Primary care models for community-dwelling adults with long-term conditions: a scoping review protocol

Whiting, Samantha; Robertson, David; Bannigan, Katrina

Published in:
JBI Database of Systematic Reviews and Implementation Reports

DOI:
10.11124/JBISRIR-2017-004003

Publication date:
2019

Document Version
Author accepted manuscript

Introduction

Worldwide, health has been shaped by both the environment in which people live and the resources available[1]. For most, this has increased life expectancy over the last ten years with little fluctuation. Adults in the United Kingdom (UK) who are currently 60 years of age are predicted to live for a further 20 years[2]. In addition to these people living longer, a significant percentage are also living with one or more long term conditions[3]. Long term conditions are defined as conditions that require ongoing management over a period of years or decades[4], also known as noncommunicable diseases, which comprise conditions such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes, are the primary cause of mortality globally[5]. These conditions can fracture the economic development of many countries and the number of individuals, groups and communities affected by the impact of long term illness is increasing[6]. Advances in healthcare have seen conditions that were once thought to be life limiting, becoming those that people live with for many years[7]. Although appearing to be an achievement for humanity, this also presents a global challenge to health care systems due to the increased prevalence of those living with complex and enduring conditions. People who live with these conditions often require high levels of health and social care due to the complexity that living with a long term condition entails[8].

It is well established that living with a long term condition impacts on the quality of life, health outcomes and the ability to carry out daily activities[9]. For example, research has highlighted experiencing fear, blame, struggling, fatalism, and hidden disability as key themes for those affected by chronic obstructive pulmonary disease [10]. The possibility of developing a mental health condition also increases with the number of physical illnesses a person experiences[11]. This demonstrates the need for services to be equipped to support those with both physical and mental health conditions effectively. Generally, services are specialist to one pathological condition and therefore the care and support provided to those with multi factorial illnesses can be fragmented and disjointed, leading to errors and omissions[12]. Clinical evidence and guidelines are largely created for individual diseases and specialized to a single illness, demonstrating the lack of guidance for those supporting people with multiple long term conditions. Likewise, most randomized trials exclude multimorbidity and older people within their sampling strategies, thus not generating the evidence that could support the development of understanding within this areas of practice for many health professionals[13].

Global impact of Long Term Conditions

In Australia, 35% of the population have a long term condition, and an increasing number have multiple conditions, making care increasingly complex with input required from a range of health professionals[14]. Similarly, the health and social care systems within the UK are facing unprecedented pressures due to the high volumes of people who require support compounded by the effects of long term governmental austerity policies[15]. Many people with long term conditions, are frequent users of acute hospitals, primary care and social care services, thus increasing pressures on services that are already overwhelmed[8]. Within the United States of America, long term conditions represent the

leading cause of morbidity and mortality with over 70% of all deaths being attributable to heart disease, cancer, stroke, chronic obstructive pulmonary disease, and diabetes[16]. In New Zealand, long term conditions account for 88% of healthy life lost due to factors including premature death, illness or impairment [17]. Health systems globally are in need of strategic refocus due to the challenges being brought about by how our societies have developed. However, it is imperative not to ignore those societies where the impact of long term conditions is significant, despite some differences in their aetiology, compared with the challenges posed by long term conditions to westernized society. An example might be Sub-Saharan Africa, stereotypically recognized as a region with high levels of malnutrition, yet, identified more recently, due to growth in urbanization and westernization, with a rise in obesity[18]. Universally, the physical impact on the earth of global warming has had and will continue to have a significant impact on human health, especially for those with long term conditions perhaps through injury during natural disasters, malnutrition during famine or inability to cope physiologically with the effects of prolonged heat waves. The impact is amplified for those living in low-income countries[19]. Furthermore, direct exposure to natural disasters has an impact on mental health and conflict has been reported as a major threat to public health however, the lasting effects of conflict on health have yet to be studied in the context of developing countries[20]. In spite of developing countries representing the majority of the world's population and 90% of the worldwide burden of disease[21] research and development is substantially inadequate[22,23]. Under-representation caused by lack of capacity and commercial viability hinders health improvement in regions where research led resolutions could have the greatest impact to life[24,25]. The health and social care systems within developing countries require evidence to guide resolutions regarding the most efficient and cost-effective interventions for those with long term conditions.

Primary Care

The World Health Organization's analysis of health systems[5] demonstrates gaps within health care, most noticeably within primary care, presenting barriers to the provision of equitable health care for people living with long term conditions. Primary care is the first point of contact with health systems and is also the point of access for people to receive care for most of their everyday health and well-being needs[26]. Primary care services include health promotion, disease prevention, health maintenance, counselling, patient education, diagnosis and treatment of acute and chronic illnesses[27]. Over the past two decades, several countries worldwide have initiated reforms to improve their delivery of primary health care with the intention of supporting those with long term conditions to manage their condition better and reduce the risk of unplanned hospital admissions[7,17,28,29].

Long-term solutions to support those with long term conditions need to be created in order to increase health service capacity, provide cost-effective solutions whilst, most importantly, ensuring people receive the best services, in order to live meaningful and productive lives. UK Policy is focusing heavily on delivering care nearer to the patient with the aim of increasing self-care and improve management of those with more complex long-term conditions, prevent hospital admissions and improve quality of life for individuals[7]. However, it is imperative that new models of care consider that

people with a long-term condition should be supported to live and not just exist[15]. Long-term conditions have a wide-reaching social impact, affecting every part of an individual's daily life, including family relationships, employment and everyday socialization. Models of healthcare often focus on symptom reduction, disease management, and basic prevention, and not on the pursuit of long-term health. Recent research has highlighted a rise in emergency readmissions for conditions that are classified as “potentially preventable” between 2010 and 2017 by 41.3%. Such admissions are also contrary to the preferred wishes of most patients who wish to be cared for at home[29].

Essentially, people with complex health needs are not properly supported[30]. More than a quarter of people who have long-term conditions say that they are not well cared for by their healthcare provider, and 40% expect their care to get worse in the future[28]. People report frustration by using different services that do not communicate and share information, therefore people are left feeling that their conditions are treated in isolation[28]. Well-designed primary care has the potential to improve health and cost effectiveness however, large gaps exist in the evidence base concerning care for patients with multimorbidity[31]. A recent Cochrane review[32] found only 18 trials that evaluated models of care with two main strategies: the reorganization of care delivery through enhanced multidisciplinary working, and patient-oriented education or self-management. The review found limited evidence for the effectiveness of the models with a lack of agreement regarding the description of models of care for multi morbidity. However, the process of evidence building is hindered by incomplete descriptors of models within publications[33]. Without accurate descriptions of these developing models, researchers cannot replicate studies or identify components for success.

Producing a scoping review of the literature surrounding models of primary care for long term conditions would allow researchers and health care professionals to further understand current and emerging models of practice in order to more effective recognize what models of practice work for different individuals, communities and populations[33]. This information is likely to be critical, given the broad range of approaches and patient populations included under the umbrella of long term conditions. Due to the heterogeneity of the research base and differing approaches to implementing primary care models to support those with long term and complex conditions, a scoping review will provide a rigorous and transparent method of mapping this concept as a preliminary step to further research and evaluation. The objective of this review is to map the available evidence to provide an overview of the existing primary care models of practice that aim to improve clinical and mental health outcomes and patient-reported outcomes for people with long term conditions that are community dwelling.

A preliminary search of PROSPERO, MEDLINE (Ovid), the Cochrane Database of Systematic Reviews and the Joanna Briggs Institute Database of Systematic Reviews and Implementation Reports was conducted and no current, or proposed, systematic reviews on the exact topic of this planned review were identified. However, a rapid review by Singh and Ham[34], conducted in 2005 was identified and, although the rapid review provides insight into frameworks for people with long term conditions internationally, it was only able to capture readily available literature over a period of three

weeks, thus not permitting systematic mapping of all of the evidence within this field. Due to the significant demographic and social changes and development of healthcare designed for those with long term conditions over the intervening 15 years, it is essential that this topic is explored comprehensively, examining the effectiveness of contemporary primary care models focussed on those living with long term conditions, which this scoping review aims to achieve.

Review Questions

What primary care models exist globally for adults with long term conditions?

What are the characteristics, outcome measures used to evaluate, the impact reported, and the implications for practice of the models of primary care identified?

Keywords

Chronic Disease; Community Health Services; Long term conditions; Primary Health Care

Inclusion Criteria

Participants

The review will consider studies that include adults that live with long term conditions. This will exclude evidence of those who have long term conditions but are under the age of 18. For the uniformity of this review, the term used throughout will be long term conditions although it has been noted that a multitude of definitions exist in the literature that encompass 'long term conditions'. Interchangeable terms for long term conditions include; chronic conditions, chronic illness and chronic disease, as well as a term identified by the World Health Organization[35], noncommunicable disease. The Department of Health in England[4] defined a long term condition as: 'One that cannot currently be cured, but can be controlled with the use of medication and/or other therapies' (p.3). Long term conditions are also defined as conditions that require ongoing management over a period of years or decades and cover a range of health conditions that go beyond the conventional definition of chronic illness, such as heart disease, diabetes and asthma[36]. Multimorbidity is also a prevalent term within relevant literature, referring to the presence of two or more chronic medical conditions in an individual[37]. Long term conditions also comprise some communicable diseases, such as the human immunodeficiency virus and the acquired immunodeficiency syndrome (HIV/AIDS) that, due to advances in medicine, have become controllable health problems although they are communicable. The term, long term condition also extends to mental health conditions such as depression and schizophrenia and disabilities and impairment including blindness and musculoskeletal disorders[36]. Whilst there remains some ambiguity regarding a sole definition, the common denominator is that they all require a complex approach to their care that is often over the course of the lifespan from the onset of the condition.

Concept

The concept being mapped within this scoping review will be primary care models used to manage individuals with long term conditions. The concepts of interest are the characteristics (values, principles, components and suggested practical applications), outcome measures, impact and implications for practice of the models of primary care identified. Within the literature, a number of different terms such as service delivery models of care and service frameworks have been used interchangeably to articulate the way in which services are or should be conducted. For the purpose of this review, all characteristics of a model of service delivery, either in part or as a whole, will be considered; this may include services, models, interventions, frameworks that involve primary care of patients. This may also encompass services not solely designed for long term conditions however, they will be services that may be the first port of call for those with long term conditions. Therefore, the focus of the search will include literature that involves specifically primary care models, interventions and similar concepts that are defined by similar boundaries of service design and implementation but lack use of the term, 'primary care intervention'. It is recognized that many service developments are not subjected to rigorous evaluation, but still may provide useful examples of the way in which primary care services have been developed. Therefore, the review will also encompass current developments in clinical practice in relation to long term primary and community care.

An operational a priori criteria has been developed in order to distinguish primary care models from similar community models:

1) The care provided is within a primary care setting e.g. General Practice (GP) surgery, community center or through adult social care

2) Care is longitudinally coordinated by health and social care professionals

3) Care may be delivered in the patient's home, through information technology or within a voluntary third sector settings

4) Care can include telecare and case managers; however, there must be clear and evident oversight and integration of patient care by the primary care physician or team

All four criteria need to be met for a paper to be included. Models that do not utilize the term "primary care", but met the four operational criteria, will be included in the review.

Context

This review will focus on the context of primary care. Therefore, this review will consider studies that examine primary care models within a global context, due to the scope of the literature available. The scoping review will therefore take into consideration any evidence internationally that investigates primary care models for adults with long term conditions. This is to capture all the evidence available

to create a scoping review that has the potential to have international value for primary care. A preliminary review of the literature demonstrates that the development of primary care models will be of worldwide interest. Searching will be restricted to English language because due translation resources are not available.

Types of Sources

This scoping review will consider both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. This review will also consider descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion. Qualitative studies will also be considered that adopt methodologies including, but not limited to phenomenology, grounded theory, ethnography, qualitative description, action research and feminist research. In addition, systematic reviews that meet the inclusion criteria will also be considered. Additionally, text and opinion papers, as well as other published material such as case studies, relevant academic presentations, such as theses and dissertations, will also be included. Official websites of organizations will be used (see Appendix III) together with international strategies on primary health and social care, including, but not limited to white papers, reports, position papers, policy papers, governmental guidance that are available in print or online from relevant websites listed in Appendix III.

Literature published from 1995 onward will be considered for the review. 1995 is the date that Wagner published The Chronic Care Model[38], a framework for describing the essential elements needed to provide the best quality care for those with long term conditions. This model is frequently drawn upon in more contemporary evidence so this date becomes a clear starting timeline for the development of the search for models for long term health conditions.

Methods

Search strategy

The search strategy will aim to locate both published and unpublished studies. The proposed systematic review will be conducted in accordance with the Joanna Briggs Institute methodology for scoping reviews [39]. A three-step approach to searching is proposed in line with Joanna Briggs Institute recommended methodology[39]. An initial limited search of MEDLINE was undertaken to identify articles on the topic. An example search strategy has been appended (see Appendix I).The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy. The search strategy, including all identified keywords and index terms will be adapted for each included information source. It is

acknowledged that an iterative approach will be used and further search terms may be revealed and utilized within the search strategy.

The reference list of the identified articles will be reviewed to include other relevant studies and additional items. Duplicate sources and publications that do not directly relate to the research question will be eliminated. The title and abstract of each article will be reviewed thoroughly to select the most relevant sources

Information sources

Searches will be undertaken using the following electronic databases: MEDLINE, Embase, PsycINFO, HMIC, CINAHL, Cochrane library and Web of Science.

Other searches will be undertaken through ProQuest Dissertations and Theses Global and Google Scholar. A pragmatic decision to review only the Google Scholar articles from the first fifty pages was taken following consultation with an information specialist. EthOS (British Library Theses online service) is accessible via ProQuest Dissertations and Theses Global. The appended search strategy will be employed to capture any grey literature using Open Grey.

Supplementary searching will include hand searching of the data yielded and hand searching within relevant journals including but not limited to; Quality in primary care, Journal of primary care and community health, Journal of family medicine and primary care, Journal of Integrated care, International journal of integrated are, Journal of primary health care, British journal of general practice and Canadian family physician. It is envisaged that these journals will form part of this search and others will be searched according to their value to the research questions. Hand searching within relevant conference abstracts such as the primary care and public health conferences, white papers, reports, professional bodies, charities and news articles will also be utilized. Lexis library will be searched to capture any new articles of relevance. Further to this, the reviewers intend to contact authors of primary studies or reviews for further information if necessary.

Study selection

Following the search, all identified citations will be collated and uploaded into the bibliographic citation management system, Endnote X8.2 (Clarivate Analytics, PA, USA) reference manager. Titles and abstracts will then be screened by two independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant studies will be retrieved in full and their citation details imported into the Joanna Briggs Institute's System for the Unified Management, Assessment and Review of Information (JBI SUMARI). The full text of the selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study selection process will be resolved through discussion, or with a third reviewer. The results of the search will be reported in full

in the final systematic review report and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram[40].

Data Extraction

Data will be extracted from papers included in the scoping review by two independent reviewers using a data extraction tool developed by the reviewers. The data extraction process may also be referred to as charting the results when utilised within a scoping review. Charting of the data will include specific details about the population, concept, context, study methods and key findings relevant to the review objective. A data extraction instrument has been created explicitly for this scoping review (see Appendix II). The data extraction instrument will be modified and revised as necessary during the process of extracting data from each included study. Modifications will be detailed in the full scoping review report. Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required.

Data Presentation

The extracted data will be presented in tabular form in a manner that aligns with the objective of this scoping review. A narrative summary will accompany the tabulated and/or charted results and will describe how the results relate to the reviews objective and questions.

Acknowledgements

*Removed for peer-review

Funding

The author has no potential conflict of interest or any personal, financial, professional or intellectual bias for any of the authors listed on the manuscript. The authors declare no conflict of interest. The author has received no funding in relation to this work.

Conflicts of interest

The authors have received no funding in relation to this work. The authors declare no conflict of interest.

281

282 References

283

284 1. The Academy of Medical Sciences. Improving the health of the public by 2040 Optimising the
285 research environment for a healthier, fairer future. London: The Academy of Medical Sciences; 2016:
286 1-122.
287 2. United Nations. World Population Ageing 2015 Report. New York: United Nations; 2015: 1-162.
288 3. Oliver D, Foot C. Humphries R. Making our health and care systems fit for an ageing population
289 [Internet]. London: The King's Fund; 2014 [cited 2018 Jun 4]. Available from:
290 https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/making-health-care-systems-
291 fit-ageing-population-oliver-foot-humphries-mar14.pdf
292 4. Department of Health. Long Term Conditions Compendium of Information. 3rd edition. London:
293 Department of Health; 2012:3.
294 5. World Health Organisation. Global status report on noncommunicable diseases. Switzerland: World
295 Health Organisation; 2014:1-298.
296 6. Lunenfeld B, Stratton P. The clinical consequences of an ageing world and preventive strategies.
297 Best Pract Res Clin Obstet Gynaecol. 2013; 27(5):643–659.
298 7. Ham C, Dixon A, Brooke, B. Transforming the delivery of health and social care. The case for
299 fundamental change. London: The King's Fund; 2012:1-61.
300 8. Goodwin N, Sonolo L, Thiel V, Kodner DL. Co-ordinated care for people with complex chronic
301 conditions: Key lessons and markers for success. London: King's Fund; 2013:1-44.
302 9. Roddis JK, Holloway I, Bond C, Galvin KT. Living with a long-term condition: Understanding well-
303 being for individuals with thrombophilia or asthma. Int J Qual Stud Health Well-being.
304 2016;11(10):31530.
305 10. Clancy K, Hallett C, Caress A. The meaning of living with chronic obstructive pulmonary disease.
306 J Nurs Healthc Chronic Illn;2009;1(1):78–86.
307 11. Naylor C, Das P, Ross S, Honeyman M, Thompson J, Gilburt H. Bringing together physical and
308 mental health: A new frontier for integrated care. London: The King's Fund; 2016:1-122.
309 12. Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. Epidemiology of multimorbidity and
310 implications for health care, research, and medical education: a cross-sectional study. Lancet.
311 2012;380:37–43.
312 13. Fabbri E, Zoli M, Gonzalez-Freire M, Salive ME, Studenski SA, Ferrucci L. Aging and
313 Multimorbidity: New Tasks, Priorities, and Frontiers for Integrated Gerontological and Clinical
314 Research. J Am Med Dir Assoc;2015;16(8):640–647.
315 14. Primary Health Care Advisory Group. Better Outcomes for people with Chronic and Complex
316 Health Conditions. Canberra, Australia: Commonwealth of Australia as represented by the
317 Department of Health; 2016:1-80.
318 15. Royal College of Occupational Therapists. Living, not Existing: Putting prevention at the heart of
319 care for older people in England. London: Royal College of Occupational Therapists; 2017.

16. Raghupathi W, Raghupathis V. An Empirical Study of Chronic Diseases in the United States: A Visual Analytics Approach to Public Health. Int J Environ Res Public Health. 2018;15(3):431.
17. Ministry of Health Manatu Hauora. National Expectations for the Prevention and Management of Long Term Conditions. New Zealand: Ministry of Health Manatu Hauora; 2017:1-16.
18. Kandala N, Stranges S. Geographic Variation of Overweight and Obesity among Women in Nigeria: A Case for Nutritional Transition in Sub-Saharan Africa. PLoS one. 2014;9(6):101-103.
19. Rossati A. Global warming and its health impact. Int J Occup Environ Med;2017(8):7–20.
20. Teerawichitchainan B, Korinek K. The long term impact of war on health and wellbeing in Northern Vietnam: Some glimpses from a recent survey. Soc Sci Med. 2012;74(12):1995–2004.
21. United Nations. The World Population Prospects: 2015. United Nations: New York; 2015:1-66.
22. Murray CJL, Lopez AD. Global comparative assessments in the health sector: disease burden, expenditures and intervention packages. Geneva: World Health Organization; 1994:1-106.
23. Alemayehu C, Mitchell G, Nikles J. Barriers for conducting clinical trials in developing countries- a systematic review. Int J Equity Health. 2018;17(1):37.
24. Røttingen JA, Chamas C, Goyal LC, Harb H, Lagrada L, Mayosi BM. Securing the public good of health research and development for developing countries. Bulletin World Health Organization. 2012;90:398–400.
25. Mbuagbaw L, Thabane L, Ongolo-Zogo P, Lang T. The challenges and opportunities of conducting a clinical trial in a low resource setting: the case of the Cameroon mobile phone SMS (CAMPS) trial, an investigator initiated trial. Trials. 2011;12(1):145.
26. American Academy of Family Physicians. Primary Care [Internet]. Kansas, USA: American Academy of Family Physicians; 2018 [cited 2018 Aug 14]. Available from: https://www.aafp.org/about/policies/all/primary-care.html#Parsys0001
27. National Health Service (NHS). Primary care services [Internet]. London: National Health Service; 2018 [cited 2018 Aug 14]. Available from: https://www.england.nhs.uk/participation/get-involved/how/primarycare/
28. Department of Health, NHS England. Transforming Primary Care Safe, proactive, personalised care for those who need it most. London: The Department of Health; 2014:1-48.
29. Quality Watch, The Health Foundation, Nuffield Trust. Emergency readmissions: Trends in emergency readmissions to hospital in England [Internet]. London: Quality Watch, The Health Foundation, Nuffield Trust; 2018 [cited 2018 Jun 5]. Available from: http://www.qualitywatch.org.uk/blog/emergency-readmissions-trends-emergency-readmissions-hospital-england
30. Wessex Local Medical Communities. Transforming Primary Care [Internet]. UK: Wessex Local Medical Communities; [cited 2018 Aug 30]. Available from: https://www.wessexlmcs.com/transformingprimarycare
31. McPhail SM. Multimorbidity in chronic disease: impact on health care resources and costs. Risk Manag Healthc Policy. 2016;9:143–56.
32. Smith SM, Wallace E, O'Dowd T, Fortin M. Interventions for improving outcomes in patients with multimorbidity in primary care and community settings. Cochrane Database Syst Rev. 2016;14 (3):1-

115.
33. Stokes J, Man MS, Guthrie B, Mercer SW, Salisbury C, Bower P. The Foundations Framework for Developing and Reporting New Models of Care for Multimorbidity. Ann Fam Med. 2017;15 (6):570–7.
34. Singh D. Ham C. Improving Care for People with Long-Term Conditions: A Review of UK and International Frameworks. Birmingham: Health Services Management Centre, University of Birmingham, and NHS Institute for Innovation and Improvement;2006:1-40.
35. World Health Organization. Noncommunicable diseases and their risk factors [Internet]. World Health Organization; 2018 [cited 2018 Aug 1]. Available from: www.who.int
36. Nolte E. & McKee M. Caring for people with chronic conditions: A health system perspective. Berkshire, England: Open University Press McGraw-Hill Education; 2008:1-290.
37. Wallace E. Salisbury C. Guthrie B. Lewis C. Fahey T. Smith SM. Managing patients with multimorbidity in primary care. BMJ. 2015;(20):350.
38. Wagner E.H. Effective Clinical Practice. Chronic disease management: What will it take to improve care for chronic illness? 1998;1(1):2–4.
39. Peters MDJ. Godfrey C. McInerney P. Baldini Soares C. Khalil H.Parker D. Chapter 11: Scoping Reviews. In: Aromataris E. Munn Z., editor. Joanna Briggs Institute Reviewer's Manual. Joanna Briggs Institute; 2017.
40. Moher D. Shamseer L. Clarke M. Ghersi D. Liberati A. Petticrew M. Shekelle P. Stewart LA. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 statement. Systematic Reviews. 2015;4(1):1.

400

401 Appendix I: Search strategy from MEDLINE (via Ovid)

402

CONTEXT	
	Primary Health Care/
OR	(Primary adj2 care).tw.
OR	Family Practice/
OR	(general adj2 practi$).tw.
OR	family medicine.tw.
OR	(general adj1 practi$).tw.
AND	
CONCEPT	
	(care adj1 model*).tw.
OR	(model* adj1 service delivery).tw.
OR	(model* adj1 (healthcare or health care)).tw.
AND	
PARTICIPANTS	
	Comorbidity/
OR	Chronic Disease/
OR	Multimorbid*.tw.
OR	Multi-morbidity.tw.
OR	(Chronic* adj2 Disease*).tw.
OR	(Chronic* adj1 Ill*).tw.
OR	((persistent or long* term or ongoing or degenerative) adj3 (disease* or ill* or condition* or insufficienc* or disorder*)).tw.
OR	Diabetes Mellitus/
OR	(diabetes or diabetic).tw.
OR	(heart disease* or heart failure or myocardial ischemia or coronary disease* or coronary artery disease* or myocardial infarction or hypertension or high blood pressure).tw.
OR	Sickle cell.tw.
OR	Lung Diseases, Obstructive/
OR	(obstructive lung disease* or obstructive pulmonary disease* or copd or asthma or bronchitis).tw.
OR	emphysema.tw.
OR	emphysema/
OR	pulmonary emphysema/
OR	(cystic fibrosis or respiratory distress).tw.
OR	nervous system diseases/
OR	((brain adj disease*) or damage* or injur*).tw.
OR	(cerebrovascular or brain ischemia or cerebral infarction or carotid artery disease* or stroke or epilep* or seizure*).tw.
OR	(neurodegenerative or Huntingdon* or Parkinson* or amyotrophic lateral sclerosis or multiple sclerosis or motor neuron disease).tw.
OR	(paralys* or quadriplegi* or tetraplegi* or paraplegi* or locked-in syndrome).tw.
OR	((communication or learning or consciousness or perpetual or speech or voice or vision or hearing or psychomotor) adj disorder*).tw.
OR	(hearing loss or hearing aid* or deaf* or blind* or stutter*).tw.
OR	down* syndrome.tw.
OR	Cerebral Palsy/

OR	cerebral palsy.tw.
OR	gastrointestinal diseases/
OR	(gatroenter* or intestinal or bowel or colonic).tw.
OR	((renal or kidney) adj1 (failure* or insufficienc*)).tw.
OR	nutrition disorders/
OR	(underweight or malnutrition or malnourished or overweight or obes*).tw.
OR	arthritis/
OR	rheumatic diseases/
OR	(arthritis or osteoarthritis or rheumati* or fibromyalgia).tw.
OR	((back or neck) adj pain).tw.
OR	(chronic adj pain).tw.
OR	(musculoskeletal or MSK).tw.
OR	Osteoporosis/
OR	osteoporosis.tw.
OR	thyroid diseases/
OR	Thyroid Gland/
OR	thyroid.tw.
OR	hypersensitivity/
OR	(hypersensitivit* or allerg* or intolerance or anaphyla*).tw.
OR	neoplasms/
OR	(cancer* or oncolog* or neoplasm* or carcinom* or tumo?r* or malignan* or leuk?emia).tw.
OR	hiv infections/
OR	(hiv infect* or hiv disease*).tw.
OR	exp *mental disorders/
OR	behavioral symptoms/
OR	((mental* or psychiatr* or psychological*) adj1 (ill* or disorder* or disease* or distress* or disab* or problem* or health* or patient* or treatment)).tw.
OR	((personality or mood or dysthymic or cognit* or anxiety or stress or eating or adjustment or reactive or somatoform or conversion or behavior or perception or psycho* or impulse control or development* or attention deficit or hyperactivity or conduct or motor skills or movement or tic or substance related) adj disorder*).tw.
OR	(psychos#s or psychotic* or paranoi* or schizo* or neuros#s or neurotic* or delusion* or depression or depressive or bipolar or mania or manic or obsessi* or compulsi* or panic or phobic or phobia or anorexia or bulimia or neurastheni* or dissociative or autis* or Asperger* or Tourette or dyslex* or affective or borderline or narcissis* or suicid* or self injur* or self harm or adhd).tw.
OR	((substance or drug or alcohol) adj abuse).tw.
OR	((addict* or alcoholism or problem*) adj1 drinking).tw.
OR	Dementia/
OR	(Alzheimer adj Disease).tw.
OR	((sleep adj disease?) or disorder?).tw.
OR	hyperlipidem*.tw.
OR	Hypercholesterolemia*.tw.
OR	hypertriglyceridemia*.tw.
OR	((liver adj disease?) or disorder?).tw.
OR	Muscular Dystrophies/
AND	**limit 77 to yr="1995 -Current"**

403

404 Appendix II: Data extraction instrument

405

Author						
Year of publication						
Country of origin						
Model/ Intervention						
Aim						
Study design						
Study population, sample size						
Characteristics of Model/ Intervention						
Outcomes assessed						
Results/ Findings/ Recommendations						
Implication for practice, further study						

406

407

408

409

Appendix III- List of websites to be included in search.

Australia
www.health.gov.au
www.aihw.gov.au

New Zealand
www.health.govt.nz

South Africa
www.health.gov.za

India
www.mohfw.gov.in
www.dhr.gov.in

Canada
www.canada.ca/en/health-canada
www.cihi.ca
www.cfpc.ca
www.cfhi-fcass.ca

United Kingdom
www.gov.uk/government/organisations/department-of-health-and-social-care
www.england.nhs.uk
www.scot.nhs.uk
https://health.gov.ie/
www.wales.nhs.uk
www.kingsfund.org.uk
www.nice.org.uk
www.napc.co.uk
www.hsj.co.uk
www.nhsconfed.org
https://digital.nhs.uk/
www.ageuk.org.uk
www.phc.ox.ac.uk
www.nuffieldtrust.org.uk

International
www.who.int/primary-health
www.improvingchroniccare.org
http://maccollcenter.org
www.ihi.org
www.rand.org