarities to the patient-centred medical home (PCMH) model, being trialled for general practice²⁴.

Other recent examples of State based integrated care models which utilise and benefit from the engagement of consultant physicians are:

- The Gold Coast Integrated Care Model which integrates care between primary care, and acute hospital services to better manage high risk patients with complex and chronic conditions. It is based on a shared care record and aims to reduce presentations to the health service emergency department, improve the capacity of specialist outpatients, and decrease planned and unplanned admission rates²⁵.
- The Inala Chronic Disease Management Service which is a Queensland program for complex type 2 diabetes management, delivered in primary care by GPs with a special interest who had been upskilled in complex diabetes, under the supervision of an endocrinologist. The model was based around enhanced primary care capacity building, integrated care protocols and ‘virtual’ tertiary support, working with local general practices, Indigenous health services, community health and the hospital outpatient department. Funding was derived from Medicare bulk-billing, Practice Incentives Program and Service Incentive Payments, and teaching subsidies.

There have also been other approaches pioneered at the Commonwealth level to address some of the current funding disincentives to better integrated care such as:

- **2017 Health Care Homes (HCH):** Under HCH, payments to service providers (in this case GPs) are patients are payments paid monthly in arrears rather than on a FFS basis. The three payment levels reflect the patient’s assigned level of complexity and need. A significant omission of the HCH model is that other healthcare providers such as physicians and allied health professionals are not recruited into the team and remunerated on a similar basis.
- **2011 Coordinated Veterans’ Care:** This program is aimed at management of participants’ chronic diseases core team, which includes the veteran, the veteran’s carer (if applicable), their general practitioner and a nurse coordinator, who may be a practice nurse, Aboriginal health worker or community nurse. Quarterly care payments are paid to GPs. The team would be engaged in care planning, coordination and review.
- **2011 Diabetes Care Project (DCP):** The DCP was conducted between 2011 and 2014. Like HCH, funding was allocated based on patient risk stratification. Quality improvement support payments are provided based on a range of patient population outcomes. Funding is also provided for care facilitation.

The MCCM that is described in greater detail in the next section is addressed at a different, arguably more challenging cohort of patients and therefore requires a greater comprehensiveness of coverage of potential clinical services.

²² Panaretto, K.S., Wenitong, M., Button, S. and Ring, I.T., 2014. Aboriginal community controlled health services: leading the way in primary care. *Medical Journal of Australia*, 200(11), pp.649-652

²³ Panaretto, K.S., Wenitong, M., Button, S. and Ring, I.T., 2014. Aboriginal community controlled health services: leading the way in primary care. *Medical Journal of Australia*, 200(11), pp.649-652.

²⁴ Panaretto, K.S., Wenitong, M., Button, S. and Ring, I.T., 2014. Aboriginal community controlled health services: leading the way in primary care. *Medical Journal of Australia*, 200(11), pp.649-652

²⁵ Connor M, Cooper H, McMurray A. The Gold Coast Integrated Care Model. International journal of integrated care. 2016;16(3).

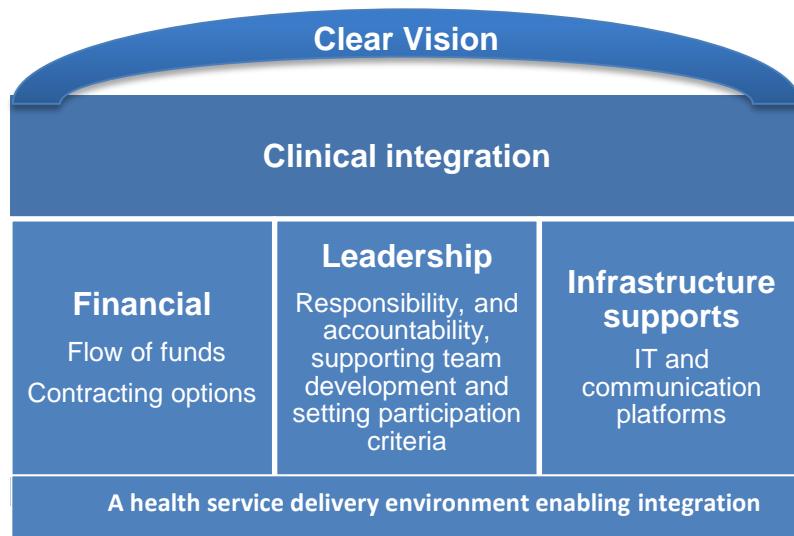
3. The Model of Chronic Care Management

The RACP's Model of Chronic Care Management is based on seven principles that we believe are key to future health reform that supports integrated care²⁶. These are:

- **Designed for patient-centred care:** Effective partnerships with patients improve clinical outcomes, reduce readmissions rates, lower rates of hospital acquired infections, improve delivery of preventive care services, and contribute to increased adherence to treatment regimens
- **Focused on quality and safety:** Integrated systems of governance – for example in the context of medication safety - can actively improve quality and safety by managing patient risks, communicating standards, and measuring patient outcomes
- **Provides for measurable outcomes and supports regular monitoring, evaluation and continual quality improvement.**
- **Allows for flexibility and local implementation**
- **Promotes a cross-sector, cross-profession approach, respecting the diversity of health care providers:** The improved collaboration across health sectors and between healthcare providers – particularly in the coordination of services for people with high and complex needs – has been shown to reduce the incidence of preventable hospital admissions, improve health and wellbeing and transitions of care, improve the interface between hospital and community providers, and provide additional support to caregivers,
- **Incorporates systemic supports for clear patient pathways between specialist, primary care, and allied health professionals:** Referral pathways have been found to improve multidisciplinary communication and care planning, improve clinician-patient communication and patient satisfaction, enable quality standards to be maintained, reduce unwanted practice variation, and support the introduction of guidelines and systematic and ongoing audit into clinical practice.
- **Supports primary care as the main portal for a community's access to health care**

The fundamental building blocks that support the integration of clinical services commonly found in integrated care studies are brought together in **Figure 1**.

Figure 1: Building blocks for Integrated Care and clinical integration



Adapted from Butts D, Strilsky M, Fadel M. The 7 components of a clinical integration network

²⁶ RACP 2016 Integrated Care: physicians supporting better patient outcomes

3.1 The target population

The Model of Chronic Care Management fills a gap in organised care provision, namely in the treatment of patients with chronic multi-morbidities of intermediate risk. This refers to a category of patients above the ‘low risk’ category that primarily requires GP care but who are still below the risk category of patients needing frequent presentations to the hospital who are so ‘high risk’ that no significant improvements can be made in reducing their level of future hospitalisations. In particular we are proposing to target individuals who have cardiovascular related multi-morbidities and:

- (a) are at high risk of one or more hospital presentation or admission in the next twelve months; OR
- (b) have already had one or more unnecessary or avoidable hospital presentations or admissions in the past twelve months OR
- (c) are receiving care in the community under GP care who may benefit from significant additional support or expertise. For such patients there may be a role for other medical practitioners in providing consulting advice to GPs (e.g. consultant physicians in particular diseases such as diabetes) or allied health professionals to contribute to more comprehensive care (e.g. dieticians, psychologists, exercise physiologist).

The individuals who would be candidates for the MCCM are those with the following cardiovascular related multi-morbidities

- Cardiovascular disease (CVD)
- Obesity
- Hypertension
- Diabetes
- Chronic Kidney Disease (CKD)
- Chronic Obstructive Pulmonary Disease (COPD)

3.2 Governance structure

Governance, locally relevant design and implementation of the Model of Chronic Care Management is achieved through **two governance bodies** (refer Figure 2):

- 1) A **Steering Committee** in each PHN (and/or ACCHO where an ACCHO is present) that includes LHN representation and has the following functions
 - Administering the proposed pooled Commonwealth/State funding (see section on funding).
 - Serving as the primary fund holder.
 - Determining the most appropriate final version of the model design to implement.
 - Developing and running a public campaign in the local health district to inform the public of the availability of the integrated care approach.
 - Facilitating clear communications lines and a better understanding of the patient flow process

This committee should encompass consumer input or representation.

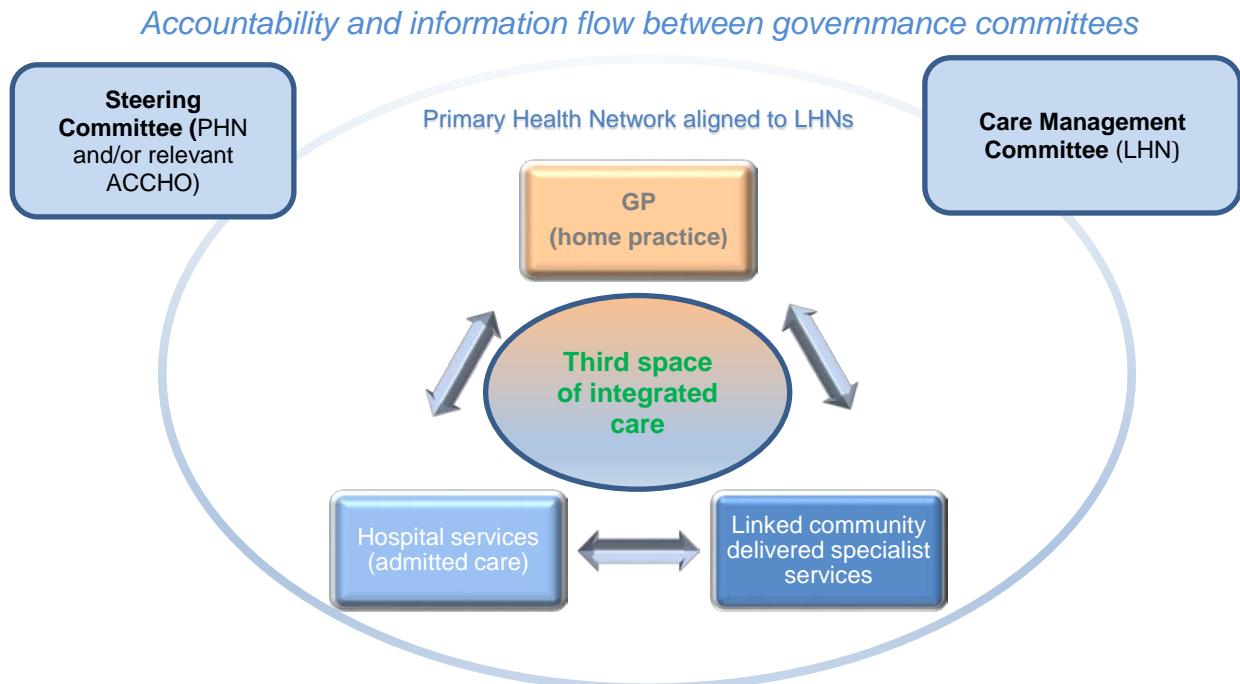
- 2) The **Care Management Committee** (Management Committee) is based in each LHN and has the following functions:
 - Formulating appropriate clinical algorithms to risk stratify patients
 - Developing appropriate referral, testing and treatment pathways for patients of the different risk classes,
 - Designing appropriate multidisciplinary team arrangements for different risk classes of patients
 - Leading and educating clinicians in this new way of working (communities of practice).

This committee should also make provision for consumer input or representation.

There would be regular internal and external reporting requirements (internal within PHNs, LHNs, and external to Commonwealth and State government) between the two Committees. Cross membership between the two

committees and requirements for information sharing and assessment of care outcomes will support continuity of objectives and management collaboration.

Figure 2: Model of Chronic Care Management²⁷



3.3 The funding structure and recruitment of interested clinicians

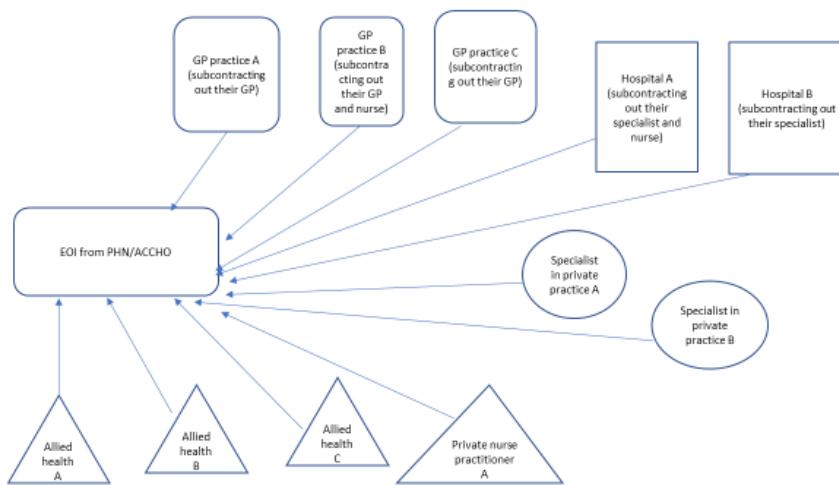
The register of interested clinicians

Crucial to the MCCC is the recruitment of a core multidisciplinary team of clinicians whose services would be funded on a non-fee for service basis. ‘Core’ is defined here as clinicians whose ongoing services may be required on a long term (minimum 12 month) basis. While the core team which would be automatically assigned to every enrolled patient would at the minimum comprise a care coordinator, GP and consultant physician, it would also include other healthcare practitioners (e.g. allied health, specialist nurses) as appropriate depending on the specific needs of the patient (more information on the development of the patient care plan is provided in **subsection 3.5**). To start this process, it is proposed that the Steering Committee in its capacity as a fund holder would organise calls for an Expression of Interest from relevant practices and organisations that are interested in nominating their clinicians to be members of these multidisciplinary teams.

Therefore, while the resulting Register of Interest would list individual clinicians, the EOIs would be called for on an organisational basis - individual clinicians operating in solo private practice would nominate themselves while public hospitals could nominate particular consultant physicians and/or nurses depending on arrangements made with these employees in the event that they were selected to work in a multidisciplinary team. **Figure 3** depicts this EOI process (including all the possible organisational contexts for nomination) given the likely composition of the core multidisciplinary teams to be constituted around each patient.

Figure 3: Typical EOI process for provision of clinical services to MCCC multidisciplinary teams

²⁷ This model draws heavily on known and operating models of care such as the Western Sydney Integrated Care Program (WSICP) which is based on a strong partnership between the LHD and the Primary Health Network (WentWest), the Gold Coast Integrated Care model and the Inner North West Melbourne Health Collaborative.

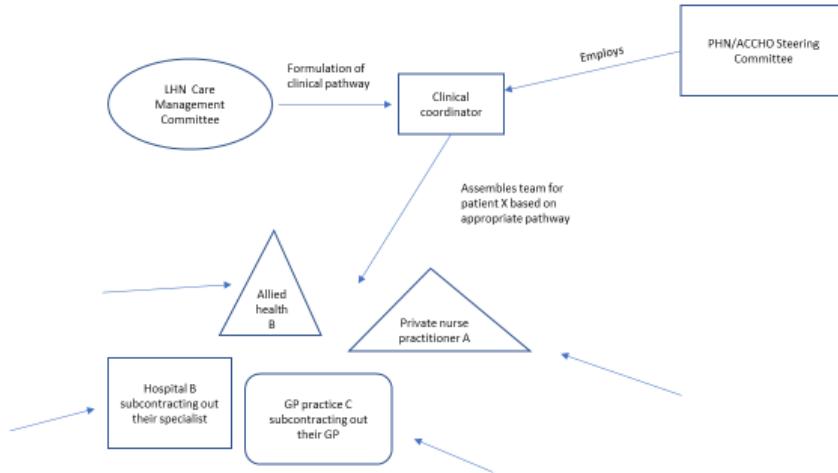


One of the members of the core team missing from this register of interest process is the care coordinator. This is because the care coordinator is a new role created under the MCCC serving as the common point of contact for the patient and each of the care providers included in each patient's care plan; assembling the appropriate clinician team based on the expected needs and convenience of the enrolled patient taking into account geographical location, accessibility and availability; and organising patient appointments which are most convenient for the patient whether this is in a community setting or virtually (where clinically appropriate). It is therefore proposed that this role would be a full time salaried position and that the care coordinator would be a care coordinator for potentially many multidisciplinary teams. There could also be potentially more than one care coordinator serving each local hospital network. More details on this role are provided in subsection 3.6.

Assembly of core multidisciplinary team

All clinicians nominated on behalf of their organisations/practices who have the necessary skills and experience in managing patients with chronic complex comorbidities (and are appropriately registered and recognised by AHPRA with no disqualifications) would qualify to be put on a register of interested clinicians. Being put on a register of interested clinicians does not automatically entitle a clinician to any payments until he or she is assigned to be the member of a multidisciplinary team to provide the care and management of an enrolled patient. This is the next step which is summarised in **Figure 4** which depicts a care coordinator assembling a typical core multidisciplinary team (which includes in this case the 'compulsory' GP and consultant physician allocated to every team but also covers in this case a specialist nurse and allied health practitioner relevant to the patient's conditions). It is again worth noting that this assembly only covers the core team who would be needed for at least 12 months and not for other clinical services that may be contracted for on an as needed basis by the team itself using the budget allocated for it. We note that these additional short term services may include roles for consultant physicians from other specialties (e.g. endocrinology, renal medicine).

Figure 4 – Example of the care coordinator assembling the core multidisciplinary team



In this example, a team is assembled from clinicians nominated onto the register by GP practice C, hospital B, allied health B and private nurse practitioner A. The care coordinator would have assembled this team of clinicians based on the expected needs of the enrolled patient (including whether they have existing relationships with particular clinicians and strong preferences) and also for reasons relevant to the convenience of the patient in question such as geographical location, accessibility and availability. For instance, it could be because the patient is in need of a cardiologist and there were no cardiologists in private practice located close enough to the patient who was on the register, but hospital B had a cardiologist in their employ who was able to travel to see the patient in the nearest community setting. For another patient who is located somewhere else, it may be that a specialist with the appropriate skills in private practice may be available – one of the essential skillsets of the care coordinator is to build knowledge of treating local physicians within the hospitals and general and allied health practices.

Funding and incentive arrangements within the core multidisciplinary team

Following the development of a full patient care plan (described in greater detail in **section 3.5**) a total budget would be allocated for the care plan for the year. This budget would cover the cost of employing the members of the core team as well for the core team itself to purchase other clinical services for the patient on a fee for service basis as needed as part of the care plan. In other words, the care plan budget would fund the core team members' own 'salaries' (more on this below) while the non-salary component would be disbursed to the care team for them to manage purchases of any additional clinical services (diagnostic imaging, subspecialist services, etc) that they cannot directly provide themselves.

As discussed previously, the clinician services provided by the core team would be funded on a non-fee for service basis and the funding would go to the organisations that supply the clinicians, whether these are private practices or public hospitals. This would take the form of an annual fixed per patient payment (i.e. an annual capitation payment) provided to each clinician (or more specifically their employing organisation).

As each patient enrolled under this model may not necessarily require full time care by each team member, participating clinicians may collect 'per patient' payments from more than one patient depending on how much of their paid work they choose to allocate to providing services through this model. The per patient payments would be set at a level reflecting the commitment of time (both **patient and non-patient facing**) required over

the course of the year depending on the risk level allocated to the patient. The payment can be disbursed in portions at regular intervals throughout the year so they can be taken as a form of salary (and to address the cash flow needs of participating private practices). This approach is designed to

- reduce current financial disincentives under fee for service and activity-based systems against investing sufficient time in the kinds of non-face-to-face and non-procedural services which are essential to the management of patients with chronic comorbidities; while at the same time
- provide a sufficiently attractive alternative to private billable work in the case of private practitioners (by basing the capitation payment on an estimate of the total time that would need to be spent on the patient).

Shared Savings incentives

In the case of public hospitals which have salaried staff (whether consultant physicians or nurses) working in one of these teams, it would be up to the hospital to negotiate an arrangement with their salaried employees accordingly to spend part of their salaried time working as part of the multidisciplinary team and how many enrolled patients the salaried employee would serve in that capacity.

While this approach is meant to engender a new business model for both private practitioners and public hospitals alike, there are additional considerations for the public hospitals that would make the adoption of this new business model a radical shift in how things are done:

- The hospital would have to decide if the opportunity cost of the revenue because their specialists are spending some of their time in an MCCM capacity and have reduced capacity to generate activity based funding for the hospital through provision of inpatient services is sufficiently compensated for by the new income stream from capitation payments for MOC participation.
- In addition to this reduced operating capacity for ‘business as usual’ there is also the possibility of ‘financial cannibalisation’ if the services provided through the MCCM approach is successful and does ultimately result in long term reductions in hospitalisations. This is an important consideration because one of the concerns associated with getting hospitals involved in integrated care is that it may lead to the cannibalisation of incomes from ABF and therefore serve as a significant disincentive to the participation of hospitals.

In recognition of these considerations it would be worth building some shared savings incentives into the funding approach along the lines of the Medicare Shared Savings Program in place in some US Accountable Care Organisations.²⁸ Below we suggest one example of how such a shared savings incentive might work but have not developed a recommended approach in this paper.

One possible approach is that incentive payment could be based on the projected cost of hospitalisations for enrolled patients under the status quo (i.e. no access to the MOC) - this is data which should already be collected anyway as part of the evaluation of the MOC. At the end of the period of evaluation which could be two or three years following the enrolment of a patient in the MOC, the costs of any hospitalisation (in terms of ABF disbursed) that is still incurred by the patient would be calculated. Each organisation with a clinician assigned to the multidisciplinary team in question would get a small percentage share of any savings estimated by subtracting the actual cost of hospitalisations in that year from the projected cost of the patient under the status quo but only if the savings achieved were above a given threshold. Savings below a set threshold would not qualify for any incentives - this is partly to account for the fact that there would be a margin of error in calculating these savings, partly to account for any changes that likely are not attributable to intervention provided through the MOC and partly to incentivise a minimum threshold of effort by the team members to strive for a reduction in admissions.

How the MCCM would be funded

The Productivity Commission has recently proposed that both tiers of government (Commonwealth and state) direct a modest share (2 to 3%) of their current activity-based funding for hospitals into a Prevention and

²⁸ McWilliams JM, Hatfield LA, Landon BE, Hamed P, Chernew ME. Medicare Spending after 3 Years of the Medicare Shared Savings Program. *N Engl J Med.* 2018;379(12):1139–1149.

Chronic Condition Management Fund in each local health district to be jointly managed by the Local Hospital Network and Primary Health Network.²⁹ Without necessarily endorsing the exact level of funding diversion that has been suggested by the Commission, we support the premise that a model of care such as this one is best funded through diverting some share of ABF. Other sources that could be considered include current MBS payments for Chronic Disease Management items and practice nurse incentive payments (to fund the specialist nurses that may be required in the model).

3.4 Patient flow and description of consumer experience through the Model

The Model of Chronic Care Management has two pathways to the integrated care program for multi-morbidities:

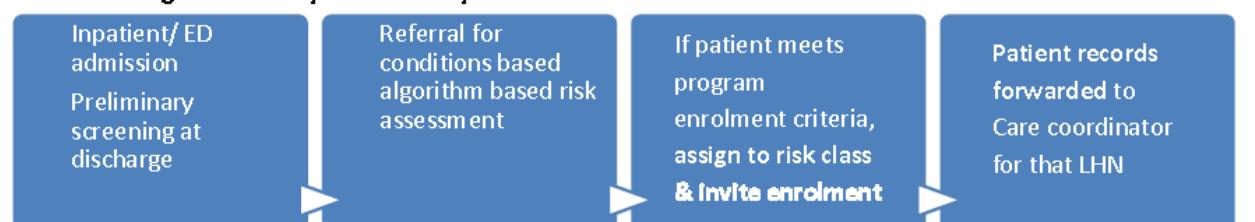
- from secondary care or
- from primary care.

Both pathways lead to the same coordinated space bridging the two sectors. This section explains the processes that a patient will experience in further detail.

The patient flowchart (Figure 3) below depicts a typical patient flow from enrolment to care delivery where the model of chronic care is established in a LHN area. **Appendix 1** graphically demonstrates three case studies to illustrate the Model of Chronic Care Management patient experience or care organisation. Case 1 describes entry through a hospital; Case 2 describes entry through a suburban GP practice; Case 3 describes entry through a GP practice in a rural area.

Figure 3: Patient flowchart

Access through Secondary and Tertiary care



COMMUNITY BASED COMPLEX MANAGED CARE

Multi Chronic condition program CCM Program

Facilitated communication and information access

Care coordinator identifies specialist & GP who develop care plan & other team members (allied health, recognise social care agencies)

Assessment & care planning & agreement as to budget allocation (PHN/LHD)

Care Coordinator facilitates further assessment, rehabilitation & care plan optimisation & care monitoring

Transition to maintenance and monitoring under GP &/or physician

Access through Primary Care

GP consultation
Preliminary screening – GP decision

Referral for Risk assessment

If patient meets program enrolment criteria, **assign to risk class & invite enrolment**

Patient records forwarded to Care coordinator for the LHN

²⁹ Productivity Commission 2018, Shifting the Dial: 5-year productivity review.

Patients referred from Secondary and Tertiary care

- **Preliminary screening** for the model of chronic care becomes part of the discharge process for inpatient and emergency department (ED) admissions. This preliminary screening may take account of the condition the patient was originally admitted for as well as other characteristics and could be undertaken by an attending physician. If deemed a suitable candidate, the patient is invited to attend a risk assessment for cardiovascular related condition care, or else the patient proceeds through usual discharge planning.
- The **cardiovascular related condition risk assessment**: undertaken by the attending physician or another physician with the delegated responsibility for the task. The algorithm for risk stratifying patients may be an existing relevant algorithm as agreed by the Care Management Committee. The algorithm should be relatively easy to administer and therefore not require a significant commitment of time. The risk assessment is used to assign patients to a risk level or class, which will determine a broad estimate of the annual patient care budget allocation (which would then be further refined and individualised for the patient based on his or her specific care pathway developed later – see next subsection).
- **Patient enrolment** Candidates identified for program enrolment are informed of the outcome and invited to enrol in the MCCM program (voluntary). If they enrol, the patient will be informed that a care coordinator will contact them following hospital discharge to arrange an appointment in a community setting.

Patients referred through Primary care

- **Preliminary screening** for the model of chronic care is a decision for a treating GP in private or community health practice.
The GP will decide whether the patient should have an initial/preliminary assessment for risk of CVD-related multi-morbidity. If the initial evaluation concludes that the patient does not need further assessment, the patient proceeds through usual processes and the GP consultation ends.
- The **cardiovascular related condition risk assessment**: Applies the same algorithm for risk stratifying patients as used by the hospital (developed or agreed to by the Care Management Committee).
- **Patient enrolment**
Candidates identified for program enrolment are informed of the outcome and invited to enrol in the MCCM program (voluntary). If they enrol, the patient will be informed that a care coordinator will contact them to arrange an appointment in a community setting.

3.5 Development and implementation of the patient care plan

After enrolment, the patient is informed that a care coordinator will contact them regarding an appointment in a community setting. The care coordinator, based in the community will receive the referrals, along with patient records from both the hospital and GP practice. This will start the following sequence of actions leading to the signing-off of the patient care plan which then determines the clinical services and nature of care the patient will receive after enrolment:

- The care coordinator, who will have nurse clinician expertise as well as knowledge of treating local physicians within the hospital(s) and general and allied health practices, will identify locally available clinicians (from the register of interested clinicians) to make up the ‘core’ team.
- The care coordinator will confirm availability of members of the core team and will arrange first team review of patient records and first patient appointment. The team review could be done virtually if needed and feasible, while the patient appointment would be undertaken in a community setting convenient to the patient, involving as many clinicians as needed.
- Based on the initially allocated patient risk class prior to enrolment (which determined the approximate patient budget being allocated), and information obtained from the team review and initial appointment, a full patient care plan for the year would be agreed to by the members of the core team in consultation with the patient and family/carers. A significant feature of this model is that the care

plan receives meaningful input and enactment from all members of the healthcare team (not just agreement). Rigorous review is an integral part of the model's process. Another feature is that the patient and family/carers will actively participate in development of this plan.

- The care plan will detail the full range of services that would be required by the patient to prevent the escalation of their condition (whether consultative, procedural or other health services, whether provided by the core team or by other health practitioners on an as needed or short-term basis). This would include such details as specification and frequency of required diagnostic imaging or pathology tests, and the leads on each action and timing. These details will also be crucial in determining the finalised fully costed patient specific budget for the year (allowing for adequate compensation for both full time care team members as well as clinicians contracted to provide services on an as needed basis).
- The care plan could also consider social and mental supports that will increase effectiveness of chronic health care management though this will not form part of the budget or services covered by the MCCM. However, this will be achieved through recommendations for patient referral to additional mental health and social support services at appropriate times but would not be covered under the care plan budget itself.
- Other special community-based interventions created and made available or expedited for referrals under the MCCM may include mobile geriatric teams, increased telemedicine, Hospital at home units, and rehabilitation at home, as well as increased use of sub-acute and non-acute care more generally.
- Because of the budgetary implications of the care plan, once it has received the final sign-off of the patient and family/carers, it will be submitted to the Steering Committee to be fully costed out by secretariat in the Committee so that a final budget can be allocated for the patient. Unless the budget associated with this care plan involves a significant variation from what was approximately estimated through the initial risk stratification it is unlikely to be revised or rejected by the Committee and will be approved. Note that the care plan is still a living document and would be open for regular review throughout the year, so such reviews would determine whether additional funds may be needed as required.
- While some patients may need longer periods within the MCCM direct team care, the aim is to stabilise patients on a program of care that is able to be coordinated through the GP. Exit parameters will be determined as part of the care pathway. Examples of criteria for exit could include some specified target of weight loss, undertaking a regular exercise program, reversing diabetes and hypertension, significant reductions in risk of hospitalisation or no avoidable hospital admissions in the past 12 months.
- All patients considered stabilised will receive a 12 month follow up phone call from the care coordinator. Many eligible enrollees may move from active management to monitoring at different trigger points. However, it will be important to describe clear criteria for when patients are transferred to GP care and a patient is considered to have exited the program.
- In some cases, reassessed risk may mean that the patient's condition requires treatment within hospital or the patient may need to attend a multispecialty clinic – the MCCM will be able to expedite referral to such care.

3.6 How the MCCM changes ways of working

How the multidisciplinary team works

- The nature and seriousness of the patient's condition will determine whether the multidisciplinary team is physician led or GP-led. This may shift as the patient's condition(s) move through different stages or exacerbations, and this is an advantage of the model of chronic care management.
- Team discussions and case conferences will be facilitated by the case coordinator using communications technology where practical and will be scheduled as required.
- Patient involvement in care planning activities and increased self-management is a core part of this approach (as is evident in the discussion of the care plan development).

- Because participating clinicians are not paid through the fee for service system, there are no financial disincentives against undertaking inter-professional communications without the patient present.
- The main community setting space for these consultations will be in the ‘third space’ which may become the locus of activity including facilitated health assessments by separate physicians for the conditions. Note that diagnostic testing professionals (e.g. imaging and pathology) will also be contracted as needed
- For GPs:
 - In addition to their ‘business as usual’ roles, GPs in the local health district where the model is established now have an additional role in opportunistic or general screening of patients for enrolment into this approach to chronic care conditions.
 - GPs will be active lead care managers in concert with physicians according to the changing patient conditions including in formulating an appropriately customised care plan (based on feedback from other health professionals in the team).
 - GPs will also have higher levels of immediate access to physician expertise for enrolled patients whether through the care coordinator or through any case conferences or virtual communications facilities about the patient care plan.
 - Where appropriate, GP offices may be used as the community setting for patients to consult with or communicate in other ways with the multidisciplinary team that they have been assigned to. Alternatively, the third space used may be adjacent or close to the GP office.
- For consultant physicians:
 - Opportunities to work in changed structures such as ‘third spaces’ and in ways that respond better to patient needs and community situated care.
 - A strategic opportunity for general medicine and geriatrician services because these physicians contribute a skillset that is trained for chronic condition patients.
 - In addition to their ‘business as usual’ roles, designated consultant physicians in hospitals now have time set aside to undertake opportunistic screening of patients for enrolment into the model of care.
 - Those operating as members of the core team who would tend to be general physicians may engage other sub-specialist physicians and collaborate with them in patient management but would serve as the main patient liaison for their sub-specialist colleagues.

New roles and opportunities for patient and family/carers

- Actively participates in development and review of the multi-disciplinary care plan
- Signs off on the care plan when complete
- Works with the Care Co-ordinator, GP and consultant physician to successfully implement all aspects of the care plan
- Makes informed decisions about their healthcare and goals for optimal functionality.

The new care coordinator role

- This is a new position for which funding needs to be allocated. This role is full time for each location. There may need to be more than one coordinator depending on referral rates and time required for each case (each area may have a different starting point in terms of what able to be quickly resourced and identified). This would allow appropriate workloads to be allocated to each care coordinator. The position would work from the preferred site of the Steering Committee. There is room for flexible organisation in that the person could spend half a week at rooms allocated at a hospital outpatients clinic and the remaining half at a participating GP practice or ACCHO or community health site (this means an ‘in kind’ donation of space).
- The coordinator role is integral to the model of care because this will be the common point of contact for the patient and each of the care providers included in each consumer’s chronic condition care plan. The coordinator will assist the patient and family / carers to better navigate the multiple care pathways required to improve outcomes and patient satisfaction and become the common point of contact for the patient and each of the care providers involved in the consumer’s chronic condition care plan. Therefore this role requires knowledge of treating local physicians within the hospital(s) and general and allied health

practices. The role also requires nurse clinician expertise and would likely be assigned to an RN trained with advanced skills in managing complex chronic conditions and multimorbidity

- The coordinator organises any multidisciplinary team review of patient records and arranges appointments. It is envisaged this would be done virtually, wherever practical, and requires record keeping as to which providers involved. The coordinator also facilitates patient referral to physician member of core care team if the patient experiences an unstable phase, through GP.

Within inpatient services

- Patients who go to ED with chronic multiple conditions out of anxiety but who do not require ED services will be able to be diverted to the MCCM if they meet enrolment criteria.
- Patients enrolled within the MCCM may be able to be quickly referred to hospital services as needed.
- The participating LHNs will be able to promote more developed protocols for pre-discharge planning and post discharge planning and programs through interface with the MCCM.
- The program may be able to facilitate greater use of early supported discharge.

3.7 Anticipated benefits of the MCCM

- Clearer and more coordinated pathways and processes for patients and family/carers to access the care they require
- Emphasis on proactive care and scheduling/organising for the multidisciplinary health input needed to mitigate risks
- An overtly patient centred approach because it includes patients and their carers in each aspect of the model – from design, to governance to the care team, and all care decisions. Planning patient receipt of care so that it models efficient business practice and includes respect for patient time, efficiencies for health provider time, fewer patient face to face appointments needed, optimal safe medication regimes
- This Model interlinks both private (GP and private consultant services) and public services (admitted and non-admitted hospital services).
- The important provision of a nurse as care coordinator in this model. This is a significant resource to the PHN/ACCHO /LHN, the clinicians and is essential to the patient.
- There are various touchpoints through which patients may enter this program (GP, hospital, community health, private consultant physician, ED, private hospital)
- Consultant physicians are supported to work in the primary care sector, which can also facilitate provision for quick in-patient admission as required.
- Recognition and response to the need for ACCHOs to be involved in governance and service delivery for Aboriginal and Torres Strait Islander people, and building on integrated care programs pioneered by Indigenous organisations.
- The more acute medium to high-risk patients identified, the greater the potential to include them in patient centred programs of care associated with reductions in high cost admissions, and anxiety prompted ED presentations.
- Each care delivery site (primary and secondary) is able to better manage their resources because of arguably less unmanaged reactive care with this patient group.
- More practitioner confidence in leadership is engendered because patient management is transferred in a timely way to the appropriate care sector. For example, consultant physicians may return care to GP, are able to provide timely advice to the care team, and GPs can be proactive in working with consultant physicians on multi-condition care plans.
- New capacity for health management prioritisation, especially in situations with discordant conditions (for complex comorbid conditions what needs to be done first and safely and maximum benefit).

- This model can ensure there is common baseline knowledge about what diagnostics have been ordered. Integrating hospital and GP records for enrolled patients for the health care team has the potential to improve patient safety, health care quality and the potential to reduce healthcare costs³⁰.
- The model is likely to increase the efficiency of physician input to patient care through the supported connectivity and means of communicating with the care team. This will impact the wait times for patients to activate their care plans and reduce wait time cost to the health care system³¹.
- Patients are more empowered by being included in the care plan as an active participant. The approach to care delivery is intended to support improved health literacy by not emphasising volume based servicing. Although the lead clinician on an individuals' care plan may change according to what is required during condition management, this model advocates the patient choosing who they wish to work with as the lead.
- Time is created for service providers to discuss and collaborate with the patient and with each other on best approaches to complex care (so that the burden of remembering and carrying across information is not on the patient).
- A patient centred record should follow the patient care pathway whether through My Health Record or a special portal supplied for this model of chronic care management.
- The collaborative and connected 'third space', with a care co-ordinator increases the likelihood of, and availability of information on, the carrying out of discharge plans.
- Increased likelihood of chronic illness supports such as care plans agreed, detailed and in place and able to be referred to by all providers, a sound record of medications and follow-up of care (including a review after 12 months).
- Reduced variability of care and increased continuity of care. Many patients, including rural areas with fly in doctors, rely on being able to see whomever practitioner is available. This MCCM offer greater consistency of care because there is a reference care plan, shared single information source, coordination and follow-up. Even if later there is a change in practitioner, the point of contact is continuous.

³⁰ Allen-Graham, J., Mitchell, L., Heriot, N., Armani, R., Langton, D., Levinson, M., Young, A., Smith, J.A., Kotsimbos, T. and Wilson, J.W., 2018. Electronic health records and online medical records: an asset or a liability under current conditions?. *Australian Health Review*, 42(1), pp.59-65.

³¹ Productivity Commission 2017, *Shifting the Dial: 5 Year Productivity Review*, Report No. 84, Canberra cites the cumulative effects of waiting times in doctors' offices as imposing costs on Australians of approximately one billion dollars annually, based on about 16 per cent of patients considering they waited longer times than acceptable to get an appointment with a GP, and nearly 25 per cent for specialists..

4. Additional details on the Model of Complex Care Management

This section provides some additional information on the following features of the model of complex care management:

- Subsection 4.1 describes the appropriate information management and digital health infrastructure that should underpin such a model
- Subsection 4.2 describes how the model can be adapted for particular areas of special need. As discussed previously, we have chosen cardiovascular-related chronic conditions as an ‘exemplar’ to illustrate how the model could work for these patients. But there is significant scope for it to be extended to other conditions.
- Subsection 4.3 sets out an evaluation plan for the model.

4.1 Information management and digital health systems to support integrated care

Information management and digital health systems are an enabler and integral part of the foundations for the model of chronic care management outlined later in this paper. Digital health systems allow real time communication between multiple members of the health care professional team and ensures the most up-to-date information is available. Technological ‘connecting mechanisms’ (moving health care plans and other information) between different parties, including consultant physicians, GPs, allied health and different health care sectors are essential to creating a more efficient, integrated, patient-centred and population-oriented health system^{32 33}.

For consultant physicians to be able to efficiently and effectively provide safe health care, they must be able to access the right information at the right time in the right place as well as be able to provide information to the patient and to other health providers. The content and detail of that information may vary according to the situations. For example, different specialties require different types of patient information. Consultant physicians must have much better access to eHealth Records, be able to make e-referrals and discharges summaries, and transmit letters electronically, utilize e-pathology and diagnostic services, and connect with patients and the health care team via M-Health. This would avoid delays in patient treatment and management, and reduce potential complications, duplication and general patient risk nationally³⁴.

Furthermore, consultant physicians tend to work in multiple parts of the health system and are often not employed by only one organization. Access to and use of digital health systems by consultant physicians will be improved if these systems have adequate versatility and flexibility to offer different functions for consultant physicians when they work in different sectors and interact with different health professionals.

As also previously discussed, consultant physicians also have a significant role in coordinating the care of complex cases.³⁵ The current reliance on GPs to be the only medical practitioners to upload health summaries to the My Health Record reduces the capacity for the specialist providing care coordination to maintain timely and accurate summaries within this valuable tool.

The digital health system is vital to the function of the proposed Care Coordinator, as she/he needs to effectively and efficiently communicate with different clinicians, including consultant physicians, to coordinate the care of the patients, including but not limited to:

- avoiding the duplication of services, e.g. Seeing an exercise physiologist for both cardiac and respiratory rehab program
- helping patients to organise appointments, especially in rural areas
- coordinating the treatment with allied health, including home care services

³² Supported in the AMA Pre-Budget Submission 2018-19

³³ Supported in the AMA Pre-Budget Submission 2018-19

³⁴ Medical Oncology Group of Australia Incorporated (2018) Submission to the Senate Enquiry into Health Services Red Tape, January 2018 https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Red_Tape/HealthServices/Submissions

³⁵ Australian Bureau of Statistics 2017-18 Patient Experiences in Australia Survey (Catalogue no. 4839.0)

- coordinating the treatment with different medical specialists
- reminding the patients to attend appointments, and coordinate transport if necessary
- supporting aged care assessment and service functions.

Bearing in mind the above considerations, outlined below are some ‘principles of good design’ to underpin a digital health framework including the My Health Record (MHR) initiative.

Principles of good design for a digital health framework to underpin the RACP model of chronic care management

The most pertinent issues for the consultant physician regarding digital health in this model of care come under these headings:

- 1) Interoperability and secure messaging
- 2) Ability to interface with MHR
- 3) Content and presentation
- 4) Telehealth
- 5) Patient monitoring
- 6) Implementation of digital health recommendations

1) Interoperability and Secure messaging. Information systems for consultant physicians must be able to accept and integrate information from multiple sources such as referrals, investigation results, and patient letters through secure portals, and also be able to send information to other health providers and patients through secure messaging systems. There is a need to:

- Resolve medico-legal issues and risks, including liabilities and insurance provisions related to sharing, uploading and accessing patient data securely. Also clarify the medicolegal issues around adoption and utilisation of technology to provide clinical advice to colleagues and patients without in-person contact with the patient.
- Provide a governance framework to clarify the security and medicolegal issues around new technologies and their use within clinical care. For example – what is the responsibility of a clinician who has access to 24/7 remote monitoring devices of a patient and the expectation of when to intervene? Is it acceptable to email patient advice between the health professional and patient or amongst the health professional multi-disciplinary team?
- Use high security and robust protocols when information is exchanged between different systems. Currently there are no clear minimum national standards for data maintained by physicians.
- Guarantee secure virtual working and communication networks to support virtual professional networks, and patient inclusion.
- Provide data platforms for secondary use. Examples of the value of secondary use of data includes using deidentified data to improve health service delivery processes. One useful application would be to develop better linkages between primary and secondary health services.
- Establish centralised electronic referral systems to support the appropriate engagement and inclusion of care providers (such as social care, aged care, hospital in the home services and nongovernment community agencies) including by emergency care providers.

2) Interface to MHR

- Enable the appropriate health service providers managing chronic conditions to interface with the digital health system and communicate with other clinics through the digital system via the ability to upload up to date health summaries, as well as event summaries. Solutions may vary between areas and may require cordoned funding support to make fit for purpose.
- Optimise the quality of the physician interface with MHR, in ways that enable the easy input and retrieval of up to date and relevant information. New functionality needs to be added to the My Health Record to allow the up-loading of patient care plans, incorporating therapeutic targets, and the steps to be taken to achieve these targets.
- The Australian Government should ensure that all clinicians, including specialist physicians, receive comparable incentives and assistance to those currently provided to GPs who have decided to participate in digital health.
- Ensure MHR has the capacity to support a “live” care plan that enables all health professionals involved in chronic disease management of the patient to monitor, contribute and communicate electronically with the patient and amongst the team.

- 3) Content of accessible patient information** (to allow increased communication between care team members)
- Physicians in this model of care need to access as a minimum, up to date information on:
 - a patient summary
 - key medications
 - results of various investigations, including those of radiological
 - allergies, alerts
 - information about carers, support workers and guardians.
 - Clinical digital content should be curated (i.e. structured, retrievable, accurate and identifiable rather than simply uploaded) to save time and maximise patient safety). For example, it is time consuming and risky trying to sort most current patient diagnostic results. The information content should be arranged in easily read format, or else adopt good reporting facilities (for example, using Common Language Interface), to allow the physician to retrieve relevant information.
 - Patient accessibility to data must be considered throughout planning stages to the extent that they are part of the care planning team and the care approach is patient centred.
 - Communities of practice (groups of professionals) can come together within PHN/LHNs to share selected information sets. As stages of integrated model implementation might vary in different regions, these communities of practice might use VPN remote access to speak together to develop health pathways, approaches to care and to facilitate access to shared relevant content.
 - Maximise inclusion of organisations and stakeholders involved in complex chronic care, and where consumers are situated. For example, it is critical that communications and digital functionality interfaces smoothly with residential aged care facilities and disability services organisations.
 - Provide adequate training to physicians to use the digital health interface.
 - Include digital referral systems, remote electronic prescribing, electronic directory of providers/organisations, e-health access to best practice/therapeutic guidelines, clinical assessment tools, decision support software, care planning tools.
 - Address fit for purpose e-discharge summaries.
- 4) Telehealth:**
- As described in the MCCM, telehealth can be used where convenient and clinically warranted. To facilitate this, there should be clarification of and medico-legal protection for clinicians, understanding the limitations of telehealth. As participating clinicians in the core multidisciplinary team are not funded on an episodic or fee for service basis, the following proposals may be moot but are relevant towards facilitating better integration in the healthcare system generally as well as being applicable towards those clinicians working in the FFS system who are recruited on an as needed basis:
 - There should be no minimum distance requirement for clinicians claiming for the appropriate use of telehealth items.
 - There should be ongoing incentives for use of telehealth. Telehealth is still the only feasible means in many Remote and Rural areas to access the services of specialist physicians.
 - Reduce the barriers for physicians to use telehealth because of the infrastructure required to install – additional technology and administrative support (telehealth equipment, scheduling software, mechanisms to collate and email patient records and investigation results³⁶).
- 5) Patient monitoring**
- Optimise the potential for digital health based tools to be used for patient monitoring as part of care management (this will be a function of the Care Management Committee in each localised model of care implementation). This is likely to include examining any current home monitoring services in place through other services and ensuring there is adequate provision and importantly funding for relevant clinicians to access and monitor individual information.
 - Ensuring appropriate funding models for review and interpretation of home monitoring data and clarification of health care professionals responsibilities when data is available 24/7.

³⁶ MBS Review Taskforce (2018) Report from the Specialist and Consultant Physician Consultation Clinical Committee

6) Implementation of digital health recommendations

- PHNs, ACCHOs and LHNs to describe the specific digital health gaps required for them to work in this integrated way through the proposed steering committees and clinical (care management) committees. PHNs and LHNs will begin from different levels of digital capacity to interface and support multidisciplinary team communications.
- Support active consumer participation in this integrated approach to care of chronic conditions by increasing health literacy, self-management and use of digital health information portals.
- Support (through dedicated funding) research into the use of appropriate digital health technologies to support our proposed Model of Chronic Care Management.
- Provide specific support and incentives targeted at physicians, as they are crucial to the success of digital health and MHR.
- Ensure ready access to clinical software that meets standards. Due consideration will need to be given to potential differences between the interests and sensitivities of the health system and internal stakeholders and those of the commercial stakeholders.

4.2 Areas of special need

The model is designed to be adaptable to localised circumstances because it is integrating PHN/ACCHO and LHN governance structures and joint funding decisions. Some key factors that may influence implementation of the model of chronic care management and require adaptation, include location (whether metropolitan or regional, rural or remote), population and demographic characteristics (these range from socioeconomic profiles, aged grouping such as older persons and cultural factors such as Indigenous status). We discuss three areas of special needs below, and the relevance of the MCCM. There is not scope here to address all potential applications, so we note that other vulnerable groups that could benefit from the MCCM integrated care approach include:

- People living with chronic severe mental illness
- Chronic intellectual disability and/or physical disability.

4.2.1 Regional, rural or remote areas

Multidisciplinary models of care can seldom be translated in rural, regional or remote areas in the same way as for metropolitan areas because some healthcare services may be stretched, intermittent, or simply not available. For instance, in metropolitan areas a key feature of this model would be to incentivise and assist hospital-based staff consultant physicians to work in community settings. However, this may be a moot point in many regional, rural or remote areas where there may be few hospital staff consultant physicians, with the possible exception of rehabilitation medicine. These areas may be reliant on visiting medical officers (VMOs). This reflects, among other things, the unequal distribution of the health workforce in Australia, and leads to limitations to the number and range of services available and the extent of consistent service provision. VMOs, which are employed to supplement service gaps, may have assessments pre-booked for available sessions but no time left to provide ongoing treatment.

These issues must be addressed given that a significant proportion of people, or around 3 in 10 (29%, or 7 million) Australians live in rural and remote areas where they can face a number of challenges due to geographic isolation, including difficulty accessing services. As a result, they often experience poorer health outcomes than people in major cities³⁷. With regard to the set of conditions used in this model of chronic care management, the prevalence of CVD is higher in regional and remote areas (25-27%) compared with major cities (20%)³⁸.

The recent Royal Commission into Aged Care Quality (2019) has highlighted the restricted access hospital and residential care facilities in regional and rural Australia have to geriatricians. The ‘third space’ talked about in this model (virtual teams, use of telehealth and other communications technology) emphasises

³⁷ Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW

³⁸ AIHW Cardiovascular Disease, diabetes and chronic kidney disease – Australian Facts: Prevalence and incidence. 201. Canberra: AIHW

multidisciplinary care, moving this care out of hospitals and addressing co-morbidity. This is achievable in rural areas. This recognises that people are more comfortable in community places of care.

Although the role of a ‘rural generalist GP’ has been discussed as a solution³⁹, the availability of a rural generalist GP may not obviate the need for high quality and safe physician expertise appropriate for the diagnosis, treatment and management of patients with chronic co-morbid conditions. This model provides a multidisciplinary service that is currently not available for the level of integrated safe, quality care needed by more complex patients. Consultant physicians are especially trained for complex patient conditions and combinations of patient conditions and work with GPs because safe patient care requires this specialist address, and GPs seek this input. Further, the care coordinator, as proposed in this model, in rural areas is a pivotal function for patients, connecting them with the multidisciplinary team care in a more efficient way.

The general physician role described in this model (which is physician trained and is not a GP) is a salient set of competencies in rural and remote areas, who is able to clarify patient care priorities in complex situations.

By contrast, the model presented here stresses the need for flexible physician services and proposes where there is insufficient physical availability of hospital staff physicians, that this could be addressed in part by better use of communications between the healthcare team and expert input without the patient needing to be present. These can be enabled by interoperable communication platforms and consultant physicians being able to delivery services within the community and remotely (using telehealth). Another approach which is possible under the model of chronic care management is to recruit more private practitioner consultant physicians into the multidisciplinary care team if any are available, if not in the local area, then through telehealth facilities from neighbouring regions.

4.2.2 Indigenous health service delivery

The challenges associated with Indigenous health service delivery can often combine the challenges associated with rural, regional or remote areas and those faced by Culturally and Linguistically Diverse (CALD) populations. The College recognises that low use of consultant physician services is a contributing factor to the health gap between Aboriginal and Torres Strait Islander people and non-Indigenous Australians. Further, that Aboriginal and Torres Strait Islander people continue to face barriers to accessing physician care whether they live in cities or in rural or remote areas.

The Model of Chronic Care Management can be adapted to increase effective integrated health service delivery for Indigenous people. This can be done with referral to the RACP National Medical Specialist Access Framework (MSAF). In particular, emphasis must be placed on collaboration between the stakeholders involved in delivering medical care at the regional level and key Indigenous organisations. Currently, many patients prefer to attend specialist clinics in Aboriginal Community Controlled Health Services Organisations (ACCHOs), and this is because ACCHOs are a familiar and culturally safe environment.

A significant priority for the College is drawing attention to the low use of specialist services as a contributing factor to the health gap between Aboriginal and Torres Strait Islander people and non-Indigenous Australians. The RACP Medical Specialist Access Framework ([MSAF](#)) is a mechanism for identifying and addressing gaps in Aboriginal and Torres Strait Islander communities’ access to specialist medical care. Quality health care and clear accountability are needed to ensure that the available funding for Aboriginal and Torres Strait Islander health care is most appropriately allocated.

The MSAF provides a foundation for reform which is consistent with the principles and building blocks for integrated care, but specifically addresses Indigenous Australians:

- Indigenous leadership is an essential principle of equitable access and delivery of health care to Aboriginal and Torres Strait Islander people.
- Culturally safe services, person-centred and family-orientated care (with emphasis on what has meaning to Indigenous people)
- Different types of health services and funding arrangements are needed to meet the health care needs of each diverse Aboriginal and Torres Strait Islander community specifically.

³⁹ National Rural Generalist Taskforce Advice to the National Rural Health Commissioner on the Development of the National Rural Generalist Pathway, December 2018.

- Medical specialist services need to be feasible and sustainable in the long term in order to have a meaningful impact on the burden of disease in Aboriginal and Torres Strait Islander peoples.
- Strong connections within primary, secondary and tertiary health care are needed to deliver coordinated and effective multidisciplinary care.

The Model of Chronic Care Management can be optimised for areas with a high Indigenous population, or a significant proportion of high risk Indigenous consumers in these ways:

- construct patient flow and multidisciplinary team composition to reflect community priorities for health improvements
- directly involve ACCHOs in assisting to determine clinical pathways and the direct provision of services (PHNs should give priority to the inclusion of ACCHOS in the determination of bundled care arrangements) and ideally include Indigenous governance and staff. This is reflected in the governance model discussed in this paper.
- design the program approach to recognise the value of family, resilience, culture and community, which in turn, leads to increased self-esteem, empowerment, cultural identity, and agency and control, for Indigenous peoples.

An example of a currently operating service provision model is provided here: the [Marrabinya service](#) model. This is a single indigenous-controlled brokerage service operating across the vast Western NSW PHN. For Indigenous people in Western NSW PHN, there are barriers of distance, cost and cultural difference. Primary health care services have been poorly linked to hospital-based and secondary services. Patients with multiple chronic conditions may require treatment and support from a range of services from different parts of the region and different parts of the health system. Poor coordination and communication among providers can ultimately affect the quality and safety of patient care, and these services may charge fees that are barriers for disadvantaged people.

This service has presence in many areas by staff being co-located in ACCHSs. Marrabinya supplements the work of ACCHOs and GPs by supporting their patients to first choose and then access and attend assessment, care and other services. Marrabinya's role includes making specialist appointments; payment of specialist gap fees; paying for diagnostic tests where a fee applies; helping with applications to State Government health assistance programs; arranging and paying for transport and/or accommodation to attend health appointments; and purchasing medical aids. Walking frames and other aids and appliances can also be hired or supplied. All Marrabinya support is guided by GP care plans and what support is provided is communicated back to the referring GP.

There are other models that can be drawn on, that demonstrate improved equity and access in action, such as the Victorian Aboriginal Health Service that bulk bills all clinical services delivered in-house or via local outreach.

4.2.3 Aged Care service delivery

Health care for Australia's ageing demographic is a significant strategic planning and policy issue. This is an example of where the principles on which this model is designed has capacity to address a range of aged care health sector needs:

- clear and strong integration of health and care or support services
- reduced patient costs of care
- improved access to well planned and coordinated care
- fewer patient contact and navigation points for both the patient and carers
- a planned sector wide response forecast demand for services

The MCCM involves the essential skills of the geriatrician directly, improving access to this specialised expertise, which is different to single condition or single organ specialists, for older persons. This expertise is included in care planning, assessment and condition management within the community. As the proportion of people over 85 years increases, it is suggested that with earlier high quality safe care management, more people will be able to remain for longer in their homes, relieving some demand pressure.

Further with multidisciplinary care planning, this may support improved accessibility to aged care packages, and reduce unnecessary transfers from residential care to Emergency Departments.

We can see how such an approach might be made available in consulting rooms in residential facilities.

4.3 Evaluation plan

Integrated care is a multifaceted field to evaluate, in which cause and effect can be problematic to discern and attribute directly. The reasons relate to different data sets, matching individual patient flow across sectors, how and what is recorded and the interplay between social and biological factors. Notoriously integrated care approaches suffer from not having sufficient lead time to collect and demonstrate outcomes. A detailed evaluation plan should be embedded into each site in which this MCCM is implemented from commencement. Here, we have set out parameters for evaluation with a set of measurable outcomes. For policy makers, governments and organisations, the evaluation should be constructed to address the quadruple bottom line parameters. For example, providing data on quality, financial performance (efficiency), social outcomes (service delivery and meeting patient needs and expectations) and provider satisfaction.

We recognise that comparability of model delivery sites may be limited in early stages if different algorithms or condition clusters are addressed. This does not mean that evaluation cannot still address clear outcome objectives and meaningful data.

Evaluation method

We propose an independent cluster randomised trial design for the evaluation comparing comparable LHN/PHN outcomes.

In this section we offer key data items on which to compare the MCCM patients and non MMCM patients:

- the annual actual versus projected hospitalisation costs of the two groups and, to test if there are significant differences between actual versus projected costs in the intervention group.
- Annual number of hospital visits including nature of those visits
- Consultations. For the control group this will be the annual number of consultations with MBS billing private practitioners and for the MCCM group, the annual number of consultations with the multidisciplinary team members, documenting the nature of those consultations. The workflow of the various members of the multidisciplinary team over the year would be tracked to determine the nature of their involvement with and time spent on the patient.
- Patient outcome measures for both control and intervention groups. This is partly to test whether there are differences in the quality of care provided between the two groups (for instance, to check that cost savings achieved in the intervention group have not been achieved at the expense of significantly lower quality of care).
- Level of patient satisfaction through a qualitative survey.
- Level of professional satisfaction through a qualitative survey compared against the results of a similar survey of a sample of medical services providers who are not involved in the MCCM.
- Relevant data for Indigenous patients should also be included in total data collection and should involve ACCHO input into appropriate items.

The construction of the evaluation should result in information that will allow the PHNs/ACCHOs and LHNs to discuss and modify:

- Technical aspects and quality
- The quality of the actions that are part of the essential mechanics of implementing and running the approach to care
- Continuity of care mechanisms
- Appropriateness of care;
- Efficiency of care
- Quality of communication
- The degree to which care is sustained and followed up over time
- That the level of horizontal and vertical integration is fit for purpose.

We envisage an evaluation timeframe of 3-4 years, preferably longer, to allow for implementation lead time, clinician engagement and patient outcomes to become evident.

Below is a set of draft measurable outcomes to reflect expected MCCM impact for MCCM enrolled patients compared to comparable non MCCM patients:

Measurable impact	Expected change
FINANCIAL PERFORMANCE AND EFFICIENCY	
Hospital services	
Hospital readmissions	Reduced
Unplanned bed days	Reduced
ED visits per patient after 3 years	Reduced
Urgent hospital presentations	Reduced
No. planned hospital admissions	100% planned
No. hospital admissions associated with adverse medication events	
Costs	
Extent of cost per patient maintained in annual budget allocation	
Average cost per patient, and range of annual costs per patient	
Pathology tests	
During program, no unnecessary repetition of pathology tests	
Test results able to be shared and accessed in a timely way by team members	
No. of pathology tests	
SOCIAL OUTCOMES	
Patient Experience	
Patient reported overall no. of medical appointments	Reduced
Patient reported satisfaction and experience of coordination and integration	High
Patient reported disincentive to present at ED or outpatients	High
Inclusion in all decisions	100%
Confidence in management of care	100%
Aboriginal and Torres Strait Islander people	
Include specific measures for ATSHI people that have been developed in consultation with ACCHO in areas of MCCM implementation	
Where possible, national indicators should be used to allow for benchmarking, for example:	
The proportion of Indigenous clients with high absolute cardiovascular risk	Decrease
Service accessibility and timeliness of care	
From patient and providers perspectives	
Provider satisfaction	High
Providers report sufficient ability to confer, provide and receive team advice	
Percentage of patients able to adhere to their care plan	
Able to spend time on top of scope quality high value care service	
More efficient service provision	
Provider experience of integration	
Qualitative assessment	
Care management	
Comprehensive care plan in place for each patient before any hospitalisation	Increased
Proportion of chronic patients with a care plan compared to wider chronic condition population	Higher
Percentage of patients with team assessed objective condition improvement after 12 months	

Percentage of patients transferred to GP management	
Movement of patients between risk classes compared to program entry (to point of stabilisation and return to GP care)	
Percentage of patient exits from program	
Tools	
Risk stratification tool provides accurate assessment	
Utility of IT to support integration functionality and program delivery	

Other areas that will need to be included in the overall assessment are the utility of the governance structure, effectiveness of IT support platforms and availability of operational supports for the model's implementation.

5. Special section on non MCCM services (fee for service sector)

Incentivising collaboration in the Fee for Service Sector

This paper has described the limitations of the FFS model of medicine which underlies the MBS system (section 2). The Model of Chronic Care Management is able to run as a co-operative model supported by the agreed diverting of existing government payments to a single shared, jointly managed fund. However, better integrated care should not be confined to patients with chronic and multiple conditions, (which are the focus of this proposal). Significant barriers to better integrated care from consultant physicians' experience can be addressed by describing how integration can be enhanced for patients who are not part of the Model of Chronic Care Management within the current MBS schedule. The relatively straightforward recommendations below would leverage the readily available expertise of physicians and better support GP management of patients within the community.

1. Telehealth limitations

It is recommended:

- 1.1 That the current distance requirements nominated in MBS items for specialist telehealth consultations be removed as facilitating direct patient access to specialist expertise can be of benefit regardless of where the patient lives. This should apply to current MBS telehealth items numbers for specialists that allow a range of existing MBS attendance items to be provided via video conferencing.
- 1.2 That direct patient access to telehealth consultations be better designed for multimorbid conditions (as characterized by Cardiometabolic Syndrome) by introducing MBS telehealth item changes to include more than one specialist. Current specialist item numbers are for single specialist consultations only.
- 1.3 That MBS telehealth items be developed to extend reimbursement for use of telehealth practice nurses and allied health practitioners.

2. Team care provisions

It is recommended:

- 2.1 That an item number for physicians to be able to provide team care in the private sector be introduced (for example, to support a case conference between a specialist physician and an allied health professional).
- 2.2 That current MBS items for Team care arrangements (TCA) be amended to allow for more than one specialist to be included as part of the minimum number of three providers, for example, a GP and two specialists. This prohibition is unnecessarily restrictive when dealing with a recognized syndrome that includes three chronic conditions needing treatment by several specialists and subspecialties.

3. Interprofessional communication of advice without the patient being present

It is recommended:

- 3.1 Amend existing multidisciplinary case conferencing items to cover cases where specialists communicate expert advice to GPs, other specialists and other health professionals through mechanisms other than face to face patient consultations. Mechanisms include telephone calls, time on emails, input into shared care plans, review and consideration of information sent to the specialist by GPs or other specialists, all without the patient being present.

4. Referrals

It is recommended:

- 4.1 That consultant physicians can refer patients to allied health professionals via the shared care plan which would then not mean an additional GP appointment for the patient. While it is critical that GPs be included and informed of patient care involvement, in collaborative and communicative care

arrangements, this requirement appears to unnecessarily impose obligations and time delays for the patient.

APPENDIX 1: Burden of disease for multi-morbidities associated with cardiovascular disease

Chronic conditions are Australia's leading cause of ill health and have serious implications for the health system.

- Patients with multimorbidity have higher healthcare resource utilization, including more hospitalizations, outpatient visits, and subspecialist referrals.⁴⁰
- One in 2 (50%) Australians are estimated to have at least 1 of 8 selected common chronic conditions: cancer, cardiovascular disease, mental health conditions, arthritis, back pain and problems, chronic obstructive pulmonary disease, asthma and diabetes. Nearly 1 in 4 (23%) Australians are estimated to have two or more of these conditions⁴¹.
- Coronary heart disease was the leading cause of death for males in 2016, accounting for 13% of deaths. Dementia and Alzheimer disease was the leading cause of death for females, accounting for 11% of deaths, closely followed by coronary heart disease⁴².
- Chronic disease is the leading cause of death in Australia and there is a rising burden of multi-morbidity⁴³.
- Approximately 29% of adults were diagnosed with CKD, DM or cardiovascular disease (CVD) in 2011-12⁴⁴. Of this population, 7.2% had at least two of these three chronic diseases. People with CKD, DM or CVD (including HF) accounted for approximately 1.8 million non-dialysis hospitalisations between 2012 and 2013—22% with a combination of these conditions⁴⁵.

Prevalence of chronic conditions

- The 2014-15 National Health Survey revealed that 1 in every 2 Australians (50%) self-reported they have at least one prominent (i.e. arthritis, asthma, back pain, cancer, cardiovascular disease, chronic obstructive pulmonary disease, diabetes or mental health conditions) chronic condition⁴⁶.
- This same survey showed that nearly a quarter of all Australians (23%), and 3 in every 5 Australians (60%) aged over 65 years, had two or more chronic conditions⁴⁷.
- In 2011 chronic conditions were responsible for around three-quarters of the total non-fatal burden of disease in Australia⁴⁸.
- People with a mental illness have higher levels of morbidity and mortality from chronic diseases, including CVD⁴⁹.
- Aboriginal people on average have more co-morbidities, and a higher rate of urgent/semi-urgent emergency department (ED) presentations than the rest of the Australian population⁵⁰.
- Bettering the Evaluation and Care of Health (BEACH) data on recorded GP attendances showed that about two-thirds (65.7%) of the patients with at least one chronic condition had two or more chronic conditions. From this data it was estimated that 27.4% of patients at GP encounters and 17.0% of the Australian population had complex multimorbidity⁵¹

⁴⁰ Bahler C, Huber CA, Brungger B, Reich O. Multimorbidity, health care utilization and costs in an elderly community-dwelling population: a claims data based observational study. BMC Health Serv Res. 2015; 15:23. [PubMed: 25609174; Condelius A, Edberg AK, Jakobsson U, Hallberg IR. Hospital admissions among people 65+ related to multimorbidity, municipal and outpatient care. Arch Gerontol Geriatr. 2008; 46(1):41-55; vanOostrom SH, Picavet HS, deBruin SR, Stirbu I, Korevaar JC, Schellevis FG, et al. Multimorbidity of chronic diseases and health care utilization in general practice. BMC Fam Pract. 2014; 15:61.

⁴¹ Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW.

⁴² Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW.

⁴³ Australian Bureau of Statistics. (2016). Australia's leading causes of death 2015. Canberra: ABS

⁴⁴ Australian Institute of Health and Welfare. (2014a). Cardiovascular disease, diabetes and chronic kidney disease – Australian facts: Prevalence and incidence. Canberra: AIHW

⁴⁵ Australian Institute of Health and Welfare. (2014b). Cardiovascular disease, diabetes and chronic kidney disease – Australian facts: Morbidity - Hospital care. Canberra: AIHW

⁴⁶ Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health no. 15. Cat. no. AUS 199. Canberra: AIHW.

⁴⁷ Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health no. 15. Cat. no. AUS 199. Canberra: AIHW.

⁴⁸ Australian Institute of Health and Welfare 2016. Australian Burden of Disease Study: impact and causes of illness and death in Australia 2011. Australian Burden of Disease Study series no. 3. Cat. no. BOD 4. Canberra: AIHW.

⁴⁹ Fehily, C., Bartlem, K., Wiggers, J., Wolfenden, L., Regan, T., Dray, J., Bailey, J. and Bowman, J., 2018. Systematic review of interventions to increase the provision of care for chronic disease risk behaviours in mental health settings: review protocol. Systematic reviews, 7(1), p.67.

⁵⁰ Teng, T.H.K., Katzenellenbogen, J.M., Geelhoed, E., Gunnell, A.S., Knuiman, M., Sanfilippo, F.M., Hung, J., Mai, Q., Vickery, A. and Thompson, S.C., 2018. Patterns of Medicare-funded primary health and specialist consultations in Aboriginal and non-Aboriginal Australians in the two years before hospitalisation for ischaemic heart disease. International journal for equity in health, 17(1), p.111

⁵¹ Harrison, C., Henderson, J., Miller, G. and Britt, H., 2016. The prevalence of complex multimorbidity in Australia. *Australian and New Zealand journal of public health*, 40(3), pp.239-244.

- The most common combination was hypertension plus hyperlipidaemia (12.1% of patients at encounters and 8.3% of the Australian population)⁵².

Multi morbidities associated with cardiovascular disease

Conditions:

- Cardiovascular disease (CVD)
- Obesity
- Hypertension
- Diabetes
- Chronic Kidney Disease (CKD)
- Chronic Obstructive Pulmonary Disease (COPD)

We also recognize the association and relationship between chronic conditions and mental health:

- 28% of people with a chronic physical condition also have a mental health condition⁵³.
- Depression also increases the likelihood of developing a chronic physical illness, particularly heart disease, stroke and diabetes⁵⁴.
- Depression is a significant risk factor for heart disease⁵⁵.
- The 2007 NSMHWB found that 11.7% of adults with a mental disorder in the previous 12 months also reported a physical disorder (referred to as a 'comorbid' disorder')⁵⁶.

Cardiovascular disease (CVD)

- Cardiovascular disease (CVD) is one of Australia's largest health problems.
- Cardiovascular conditions tend to be among the most common conditions present in patients with multimorbidity.⁵⁷
- It is generally associated with other health conditions including obesity, hypertension⁵⁸, diabetes⁵⁹, Chronic Kidney Disease (CKD)⁶⁰, and Chronic Obstructive Pulmonary Disease (COPD).⁶¹
- Recent research from the UK has also found that comorbidities usually considered discordant with CVD constituted four of the ten most common comorbidities.⁶²
- It has been stated that the probability of developing a second or third cardiometabolic condition is significantly higher than the probability of a transition from no disease to a single cardiometabolic disease.⁶³
- It has been estimated that 30 per cent of the total dementia burden in Australia is due to the joint effect of certain vascular risk factors.⁶⁴
- Multi-morbidities associated with cardiovascular disease are increasingly being found in paediatric patients – for instance among those who are suffering from type 1 and type 2 diabetes.⁶⁵

⁵² Harrison, C., Henderson, J., Miller, G. and Britt, H., 2016. The prevalence of complex multimorbidity in Australia. *Australian and New Zealand journal of public health*, 40(3), pp.239-244.

⁵³ Australian Institute of Health and Welfare (2012). Australia's health no. 13. Cat. no. AUS 156. Canberra: AIHW

⁵⁴ Deloitte Access Economics (2013). The economic impact of stroke in Australia. Melbourne: National Stroke Foundation.

⁵⁵ Bunker, S.J., Colquhoun, D.M., Esler, M.D. et al (2003). Stress and coronary heart disease: psychosocial risk factors. National Heart Foundation of Australia position statement update. *Medical Journal of Australia*, 178, pp.272-276

⁵⁶ ABS (Australian Bureau of Statistics) 2008. National Survey of Mental Health and Wellbeing 2007: summary of results. ABS cat. no. 4326.0. Canberra: ABS.

⁵⁷ Forman DE, Maurer MS, Boyd C, et al. Multimorbidity in Older Adults With Cardiovascular Disease. *Send to J Am Coll Cardiol.* 2018 May 15;71(19):2149-2161. doi: 10.1016/j.jacc.2018.03.022.

⁵⁸ Bundy JD, Li C, Stuchlik P, et al. Systolic Blood Pressure Reduction and Risk of Cardiovascular Disease and Mortality: A Systematic Review and Network Meta-analysis. *JAMA Cardiology.* 2017;2(7):775-781. doi:10.1001/jamocardio.2017.1421.

⁵⁹ Suckling R, Gallagher H. Chronic kidney disease, diabetes mellitus and cardiovascular disease: risks and commonalities. *J Ren Care.* 2012 Feb;38 Suppl 1:4-11. doi: 10.1111/j.1755-6686.2012.0027

⁶⁰ Suckling R, Gallagher H. Chronic kidney disease, diabetes mellitus and cardiovascular disease: risks and commonalities. *J Ren Care.* 2012 Feb;38 Suppl 1:4-11. doi: 10.1111/j.1755-6686.2012.0027

⁶¹ Morgan, A. D., Zakeri, R., & Quint, J. K. (2018). Defining the relationship between COPD and CVD: what are the implications for clinical practice? *Therapeutic Advances in Respiratory Disease*, 12, 1753465817750524. <http://doi.org/10.1177/1753465817750524>

⁶² Tran J, Norton R, Conrad N, Rahimian F, Canoy D, Nazarzadeh M, et al. Patterns and temporal trends of comorbidity among adult patients with incident cardiovascular disease in the UK between 2000 and 2014: A population-based cohort study. *PLoS Med.* 2018; 15(3):e1002513

⁶³ Xu X, Mishra GD, Dobson AJ, Jones M. Progression of diabetes, heart disease, and stroke multimorbidity in middle-aged women: A 20-year cohort study. *PLoS Med.* 2018; 15(3):e1002516

⁶⁴ Australian Institute of Health and Welfare 2016. Contribution of vascular diseases and risk factors to the burden of dementia in Australia: Australian Burden of Disease Study 2011. Australian Burden of Disease Study series no. 9. Cat. no. BOD 10. Canberra: AIHW

⁶⁵ Truong UT, Maahs DM, Daniels SR. Cardiovascular Disease in Children and Adolescents with Diabetes: Where Are We, and Where Are We Going? *Diabetes Technology & Therapeutics.* 2012;14(Suppl 1):S-11-S-21. doi:10.1089/dia.2012.0018.

- Re-admissions. An Australian study of patients admitted to hospital for heart failure found that 21% of those who were discharged subsequently had an unplanned readmission.⁶⁶
- Aboriginal people were less likely to have seen a consultant physician prior to their first Ischaemic Heart Disease hospitalisation.⁶⁷

Obesity

- Australia ranked in the worst third of OECD countries for obesity among people aged 15 and over.
- Overweight and obesity in Australia is a major public health issue that has significant health and financial costs.
- Overweight and obesity are risk factors for several chronic conditions. Overweight or obese adults report higher rates of arthritis, back pain and problems, diabetes and cardiovascular diseases than adults in the normal weight range⁶⁸.
- There is strong evidence of increased risk in overweight and obese individuals in the adult population for these chronic conditions (or linked diseases): cancer, cardiovascular disease, chronic kidney disease, diabetes and musculoskeletal problems⁶⁹.
- 53% of diabetes burden and 45% of osteoarthritis burden were due to overweight and obesity⁷⁰.
- Overweight and obesity, when considered together with insufficient physical activity, is estimated to account for 9% of the total disease burden in Australia—the same as tobacco smoking (the leading risk factor)⁷¹.
- Almost one-quarter of children and two-thirds of adults are overweight or obese, and rates continue to rise, largely due to a rise in obesity, which cost the economy \$8.6 billion in 2011–12⁷².
- Almost two-thirds (63%) of Australians aged 18 and over, and more than one-quarter (28%) of children aged 5–17 are overweight or obese^{73 74}.
- By 2025, the number of Australian adults (25+ years) who are obese is projected to exceed 6 million⁷⁵.

Hypertension

- Bettering the Evaluation and Care of Health (BEACH) data was analysed for multimorbidity and found that the most common combination was hypertension plus hyperlipidaemia (12.1% of patients at encounters and 8.3% of the Australian population)⁷⁶.

Diabetes

- The [prevalence](#) of diabetes (based on self-reported data) has tripled between 1989–90 and 2014–15. The proportion of people with diabetes has increased from 1.5% to 4.7%⁷⁷.
- There are an estimated 1.2 million people aged 2 years and over (5.1% of the population) with diagnosed diabetes in Australia⁷⁸.
- Around 1 in 8 (13%) Indigenous Australian adults (46,200 people) had diabetes, based on self-report and measured data from the ABS 2012–13 National Aboriginal and Torres Strait Islander Health Measures Survey.

⁶⁶ Korda RJ, Du W, Day C, Page K, Macdonald PS, Banks E. Variation in readmission and mortality following hospitalisation with a diagnosis of heart failure: prospective cohort study using linked data. *BMC Health Services Research*. 2017; 17:220. doi:10.1186/s12913-017-2152-0.

⁶⁷ Teng, T.H.K., Katzenellenbogen, J.M., Geelhoed, E., Gunnell, A.S., Knuiman, M., Sanfilippo, F.M., Hung, J., Mai, Q., Vickery, A. and Thompson, S.C., 2018. Patterns of Medicare-funded primary health and specialist consultations in Aboriginal and non-Aboriginal Australians in the two years before hospitalisation for ischaemic heart disease. *International journal for equity in health*, 17(1), p.111

⁶⁸ Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW

⁶⁹ AIHW. Australian Burden of Disease Study: impact and causes of illness and deaths in Australia 2011. Australian Burden of Disease Study series no. 3. Cat. no. BOD 4. Canberra: AIHW

⁷⁰ Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW

⁷¹ Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW

⁷² Australian Institute of Health and Welfare 2017. Impact of overweight and obesity as a risk factor for chronic conditions: Australian Burden of Disease Study. Australian Burden of Disease Study series no.11. Cat. no. BOD 12. BOD. Canberra: AIHW.

⁷³ Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW

⁷⁴ Australian Institute of Health and Welfare 2018. Australia's health 2018. Australia's health series no. 16. AUS 221. Canberra: AIHW.

⁷⁵ Walls L, Magliano D, Stevenson C. Projected progression of the prevalence of obesity in Australia. *Obesity* 2012; 20: 872 – 8.

⁷⁶ Harrison, C., Henderson, J., Miller, G. and Britt, H., 2016. The prevalence of complex multimorbidity in Australia. *Australian and New Zealand journal of public health*, 40(3), pp.239-244.

⁷⁷ Australian Bureau of Statistics 2015. 4364.0.55.001 - National Health Survey: First Results, 2014-15

⁷⁸ Australian Bureau of Statistics 2015. 4364.0.55.001 - National Health Survey: First Results, 2014-15

- There are currently no national data that capture the prevalence of type 1 diabetes at all ages, but there are estimates for children—almost 6,400 children aged 0–14 had type 1 diabetes in 2016, according to the National (insulin-treated) Diabetes Register (NDR).
- There were 2,600 new cases (incidence) of type 1 diabetes in Australia in 2016, equating to 12 cases per 100,000 population, according to the NDR.
- An estimated 1 million Australian adults (5%) had type 2 diabetes in 2014–15, according to self-reported data from the ABS 2014–15 National Health Survey. Type 2 diabetes accounts for approximately 85 per cent of people with diabetes⁷⁹.
- There are a significant number of diabetes-related complications, many of which are preventable. They include heart attack, stroke, amputation, blindness, kidney failure, depression and nerve disease⁸⁰.

Health care that is directly attributable to diabetes costs approximately \$1.7 billion per year⁸¹. In terms of indirect costs, the full cost of diabetes may be as high as \$14 billion per year. These indirect costs include reduced productivity, absence from work, early retirement and premature death and bereavement. Costs are heavily concentrated in particular sub-groups of people with diabetes. Annual direct costs for people with diabetes complications are more than twice as much as for people without complications: \$9600 compared with \$3500⁸².

Health care service burden

- There were over 1 million hospitalisations where diabetes was recorded as the principal and/or additional diagnosis in 2015–16, according to the AIHW National Hospital Morbidity Database. This represents 10% of all hospitalisations in Australia. *Note that hospitalisation data presented here are based on admitted patient episodes of care, including multiple events experienced by the same individual.*

In 2015–16 there were around⁸³:

- 50,000 hospitalisations with diabetes as the **principal diagnosis** (*the diagnosis largely responsible for hospitalisation*). Of these hospitalisations, 29% were due to type 1 diabetes and 63% were due to type 2 diabetes;
- 1,053,700 hospitalisations with diabetes as an **additional diagnosis** (*a coexisting condition with the principal diagnosis or a condition arising during hospitalisation that affects patient management*). Of these hospitalisations, 4% were due to type 1 diabetes and 90% were due to type 2 diabetes.

Chronic Kidney Disease

- In 2011–12, an estimated 1.7 million Australian adults (10% of the total population) had clinical and biochemical features of chronic kidney disease (CKD), with similar numbers of males and females⁸⁴.
- One of the leading risk factors for CKD is diabetes mellitus (DM), both type I and type II that, together with associated micro and macrovascular complications, have attained epidemic proportions, in Australia⁸⁵.
- the effects of these complications are multi-systemic, involving the eyes, brain, heart, nerves and kidneys, and the morbidity and mortality are high.
- patients with diabetic kidney disease have a 79% increased risk of congestive heart failure, 41% increased risk of atherosclerotic vascular disease and 56% increased risk of death⁸⁶.

⁷⁹ [Australian National Diabetes Strategy](#) 2016–2020

⁸⁰ [Australian National Diabetes Strategy](#) 2016–2020

⁸¹ AIHW 2013. Diabetes expenditure in Australia 2008–09. Canberra: AIHW.

⁸² Lee C, Colagiuri R, Magliano D et al. 2013. The cost of diabetes in adults in Australia. *Diabetes Research and Clinical Practice* 99:385–390.

⁸³ <https://www.aihw.gov.au/reports/diabetes/diabetes-snapshot/contents/hospital-care-for-diabetes> (accessed 2/11/2018)

⁸⁴ Australian Bureau of Statistics. Australian Health Survey: Biomedical Results for Chronic Diseases 2011 – 12 . Cat. No. 4364.0.55.005. Canberra: Australian Bureau of Statistics; 2013

⁸⁵ Baker IDI, Diabetes Australia. Diabetes: The silent pandemic and its impact on Australia; 2012.

⁸⁶ Deloitte Access Economics, Kidney Health Australia. Two of a KinD (Kidneys in Diabetes); 2011

- in 2012, the total costs attributable solely to CKD (excluding ESRD) were estimated at \$4.1 billion. This comprised of \$2.5 billion in direct healthcare costs, \$700 million in direct non-healthcare costs and \$900 million in government subsidies⁸⁷.
- Despite the incredibly high health morbidity, mortality and economic costs, kidney disease is not highlighted as one of the nine National Health Priority Areas (NHPA) by the Australian government⁸⁸.
- Chronic kidney disease (CKD) is a major risk factor for endstage renal disease, cardiovascular disease, and premature death⁸⁹.

COPD

- COPD is associated with hypertension and CHD.
- In 2011, COPD was the fourth leading specific cause of total burden⁹⁰.
- The prevalence of COPD (across all age groups) among Indigenous Australians is 2.5 times as high as the prevalence for non-Indigenous Australians after adjusting for differences in age structure⁹¹.
- COPD may be associated with other chronic conditions such as asthma, respiratory cancers, diabetes and diseases of the heart and blood vessels due to shared risk factors and the effect of COPD on other parts of the body⁹².
- Because COPD is more likely to occur in older people, people with COPD also commonly report a range of other chronic conditions. These comorbidities contribute to ill health and risk of death in all stages of COPD, and the incidence of hospitalisation for non-respiratory causes is increased in patients with COPD. As well, when people are admitted for non-respiratory causes, they have a longer length of hospital stay and are more likely to die if they also have COPD⁹³.

Rural and remote

- Around 3 in 10 (29%, or 7 million) Australians live in rural and remote areas where they can face a number of challenges due to geographic isolation, including difficulty accessing services. As a result, they often experience poorer health outcomes than people in Major cities⁹⁴.
- The prevalence of CVD is higher in regional and remote areas (25-27%) compared with major cities (20%)⁹⁵.

⁸⁷ Wyld MLR, Lee CMY, Zhuo X, White S, Shaw JE, Morton RL et al .Cost to government and society of chronic kidney disease stage 1 – 5: a national cohort study. *Intern Med J* 2015; 45 :741 – 7

⁸⁸ Lecamwasam, A., Ekinci, E.I., MacIsaac, R.J., Saffery, R. and Dwyer, K.M., 2017. The threat among us: significance and scale of diabetic chronic kidney disease in Australia. *Internal medicine journal*, 47(12), pp.1339-1341.

⁸⁹ Mills, K.T., Xu, Y., Zhang, W., Bundy, J.D., Chen, C.S., Kelly, T.N., Chen, J. and He, J., 2015. A systematic analysis of worldwide population-based data on the global burden of chronic kidney disease in 2010. *Kidney international*, 88(5), pp.950-957.

⁹⁰ Australian Institute of Health and Welfare (AIHW) 2016. Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011. Australian Burden of Disease Study series no. 3. BOD 4. Canberra: AIHW.

⁹¹ ABS 2013. Australian Aboriginal and Torres Strait Islander Health Survey: First Results, Australia, 2012–13. ABS cat. no. 4727.0.55.001. Canberra: ABS.

⁹² Australian Institute of Health and Welfare 2018. COPD: a snapshot. Cat. no. ACM 35. Canberra: AIHW

⁹³ Australian Institute of Health and Welfare 2018. COPD: a snapshot. Cat. no. ACM 35. Canberra: AIHW
<https://www.aihw.gov.au/reports/asthma-other-chronic-respiratory-conditions/copd-associated-comorbidities-and-risk-factors/contents/about-copd-and-associated-comorbidities> [accessed 5/11/2018]

⁹⁴ Australian Institute of Health and Welfare 2018. Australia's health 2018: in brief. Cat. no. AUS 222. Canberra: AIHW

⁹⁵ AIHW Cardiovascular Disease, diabetes and chronic kidney disease – Australian Facts: Prevalence and incidence. 201. Canberra: AIHW

APPENDIX 2: Illustrative case studies

CASE STUDY 1: Tom

Presentation: Middle aged man, Indigenous, living in regional Western Australia

Tom goes to the local hospital ED with shortness of breath. He is a smoker and chronic drinker.

Entry to MCCM via Hospital ED: Preliminary assessment by ED medical staff. Risk assessment. Meets criteria. Consents. Records sent to Care Coordinator.

Multiple Conditions identified:

- Breathlessness – cause to be determined
- Chest pain
- Obesity
- Chronic kidney disease
- Cultural safety and appropriateness of care
 - Risk of Discharge Against Medical Advice (DAMA)

Undiagnosed conditions:

- Cardiomyopathy – possibly ischaemic or due to other cause
- Obstructive sleep apnoea
- Depression
- Diabetes
- COPD

Care coordinator identifies Complex Care Consultant Physician, GP and Aboriginal Health Practitioner who develop care plan & identify other team members (including culturally appropriate allied health, and social care agencies)	Assessment & care planning & agreement as to budget allocation (PHN/LHD)	Care Coordinator facilitates further assessment, rehabilitation & care plan optimisation & care monitoring	Transition to maintenance and monitoring under GP &/or physician
<p>The core team will be:</p> <p>GP Complex Care Consultant Physician Care coordinator Aboriginal Health Practitioner</p> <p>The goals of care will be:</p> <p>Provide culturally safe and appropriate care</p>	<p>Budget assigned according to local MCCM steering committee protocols.</p> <ul style="list-style-type: none"> • Tom knows his healthcare team understands his medical situation and the wider context of his care. He knows all the key clinicians will be consulted and his wishes taken into consideration. 	<ul style="list-style-type: none"> • Undiagnosed conditions able to be identified • The multidisciplinary team rigorously reviews the care plan, and all make contributions • Aboriginal Health Practitioners supported to be active participants in the health care team – providing increased cultural safety for Tom 	<p>The involvement of the Complex Care Consultant Physician from the beginning supports more effective contributions by the GP, Aboriginal Health Practitioner and other health care practitioners, allowing them to operate at the upper level of their scope of practice.</p> <p>Maintenance and monitoring of Tom's ongoing clinical stability</p>

<p>Reduce risk of Discharge Against Medical Advice (DAMA)</p> <p>Provide care in the community and avoid hospital admission</p> <p>Undertake comprehensive patient-centred clinical evaluation and problem identification</p> <p>Development of appropriate, customised and detailed comprehensive and integrated complex care plan</p> <p>The multidisciplinary and inter-professional care team will include:</p> <ul style="list-style-type: none"> Cardiologist Nephrologist Rehabilitation medicine physician Sleep health physician Dietician Psychologist Aboriginal community health care Psychiatrist Drug and alcohol educator <ul style="list-style-type: none"> • The Complex Care Consultant Physician can be engaged from the private 	<ul style="list-style-type: none"> • GP is better engaged in care and post hospital care planning, even though initial point of care was hospital • Tom's mental health needs are assessed and included in the care plan • Aboriginal Community Care Health Organisations are actively included in the health care delivery and planning <p>The Complex Care Consultant Physician plays a crucial role in optimising best practice care for all complex conditions and with the core team, in consultation with Tom, will prepare a multidisciplinary care plan for short, medium and longer-term health management priorities.</p>	<ul style="list-style-type: none"> • Medications are well managed and monitored • Tom knows how to contact his care coordinator who acts as a resource for Tom to feel at the centre of care and make informed decisions • Tom is empowered to make his own healthcare decisions. • It is likely Tom will be able to avoid ED admissions and unplanned hospital services. 	<p>can be undertaken by appropriate health care practitioners but with the support of, and with reference to, the Consultant Physician as part of the ongoing patient-centred, comprehensive, integrated care team.</p>
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<p>sector in the integrated model of care</p> <ul style="list-style-type: none"> • Access to a wide range of health professionals has been facilitated by the care coordinator 			
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Current health care organisation – there are risks in the current health service model without the MCCM patient centred, Consultant Specialist integrated team-based approach:

- High Discharge Against Medical Advice (DAMA) rate
- High risk of acute re-presentation to ED and hospitals with acute deterioration
- Delays in establishing accurate and comprehensive diagnoses
- Delays in commencing Consultant Specialist supported best practice care
- Additional high cost point of care services, including:
 - Duplication of costs, including pathology and radiology tests
 - Mental health burden,
 - Reduced capacity for work,
 - Worsened physical health status.

The involvement of the Complex Care Consultant Physician from the beginning allows prompt Consultant Specialist evaluation, accurate diagnosis and commencement of best practice care.

For example – under the current system without the MCCM team:

- Tom goes to GP who is new to the area.
- Without the support of the MCCM service, the GP ‘starts from scratch’ with clinical assessment, duplication of tests and potentially delayed referral for Consultant Specialist assessment and care.
- With Tom’s complex diagnoses and care needs, it would not be unusual for the GP to refer the patient again to the ED for assessment and hospital admission.
 - Tom takes himself to ED with shortness of breath. Discharges himself early – and potentially against medical advice
 - Discharge plan not received by GP or contains little information.
 - There may be further unplanned hospital admission/s because of recurrent clinical deteriorations, and delayed therapeutic intervention.

- Tom's GP may not be sure of the full extent of Tom's conditions.
 - The GP may then refer Tom to additional Consultant Specialist/s who may also provide sporadic, non-integrated care resulting in further risk for Tom, and cost in the health system.
- Over this time Tom is experiencing increased stress and lowered physical and mental functioning.

The benefits, therefore, of the MCCM Complex Care Consultant Physician-involved comprehensive care team are to optimise health outcomes and patient satisfaction; and reduce adverse events and cost in the health system.

CASE STUDY 2: Jen

Presentation: A single mother, three young children, aged thirty-eight, lives in outer Brisbane. Jen goes to her GP clinic, after having seen several different GPs.

Entry to MCCM via GP: Jen⁹⁶'s GP suggests referral to the MCCM program after assessment.

Multiple Conditions identified:

Undiagnosed conditions:

- Prolonged joint pain
- Opiate use, benzodiazepines (as sleeping pills) and antidepressant use
- Missed GP appointments because of family obligations
- Multiple pain-relieving medications from multiple doctors
- Jen is also taking antihistamines for allergies
- Rheumatoid arthritis
- Depression
- Hypertension

Care coordinator identifies Complex Care Consultant Physician and GP who develop care plan & identify other team members.	Assessment & care planning & agreement as to budget allocation (PHN/LHD)	Care Coordinator facilitates further assessment, rehabilitation & care plan optimisation & care monitoring	Transition to maintenance and monitoring under GP &/or physician
<p>The core team will be:</p> <p>GP Complex Care Consultant Physician Care coordinator</p> <p>The goals of care will be:</p> <p>Provide care in the community and avoid hospital admission</p> <p>Undertake comprehensive patient-</p>	<p>Budget assigned according to local MCCM steering committee protocols.</p> <ul style="list-style-type: none"> ● Jen knows his healthcare team understands her medical situation and the wider context of her care. She knows all the key clinicians will be consulted and her wishes taken into consideration. ● GP is better engaged in care and comprehensive care planning, 	<ul style="list-style-type: none"> ● Undiagnosed conditions able to be identified ● The multidisciplinary team rigorously reviews the care plan, and all make contributions ● Medications are well managed and monitored ● Jen knows how to contact her care coordinator who acts as a resource for her to feel at the centre of care and make informed decisions 	<p>The involvement of the Complex Care Consultant Physician from the beginning supports more effective contributions by the GP and other health care practitioners, allowing them to operate at the upper level of their scope of practice.</p> <p>Maintenance and monitoring of Jen's ongoing clinical stability can be undertaken by appropriate health care practitioners but with the support of, and with reference to, the</p>

⁹⁶ Photo Source: <https://pixabay.com/images/search/mother/?cat=people>

<p>centred clinical evaluation and problem identification</p> <p>Development of appropriate, customised and detailed comprehensive and integrated complex care plan</p> <p>The multidisciplinary and inter-professional care team will include:</p> <ul style="list-style-type: none"> Rheumatologist Pain multi-disciplinary team Rehabilitation medicine physician Sleep health physician Dietician Psychologist Pharmacist Pain medicine physician Psychiatrist <ul style="list-style-type: none"> • The Complex Care Consultant Physician can be engaged from the private sector in the integrated model of care • Access to a wide range of health professionals has been facilitated by the care coordinator 	<ul style="list-style-type: none"> • Jen's mental health needs are assessed and included in the care plan <p>The Complex Care Consultant Physician plays a crucial role in optimising</p> <ul style="list-style-type: none"> • Accurate comprehensive diagnosis • Best practice care for all complex conditions and • With the core team, in consultation with Jen, will prepare a multidisciplinary care plan for short, medium and longer-term health management priorities. 	<ul style="list-style-type: none"> • Jen is empowered to make her own healthcare decisions. • It is likely Jen will be able to avoid ED admissions and unplanned hospital services. 	<p>Consultant Physician as part of the ongoing patient-centred, comprehensive, integrated care team.</p> <p>Jen is empowered to manage her chronic pain with minimal use of opiates and benzodiazepines</p>
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Current health care organisation – there are risks in the current health service model without the MCCM patient centred, Consultant Specialist integrated team-based approach:

- Increased risk of ‘drug seeking’ behaviour and inappropriate narcotic use
- Worsened depression
- More sick days from work
- Delayed diagnoses and potential adverse long-term consequences for serious conditions such as rheumatoid arthritis
- High risk of acute re-presentation to ED and hospitals with acute deterioration
- Delays in commencing Consultant Specialist supported best practice care
- Additional high cost point of care services, including:
 - Duplication of costs, including pathology and radiology tests
 - Mental health burden,
 - Reduced capacity for work,
 - Worsened physical health status.

The involvement of the Complex Care Consultant Physician from the beginning allows prompt Consultant Specialist evaluation, accurate diagnosis and commencement of best practice care.

- Appropriate diagnoses are made
- Jen feels she is at the centre of care instead of ‘going from pillar to post’, and she now understands the reasons for her pain
- Jen might otherwise be dealing with long hospital wait times (if presenting to ED or outpatients) and with low key symptoms there might be delayed diagnosis
- Jen’s long-term prognosis is improved with up front managed care
- Jen’s depression is able to be managed with the support of a psychologist that enables her to better manage her health alongside her family responsibilities
- More effective medications are prescribed
- Jen’s care is primary care centred instead of leading to hospital presentations or admissions that are difficult for her to manage with her family situation

The benefits, therefore, of the MCCM Complex Care Consultant Physician-involved comprehensive care team are to optimise health outcomes and patient satisfaction; and reduce adverse events and cost in the health system.

CASE STUDY 3: Josh

Presentation: Age 45 years. He Lives in rural NSW.

Josh presents to his GP because he wants to lose weight. He is also a heavy drinker and smoker.

Entry to MCCM via GP: Josh⁹⁷ is referred by his GP to the MCCM program and he enrolls.

Multiple Conditions identified:

- Uncontrolled type 2 diabetes
 - Diabetic neuropathy
- Hypertension
- Hypercholesterolaemia
- Poor peripheral circulation
- Neuropathy
- recurrent cellulitis of legs, recurrent foot ulcers (he stopped a nail without knowing)

Undiagnosed conditions:

- Erectile dysfunction (negative impact on his relationship, and this is often overlooked)
- Depression
- Postural hypotension causing dizziness
- Diabetic nephropathy and diabetic retinopathy

Care coordinator identifies Complex Care Consultant Physician and GP who develop care plan & identify other team members (including culturally appropriate allied health, and social care agencies)	Assessment & care planning & agreement as to budget allocation (PHN/LHD)	Care Coordinator facilitates further assessment, rehabilitation & care plan optimisation & care monitoring	Transition to maintenance and monitoring under GP &/or physician
The core team will be: GP Complex Care Consultant Physician Care coordinator The goals of care will be:	Budget assigned according to local MCCM steering committee protocols. <ul style="list-style-type: none"> • Josh knows his healthcare team understands his medical situation and the wider context of his care. • He knows all the key clinicians will be consulted 	<ul style="list-style-type: none"> • Undiagnosed conditions able to be identified • The multidisciplinary team rigorously reviews the care plan, and all make contributions • Medications are well managed and monitored • Josh knows how to contact his care coordinator who acts 	The involvement of the Complex Care Consultant Physician from the beginning supports more effective contributions by the GP and other health care practitioners, allowing them to operate at the upper level of their scope of practice.

⁹⁷ Photo Source: <https://pixabay.com/images/search/man%20overweight/>

<p>Provide care in the community and avoid hospital admission</p> <p>Undertake comprehensive patient-centred clinical evaluation and problem identification</p> <p>Development of appropriate, customised and detailed comprehensive and integrated complex care plan</p> <p>The multidisciplinary and inter-professional care team will include:</p> <ul style="list-style-type: none"> • Endocrinologist • Diabetic Educator • Dietician • Podiatrist • Exercise physiologist • Cardiologist • Neurologist • Psychologist • Nephrologist • Ophthalmologist • Physiotherapist • Rehabilitation physician or ambulatory care physician <ul style="list-style-type: none"> • The Complex Care Consultant Physician can be engaged from the private sector in the integrated model of care 	<p>and his wishes taken into consideration.</p> <ul style="list-style-type: none"> • GP is better engaged in care and comprehensive care planning, • Josh's mental health needs are assessed and included in the care plan. <p>The Complex Care Consultant Physician plays a crucial role in optimising</p> <ul style="list-style-type: none"> • Accurate comprehensive diagnosis • Best practice care for all complex conditions and • With the core team, in consultation with Josh, will prepare a multidisciplinary care plan for short, medium and longer-term health management priorities. 	<p>as a resource for him to feel at the centre of care and make informed decisions</p> <ul style="list-style-type: none"> • Josh is empowered to make his own healthcare decisions. • It is likely Josh will be able to avoid ED admissions and unplanned hospital services. 	<p>Maintenance and monitoring of Josh's ongoing clinical stability can be undertaken by appropriate health care practitioners but with the support of, and with reference to, the Consultant Physician as part of the ongoing patient-centred, comprehensive, integrated care team.</p> <p>Self management by patient established (for example, for Josh it may be checking toes everyday etc)</p>
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<ul style="list-style-type: none"> Access to a wide range of health professionals has been facilitated by the care coordinator 			
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Current health care organisation – there are risks in the current health service model without the MCCM patient centred, Consultant Specialist integrated team-based approach:

- Significantly worse long-term health outcomes for Josh if diabetes and co-morbidities are not appropriately managed early, and comprehensively!
- Significantly reduced access to Consultant Specialist care for rural patients – which can be enhanced through care coordination and access to tele-health and other enabling technologies facilitating effective engagement with appropriate Consultant Specialist support as part of the comprehensive, integrated team with early, and direct, Consultant Specialist engagement
- Worsened depression
- More sick days from work
- Delayed diagnoses and potential adverse long-term consequences for serious conditions such as diabetic complications and cardiac failure
- High risk of presentation to ED and hospitals with acute deterioration
- Delays in commencing Consultant Specialist supported best practice care
- Additional high cost point of care services, including:
 - Duplication of costs, including pathology and radiology tests
 - Mental health burden,
 - Reduced capacity for work,
 - Worsened physical health status.

The involvement of the Complex Care Consultant Physician from the beginning allows prompt Consultant Specialist evaluation, accurate diagnosis and commencement of best practice care.

- Appropriate diagnoses are made
- Josh feels he is at the centre of care and has access to appropriate integrated best practice care
- Josh might otherwise be dealing with poor access to Consultant Specialist services in the rural environment, and with potential for long hospital wait times (if presenting to ED or outpatients) and with low key symptoms there might be delayed diagnosis

- Josh's long-term prognosis is improved with up front best practice care

The benefits, therefore, of the MCCM Complex Care Consultant Physician-involved comprehensive care team are to optimise health outcomes and patient satisfaction; and reduce adverse events and cost in the health system.