

## Module 1

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# Theory and models of care for chronic disease

## Basic concepts

This section is about the theories that inform health system approaches to the prevention and management of chronic disease. This includes the Kaiser pyramid, the Chronic Care Model and the socio-ecological model.



### Learning objectives

By the end of this section you will be able to:

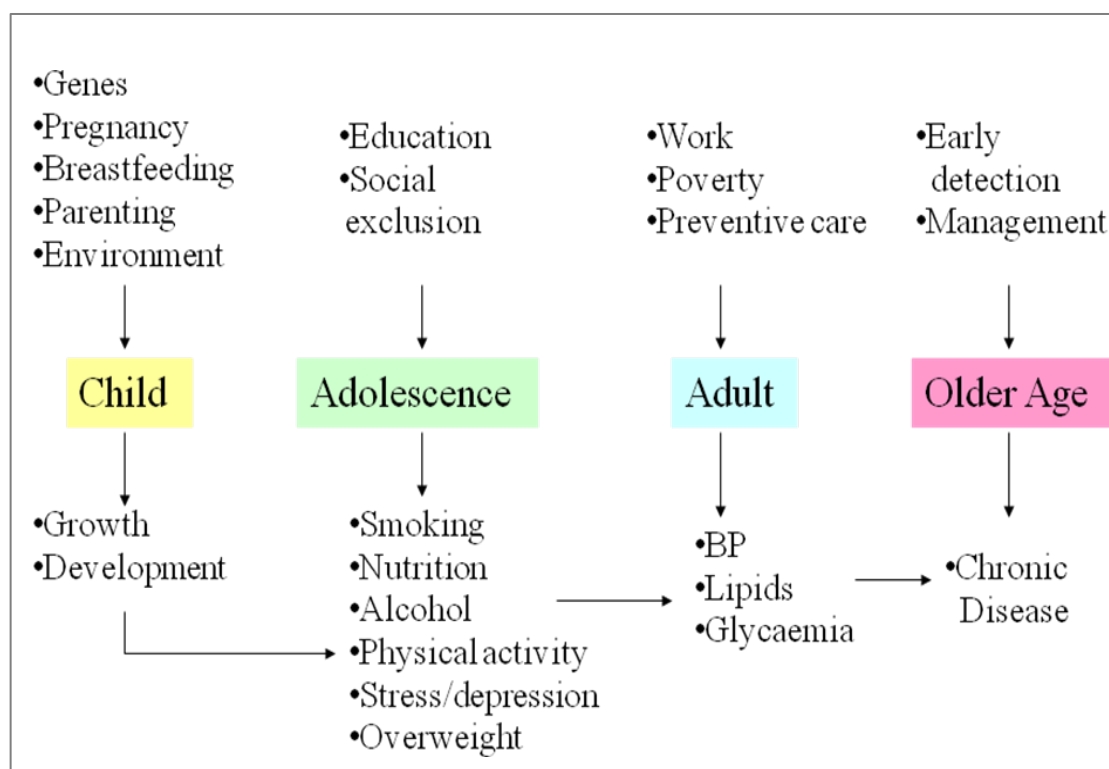
- Describe key frameworks and models
- Describe how these inform the prevention and management of chronic conditions.

## 1.1 The spectrum of care for chronic conditions across the lifecycle

The spectrum of care for chronic disease involves primary, secondary and tertiary prevention [1]:

- Primary prevention aims to prevent disease thus reducing the incidence and prevalence of a disease. It may involve reduction or avoidance of exposure to risk factors which may begin early in life.
- Secondary prevention involves early detection and management of disease prior to complications. In relation to cardiovascular disease it is often used to also mean prevention of further attacks of disease – for example further attacks following an initial heart attack (myocardial infarction).
- Tertiary prevention aims to improve control of the disease, treat complications early, and improve the quality of life and functional status of people with the disease.

The risk of chronic disease emerges across the lifecycle. For example, in pregnancy, poor nutrition and antenatal care is associated with later risk of chronic diseases. In childhood, exposure of stress and risk behaviours become established and these lead to progressive physiological changes which may then lead to chronic diseases in later life [1].



**Figure 1: Emergence of chronic disease across the lifecycle**

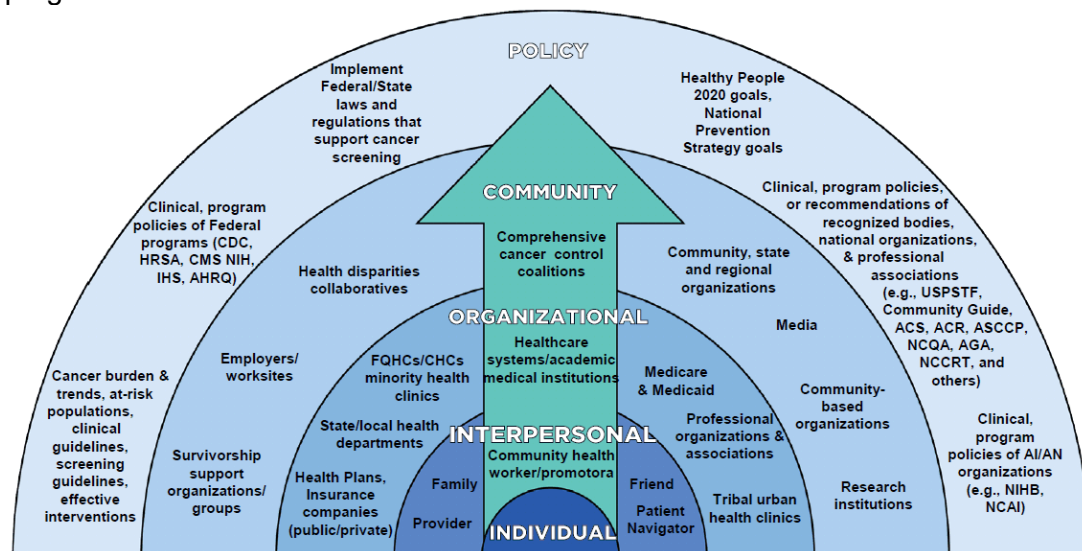
## 1.2 Socio-ecological model

The socio-ecological model identifies the influence of factors (and thus interventions) operating at the individual, organisational, community and state levels. The socio-ecological model recognizes that these other levels strongly influence individual health and interventions need to act at more than one level.



Figure 2: Ecological model

This model has been adapted for use in health promotion and disease control programs.



\*Some groups may fit within multiple levels of this model.

Figure 3: Socio-ecological model for colorectal cancer prevention and control

## 1.3 5As

A key framework or model for prevention of chronic disease in primary health care is the 5A's [2, 3]. This includes the actions taken by health care providers in supporting their patients to change their risk:

### Assess

- level of risk factor and its relevance to the individual in terms of health\*
- readiness to change
- health literacy

### Advise/Agree

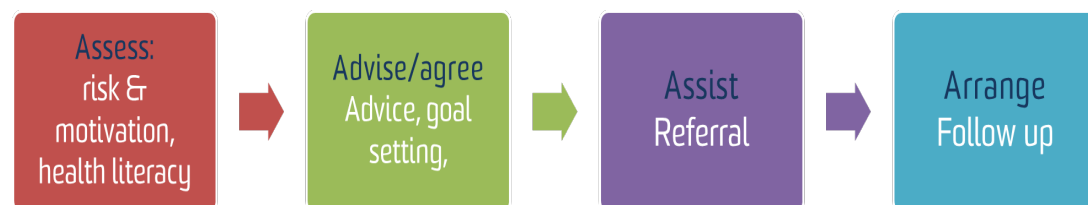
- provide written information
- brief advice and motivational interviewing
- negotiate goals and targets

### Assist

- a management plan to address barriers and provide support that may include lifestyle education tailored to the individual, pharmacotherapies and self-monitoring

### Arrange

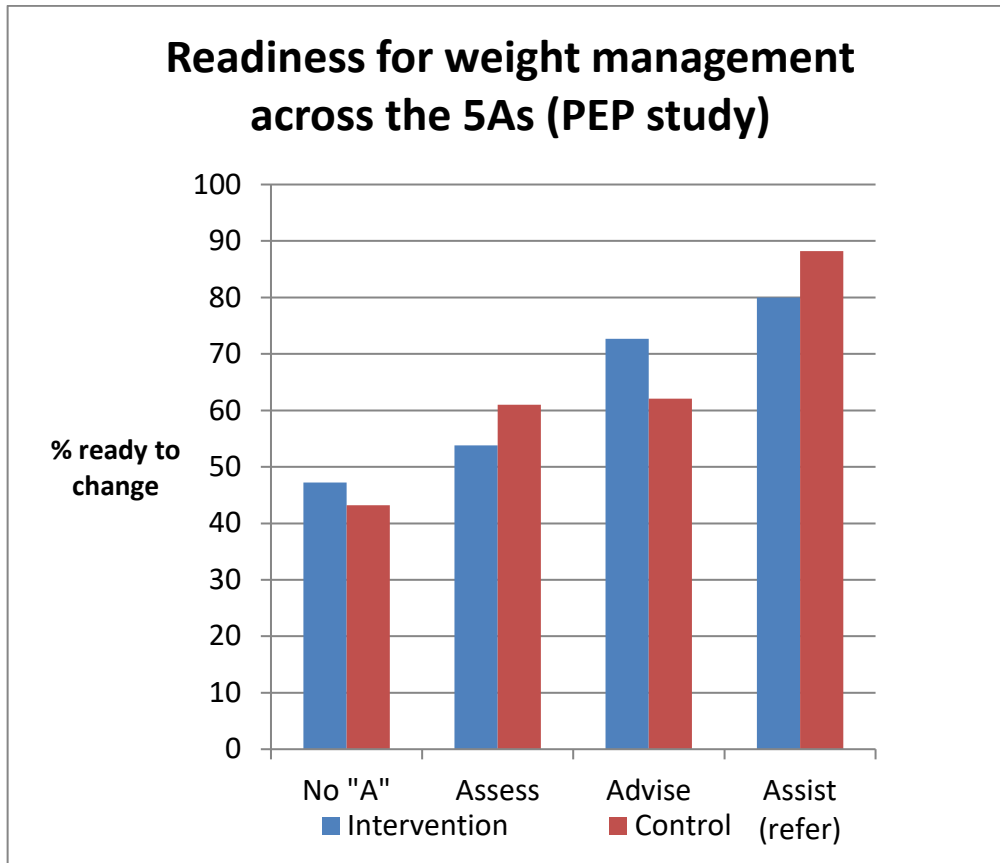
- referral to allied health services or community programs
- phone information/counselling services
- follow up, prevention and management of relapse



**Figure 4: 5As for preventive care**

Originally developed for behavioural counselling it has been applied as a framework for interventions across the behavioural risk factors (smoking, nutrition, alcohol and physical activity – SNAP) and for overweight and obesity especially in primary care [4].

There has been some research on the effectiveness of the 5As approach. For smoking cessation progression across the 5As has been demonstrated to increase the odds of success (OR 1.79 [95% CI 1.6–2.1] for “ask”, 1.6 [95% CI 1.4–1.8] for “advice”, 9.3 [95% CI 6.8–12.8] for “assist” (quit date) and 3.5 [95% CI 2.8–4.2] for “assist” (prescribe medications) [5]. In the management of overweight and obesity each additional 5As counselling practice was associated with higher odds of being motivated to lose weight (OR= 1.31, 95% CI 1.11–1.55) intend to eat better (OR = 1.23, CI 1.06–1.44) [6].

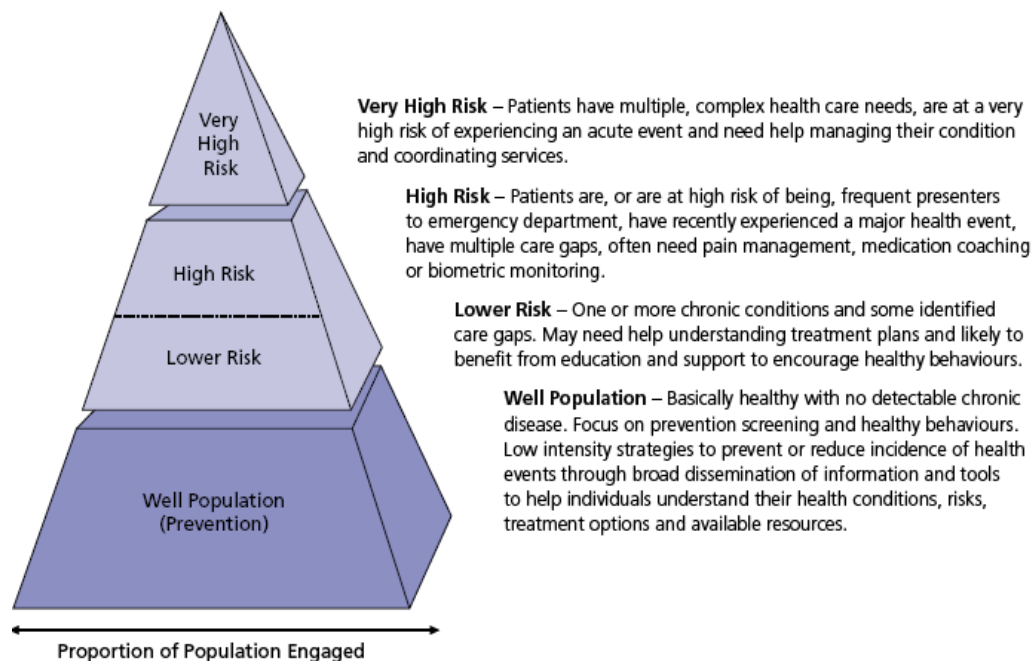


**Figure 5: Readiness to change and the 5As.**

## 1.4 What is the Kaiser model?

Kaiser Permanente is a health maintenance organization in the United States that provides both health insurance and health care services in an integrated model of service delivery. Kaiser uses both insurance data on services provided and data from health care providers to design and target services for people with chronic conditions.

The Kaiser Permanente approach to chronic disease care estimates that of the group of at-risk individuals approximately 3-5% of patients with chronic conditions require case management, 15-27% require care management, and 70-80% can be managed with supported self-care (corresponding to the very high, high and lower risk categories below) [7].



**Figure 6: Kaiser model**

Risk stratification algorithms have been developed that aim to identify patients who are at future high or very high risk of admission to hospital, and for whom an intervention might reduce that risk [8]. This is particularly important in deciding who should receive intensive case management or home monitoring. The challenge is to base these not only on historical risk (e.g. previous admission) and social data but also on current clinical data such as might be extracted from primary care medical records. Electronic health records provide an opportunity to extract and include such data but may be challenging to access[9].

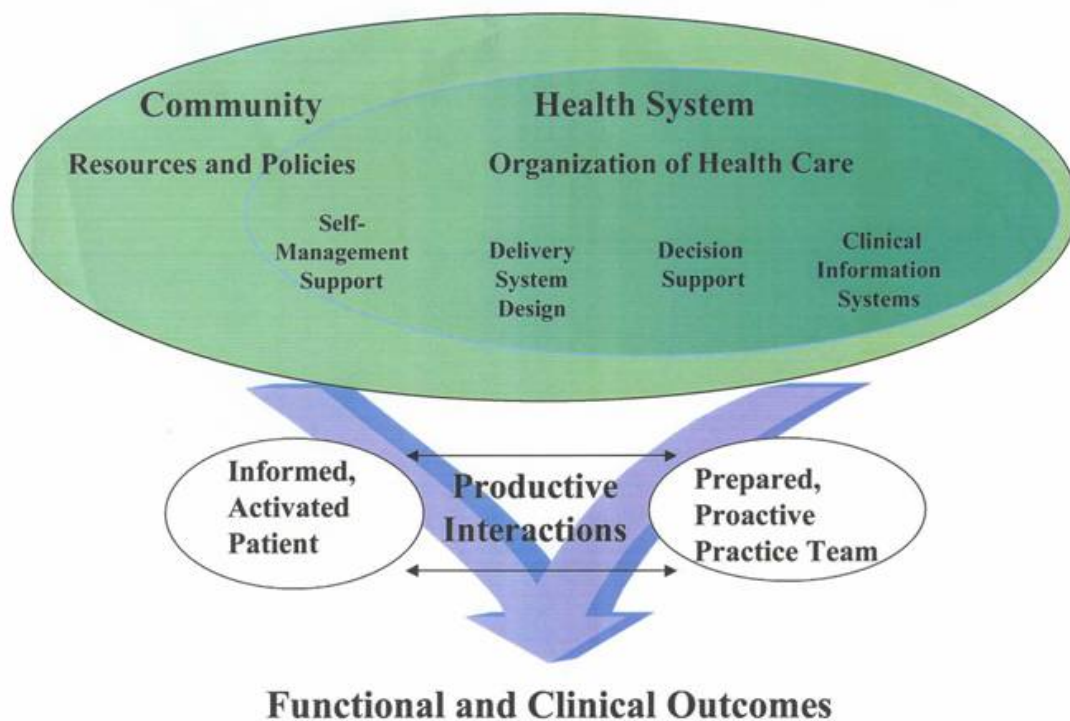
## 1.5 What is the Chronic Care Model?

The Chronic Care Model (CCM) was developed in the USA after an extensive review of the literature and is the most widely known model of care for people with chronic conditions [10]. The model describes the elements essential for improvements in the care of people with chronic conditions with a focus on primary care. The overall aim of the CCM is to develop well-informed patients who actively participate in their own healthcare and a healthcare system that is prepared for them. The six elements of the CCM are:

- **Delivery System Design (DSD):** The structure of the medical practice to create teams with a clear division of labour and separating the acute from the planned care. Planned visits and follow-up are important features.
- **Self-Management Support (SMS):** Collaboratively helping patients and their families to acquire the skills and confidence to manage their condition. Providing self-management tools, referrals to community resources, routinely assessing progress.

- **Decision Support (DS):** Integration of evidence-based clinical guidelines into practice and reminder systems. Guidelines reinforced by clinical “champions” providing education to other health professionals.
- **Clinical Information Systems (CIS):** Three important roles of computer information systems: reminder system to improve compliance with guidelines, feedback on performance measures and registries for planning the care for CD.
- **Community Resources (CR):** Linkages with hospitals providing patient-education classes or home-care agencies to provide case managers. Linkages with community-based resources – exercise programs, self-help groups, and senior centres.
- **Health Care Organisation (HCO):** The structure, goals and values of the provider organisation. Its relationship with purchaser, insurers and other providers underpins the model [10, 11].

The six elements of the CCM operate within the context of the triangle of the community, the health care system and the provider organisation [11] (Figure 4). The model allows for division of labour and a switch from acute to long-term care.



**Figure 7: The elements of the Chronic Care Model**

[Figure from Wagner EH. Chronic Disease Management: What will it take to improve care for chronic illness. *Effective Clinical Practice* 1998; 1:2-4. Reproduced with the permission from the American College of Physicians].

A systematic review of the published literature, including a review of published systematic reviews, was undertaken with a focus on chronic disease management in primary care [12]. The review highlighted the importance of self-management support, in particular patient education and motivational counselling. Self-management support interventions were associated with improvements in



physiological measures of disease such as HbA1c, and patient outcomes such as quality of life, health and functional status, patient satisfaction and health service use. There was most evidence to support self-management support for diabetes and hypertension, some evidence for arthritis and the evidence was less clear for asthma and COPD.

A multidisciplinary team approach was effective at improving physiological measures of disease and health professional adherence to guidelines particularly for diabetes, hypertension and lipid disorders. The combination of self-management support and delivery-system design were particularly effective, for example nurses acting as case managers for diabetes when combined with self-management education. The development of multidisciplinary team care, especially the role of practice nurses, reminders and proactive follow-up were important in the management of chronic conditions. Many of the delivery system design interventions were designed to support self-management.

Decision support in the form of evidence-based guidelines and educational meetings for health professionals improved health professional adherence to guidelines and some patient outcomes. The addition of clinical information systems such as audit and feedback supported the use of decision support. Many of the interventions involved the use of disease-specific guidelines particularly for diabetes and asthma. Health professional education alone did not improve patient outcomes.

## 1.6 WHO's report: Innovative Care for Chronic Conditions

In response to the global increase in the prevalence of a range of chronic diseases the World Health Organization (WHO) published a report: *Innovative Care for Chronic Conditions: Building Blocks for Action (ICCC)* [13]. The purpose of the ICCC report was to describe a comprehensive global framework for the prevention and management of chronic disease, which could be applied to both developed and developing countries. The ICCC report stated that healthcare systems around the world have developed to deal with acute episodic care, which is not appropriate for the management of chronic conditions in the long term.

The WHO identified eight elements essential for the successful management of chronic diseases in any healthcare system:

- (1) Support a paradigm shift from acute episodic care to a system of care that is more suitable for the needs of those with chronic conditions;
- (2) Manage the political environment to ensure commitment across all levels with information sharing;
- (3) Build integrated healthcare to ensure that information is shared across services, providers and time;
- (4) Align sectoral policies not only with health but also comprehensively across other areas such as education, workforce etc;
- (5) Effectively use health-care personnel to maximise the roles of all those involved in the care of patients and recognise the importance of their roles in the management of chronic disease;



- (6) Centre care on the patient and their family with a shift from the patient as a passive recipient of care to a model where the patient takes some responsibility for their care. This is important when lifestyle factors play an important role in chronic disease particularly prevention;
- (7) Support patients in their communities with programs that span health-care organisations and the wider community;
- (8) Emphasise prevention.

The elements combine to form a triad of care between the health-care organisation, the patient and their family and the community. The organisation of health-care systems is discussed in terms of macro, meso and micro levels and how they contribute to the management of chronic disease. At the macro level governments need policies for preventing and managing chronic disease that include both high and low technology approaches with the avoidance of fragmented financing and misaligned incentive schemes without regulation or monitoring of standards. At the meso level there should be systems to manage care over time as opposed to acute episodic care. This will involve education of health care professionals, evidence-based guidelines, prevention strategies, information systems and linking with community resources. Finally, at the micro level the development of skills is needed for individuals to prevent and manage their own health.



### Learning Activity 1

Apply the models to diabetes. What stages of this disease might be classified according to the Kaiser model? What Chronic Care Model systems support the prevention and management of this condition?

## 1.7 Integrated care for chronic conditions

Models of integrated care aim to reduce fragmentation and improve continuity and coordination of care, often in order to reduce demand on hospital services. These often contain elements to improve patient risk behaviours and support self-management, coordinate care and help patients navigate a complex health system [14].

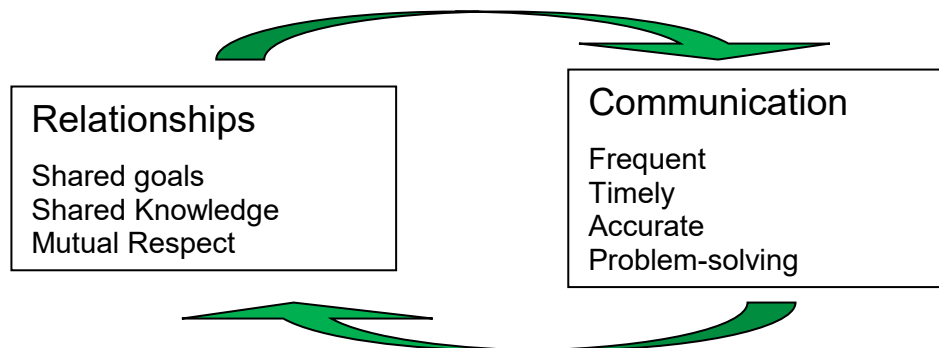
### Health coaching

Health coaching can be defined as *helping patients gain the knowledge, skills, tools and confidence to become active participants in their care so that they can reach their self-identified health goals* [15]. It aims to *enhance the wellbeing of individuals and to facilitate the achievement of their health-related goals* [16]. It also aims to achieve behaviour change and can use motivational interviewing techniques [17]. This is important in both managing the risk factors for chronic conditions in order to prevent them and in the self-management of chronic conditions.

### Coordination of Care

Coordination of care is a relational process involving 'mutual adjustment' among the roles of members of the health-care team and the patient. According to the theory of

relational coordination, coordination requires communication that is frequent, timely, accurate and is focused on solving problems in independent tasks; and relationships that involve shared goals and knowledge and mutual respect [18]. This model helps inform the development of shared care between different types of providers and services involved in the care of patients with chronic conditions especially those with multi-morbidity or who are at high risk.



**Figure 8: Dimensions of Relational Coordination.**

## Care navigation

Patients with chronic disease may require support in navigating a complex health care system. This may include interventions to help overcome barriers to access and use of health care including understanding of what services may offer and why and when they are needed, affordability, transport and access and also to help improve relationship between patients and their health providers [19]. This is especially important for patients with low health literacy.

## Suggested further reading



*The Chronic Care Model. Improving Chronic Illness Care.*

[http://www.improvingchroniccare.org/index.php?p=The\\_Chronic\\_Care\\_Model&s=2](http://www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2)

Reynolds et al. *A systematic review of chronic disease management interventions in primary care.* BMC Family Practice (2018) 19:11 DOI 10.1186/s12875-017-0692-3.

[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5759778/pdf/12875\\_2017\\_Article\\_692.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5759778/pdf/12875_2017_Article_692.pdf)

Harris MF and Lloyd J. *The role of Australian primary health care in the prevention of chronic disease.* Sept 2012.

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