

#### WHO/HIS/SDS/2018 48

© World Health Organization 2018. Some rights reserved. This work is available under the CC BY-NC-SA 3.0 IGO licence.

#### **Acknowledgements**

This document was produced as part of the Technical series on primary health care on the occasion of the Global Conference on Primary Health Care under the overall direction of the Global Conference Coordination Team, led by Ed Kelley (WHO headquarters), Hans Kluge (WHO Regional Office for Europe) and Vidhya Ganesh (UNICEF). Overall technical management for the Series was provided by Shannon Barkley (Department of Service Delivery and Safety, WHO headquarters).

This document was produced under the technical direction of Pavlos Theodorakis (Health Systems and Public Health, WHO Regional Office for Europe).

The principal writing team consisted of Michael Anderson, Sarah Averi Albala, Nishali Patel, Josie Lloyd and Elias Mossialos at the London School of Economics, England.

Valuable comments and suggestions to the first draft were made by WHO collaborating partners and regional and country office staff, in particular Susan Brown (GAVI), Howard Catton (International Council of Nurses), Ariana Childs Graham (Primary Health Care Initiative), James Fitzgerald (WHO Regional Office for the Americas), Odd Hanssen (WHO, Geneva), Briana Rivas-Morello (Consultant, WHO Regional Office for Europe) and Lizzie Madden (Consultant, WHO, Geneva).

The views expressed in this document do not necessarily represent the opinions of the individuals mentioned here or their affiliated institutions.

# **Abbreviations**

CHW community health worker

HIC high-income countries

LMIC low- and middle-income countries

PCP primary care physician

PHC primary health care

UN United Nations

WHO World Health Organization



# **Executive summary**

Powerful evidence suggests that primary health care (PHC), particularly primary care, can produce a range of economic benefits through its potential to improve health outcomes, health system efficiency and health equity. This is demonstrated in a conceptual framework in Fig.3, and summarized below:

- Health outcomes primary care can improve population health in terms of life expectancy, all-cause mortality, maternal, infant and neonatal mortality as well as mental health outcomes.
- Health system efficiency primary care can reduce total hospitalizations, avoidable admissions, and emergency admissions and hospitalizations.
- Health equity primary care improves equitable access to health care and equitable health outcomes.

Despite these benefits, internationally, PHC is prioritized to varying degrees. This document reviews the evidence for the economic benefits of PHC, but there remains a need to further develop the economic case for increased investment in PHC. Research is needed to characterize which aspects of primary care and PHC have the greatest potential to improve health outcomes, health system efficiency and health equity, thereby maximizing the potential economic benefits; and to identify the barriers and enablers to implementation. Such research will provide a roadmap for strengthening PHC systems and allow policymakers to target investments.



# Introduction

The term "primary health care" (PHC) first emerged in the United Kingdom in the 1920s with the publication of a government white paper, the "Dawson Report". The report suggested that PHC centres would become the model for providing community health care services as a strategy to address health inequalities and respond to the increasing complexity of health care delivery (1). Over the following decades, the concept of PHC developed significantly, culminating in the 1978 Alma-Ata Declaration, which defined PHC as "essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford" (2).

Now, 40 years later, the Global Conference on Primary Health Care reaffirms the global commitment to PHC, as a key strategy to achieve universal health coverage and the United Nations (UN) Sustainable Development Goals (SDGs) (3). To date, the implementation of PHC internationally has been limited by the lack of a universally accepted definition. The background paper for the Global Conference on Primary Health Care, A vision for primary health care in the 21st century, aims to resolve this issue by describing PHC as whole-of-society approach to health, based on three interrelated and synergistic components (Fig. 1).

Fig. 1. Conceptual framework of PHC



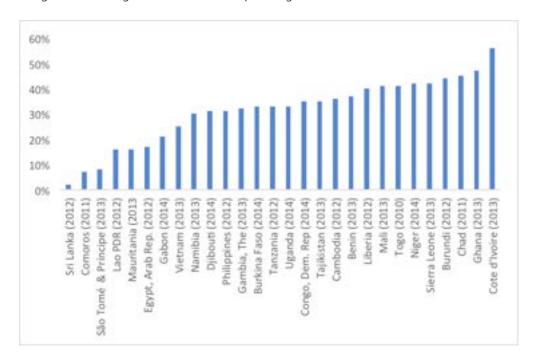
Source: A vision for PHC in the 21st century: toward universal health coverage and the Sustainable Development Goals (Draft 4 September 2018, WHO).

The first of these pillars, "Health services" includes the delivery of quality multidisciplinary primary care and essential public health functions. The second, "Multisectoral policy and action", encompasses policies and action across governments, ministries, nongovernmental organizations and the private sector that address the social, economic, environmental and commercial determinants of health. The third, "Empowered people and communities", describes how people should be empowered to optimize their health, both in terms of self-care and as informal care givers, and as engaged communities, whereby people are active partners and actors in health services.

The delivery of primary care can be understood as the delivery of five key concepts of primary care: providing first contact of care for new health problems, comprehensive care for most health problems, continuity of care, long-term person-focused care and care coordination (4). The public health functions specifically relevant to a PHC approach and closely linked to primary care are health promotion, health protection, and disease prevention (service delivery), surveillance and response, and emergency preparedness (intelligence) (5).

Despite significant evidence linking PHC to improved health outcomes, health system efficiency and health equity (6), the degree to which health systems and societies align with PHC varies considerably across countries (7). For example, the percentage of government spending dedicated to PHC is estimated to vary between 2% and 56% across a range of low- and middle-income countries (LMIC) <sup>1</sup> (Fig. 2). In the context of competing demands for limited resources, building the economic case for PHC is essential in order to convince policy-makers to increase investment in PHC. Hence, this paper describes the outcomes of a scoping review via a conceptual framework, to explore multiple pathways through which PHC can be linked to economic benefit.

Fig. 2. Percentage of current government health spending dedicated to PHC



Adapted from PHCPI (8).

<sup>&</sup>lt;sup>1</sup> Data was collected by PHCPI team using the System of Health Accounts (SHA) 2011 standards, which were jointly developed by WHO, the Organisation for Economic Co-operation and Development (OECD) and the United States Agency for International Development (USAID). A working definition for PHC expenditure has been developed that includes all expenditures for providers who only provide PHC services, expenditures for PHC preventive services provided by additional providers, a proportion of overall capital costs, and a proportion of administrative expenditures.

# What do we know about the economic benefits of PHC?

To date, our knowledge of the economic benefits of PHC has been hampered by methodological constraints. Measuring the strength and quality of PHC is difficult because of a lack of unified definitions and data requirements. Also, the impact of PHC is broad and is interrelated with other sectors, which leads to significant uncertainty when attempting to quantify the benefit.

Nevertheless, some international studies have analysed the strength of PHC-orientation in health systems, which has led to mixed conclusions (9, 10). Most of the data we have on the economic impact of PHC reflect the health services component. An international study comparing the strength of primary care in 13 high-income countries (HICs) found that strong primary care led to improved population health and lower health expenditure (9). A later study that compared the strength of primary care in 31 European countries used an alternative definition; it found that stronger primary care is linked to better population health, but also to higher overall health expenditure (10).

Beyond these studies, most of what we can deduce about the economic benefits of PHC is derived from measurable outcomes such as mortality, hospital admissions and health care costs. For example, there is evidence that increased investment in primary care can reduce use of secondary care and reduce overall health costs (4,6,11–14). Also, growing evidence demonstrates that primary care can improve population health in terms of life expectancy, all-cause mortality, and maternal, infant and neonatal mortality (4,15,16). More specifically, evidence shows that, compared with subspecialists, primary care physicians (PCPs) use fewer resources in terms of hospitalizations, prescriptions and common tests and procedures (17,18). Further, the return on investment from community health workers (CHWs) has been estimated as \$10 for every \$1 spent in sub-Saharan Africa (19). In addition, there is compelling evidence of significant economic benefit from the provision of preventive services in PHC; for example, the return on investment from childhood immunizations in LMIC has been estimated as \$44 for each \$1 spent (20). With such a breadth of evidence, a collective review of the potential economic benefits of PHC across multiple pathways, with the evidence summarized, is required.

# **Objective**

The objective of this document is to summarize the results of a scoping review of literature in order to build the economic case for increased investment in PHC, using a conceptual framework. This document does not aim to provide a summary of the economic benefits of individual interventions within PHC; rather, it aims to review the economic benefits of PHC more generally. This document offers an introduction to the economic benefits of PHC, which may influence further work in specific areas of PHC delivery.

# Why a scoping review?

Scoping reviews aim to rapidly map the key concepts and main types of evidence underpinning a research area. They are often used in complex areas, or in areas that have not been researched comprehensively (21). In contrast, systematic reviews focus on a well-defined question for which appropriate study designs can be identified in advance. Scoping reviews are performed, for example, to examine the extent, range and nature of research activity; to determine the value of undertaking a full systematic review; to summarize and disseminate research findings; and to identify research gaps in the existing literature (22).

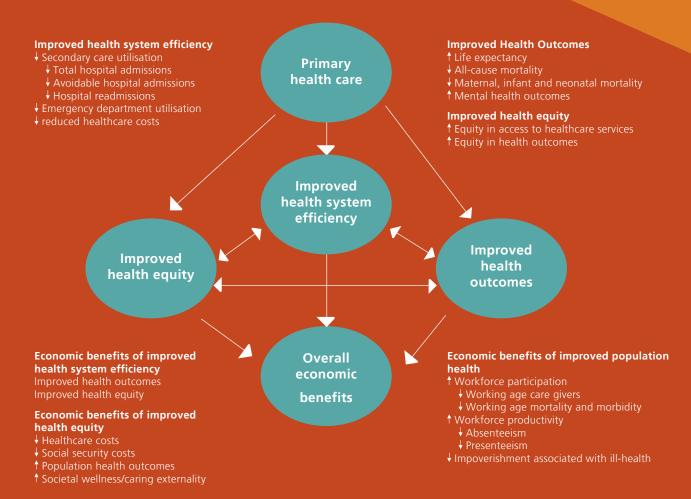


As noted, a wealth of evidence suggests a link between PHC and other measures such as health outcomes, use of secondary care and reduced health care costs, although the evidence linking PHC to economic benefit is limited. The definitions of PHC and primary care vary, as do the many potential pathways linking PHC to economic benefits. These pathways are complex, ill-defined and multifactorial. Therefore, it is not possible to neatly define this research question or appropriate study designs. Undertaking an initial scoping review can help to identify both the type of evidence that exists and any gaps in the literature. In the future, the findings from this review can be used to launch systematic reviews, to further develop the economic arguments for PHC.

# Scoping review conceptual framework

To direct the scoping review, the coauthors of this report have developed a conceptual framework. The underlying theory for this framework relies on the known macroeconomic benefits of improved health outcomes, health system efficiency and health equity. The subsequent literature review focused on highlighting evidence that demonstrates the link between PHC and these three factors. Fig. 3 depicts this conceptual framework and the proposed mechanisms through which PHC can be linked to improved health outcomes, health system efficiency and health equity.

Fig. 3. Conceptual framework for economic case for PHC investment



# Pathway 1: economic benefit of improved health outcomes

Several landmark reports - for example, the WHO commission on macroeconomics and health, the Lancet commission on investing in health and the UN high-level commission on health employment and economic growth – have highlighted strong evidence that improved health outcomes have significant macroeconomic benefits (23–25). For example, a systematic review of 13 papers estimated that increasing life expectancy by 5 years increased gross domestic product (GDP) by between 0.0% and 0.58%; only one paper estimated a neutral effect (26). This effect is due to a range of implications throughout the life course. For example, poor antenatal, postnatal and child health are predictors for poor income later in life and for delayed cognitive development (27–29). Further, an analysis of the impact of maternal and infant mortality on GDP found that, in 86% (154/180) of countries, changes in under-5 mortality affected GDP; similarly, in 69% (119/170) of countries, changes in maternal mortality affected GDP (30). In working-age adults, illness and disability markedly increase the probability of being unemployed; recent data from the United Kingdom show that, with illness and disability, the probability of unemployment doubles (31). Even for the employed, illness and disability significantly lower productivity, with absenteeism and presenteeism responsible for substantial costs globally (32–34). In addition, an unhealthy population prevents many adult children from entering the labour market; for example, many become carers instead of entering the labour market (35). Also, improved health in the elderly can reduce isolation and facilitate greater participation in society.

This review explores the extent to which PHC is linked to improved health outcomes such as life expectancy, all-cause mortality, and maternal, infant and neonatal mortality, as well as cardiovascular and mental health outcomes.

# Pathway 2: economic benefit of improved health system efficiency

From a macroeconomic perspective, health system efficiency is a measure of the degree to which the inputs into a health care system – such as expenditure, capital and labour – achieve the stated objectives of the system (e.g. improved health outcomes and health equity) (36). From a microeconomic perspective, increased health system efficiency can be understood as reducing wasteful use of health care resources (including avoidable hospitalizations, readmissions to hospital and unnecessary use of emergency departments), thus reducing health care costs.

Inefficient use of health care resources may also deny patients health gains that are achievable with the optimal mix of resources (37). Wasteful use of health system resources has economic consequences due to the benefits lost from decreased investment in other aspects of the economy, such as education and infrastructure; also, it may reduce society's willingness to contribute to the future funding of health services.

This review will establish the extent to which PHC improves health system macroefficiency (i.e. maximizes health outcomes and health equity) and health system microefficiency (i.e. reduced avoidable admissions, readmissions, emergency department use and health care costs). However, the link to health care costs is context dependent; in many countries, increased investment in PHC may increase overall health care costs but still represent a more efficient use of health care resources.

# Pathway 3: economic benefit of improved health equity



## **Selection criteria**

This scoping review attempts to summarize extensive evidence by using a conceptual framework. For practical purposes, systematic and nonsystematic reviews were prioritized. For health equity, individual articles were also considered because of the limited evidence available. The scope of this review is the impact of the delivery of primary care services on health outcomes, health system efficiency and health equity. Reviews of individual interventions within primary care were also considered if they encompassed one or more of the five primary care functions (first contact of care; comprehensive care; continuity of care; long-term, person-focused care; and care coordination). For example, transitional care, case management and medical home programmes involve, to some extent, care coordination, person-focused care and comprehensive care.

# Search strategy

For each proposed pathway (health outcomes, health system efficiency and health equity), three independent reviewers searched PubMed, Medline, WHO Index Medicus, WHOLIS (KMS), SCOPUS and the Cochrane Library for references up to 31 July 2018; they also searched the grey literature. The lead reviewer also applied the search criteria across all pathways and checked references. Data regarding the type of review, number and type of studies included, measure of PHC used, countries reviewed and summary of findings were entered into an Excel<sup>TM</sup> spreadsheet.

**Health outcomes** The search strategy was designed to highlight evidence that shows that primary care is associated with improved health outcomes. The health outcomes examined were life expectancy, mortality rates, cardiovascular disease, cancer and mental health. Specifically, the search terms "Primary care" or "General practice" were coupled with the terms "Health outcome", "Mortality", "Survival" and "Mental Health" for both titles and abstracts, using the filter "Review". ORGANISES ine GENEralE IMAGERIE MEDICALE . DENTISTERIE Radiologie CINE INTERNE . MATERNITE .EehograPhie VECO - OBSTETRIQUE . PRISEENCHARGE DE TUBERCULEUX .ECG . DEPISTAGE DES VIH MEDECINE PHYSIQUE 9



### Health system efficiency

The search strategy was designed to highlight evidence that shows that primary care is associated with improved efficiency of the health care system. We examined the measures of total hospital admissions, avoidable hospital admissions, hospital readmissions and emergency department presentations. Specifically, the search terms "Primary care" or "General Practice" were coupled with the terms "Hospital admission", "Avoidable admission", "Readmission", "Emergency department", "Accident and emergency", "Secondary care", "Continuity", "Cost", "Expenditure" and "Spending" for both titles and abstracts, using the filter "Review".

#### **Health equity**

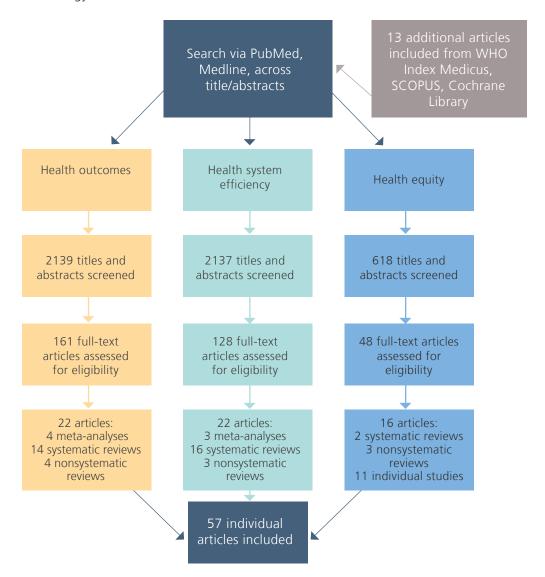
The search strategy was designed to highlight evidence that links primary care with reduced health care costs. Specifically, the search terms "Primary care" or "General practice", were coupled with the term "Equity" for both titles and abstracts, without using the filter "Review". The decision was made not to use this filter because an initial search yielded limited results.

## Results

#### Total number of reviews identified

The results of the search strategy are shown in Fig. 4.

Fig. 4. Search strategy results



PubMed and Medline searches identified 4984 results in total. All titles and abstracts were reviewed, revealing 337 potentially relevant articles. After reviewing the full text of these articles, 45 reviews met the selection criteria, with an additional 13 reviews retrieved from searching further databases. In total, the search identified 22 reviews related to health outcomes, 22 reviews related to health system efficiency and 16 articles related to health equity (Fig. 4). Three reviews were selected twice because they considered evidence relevant to two categories (4,18,41). Most of the reviews identified were either systematic reviews or meta-analyses (78%, 36/46); 11 individual studies relevant to health equity were also considered.

#### How did the literature reviewed define PHC?

The reviews identified assessed the impact of a variety of measures of PHC which, consistent with a previous review (6), can be broadly split into three categories:

- Speciality of the provider. Literature that defined primary care according to the speciality of individual providers, primarily as generalists (family doctors, general paediatrics and general internists) compared with specialists; however, this categorization does not acknowledge how specialists may also enact primary care functions.
- Primary care functions. Literature that assessed the impact of the five core primary care functions across providers: providing first contact of care; comprehensive care; continuity of care; long-term, person-focused care; and care coordination (4). Specific examples include new models of care such as case management programmes, transitional care programmes and medical home models, all of which encompass both care coordination and person-focused care.
- Orientation of the system. Certain literature focused on the strength of primary care among geographical areas, which is often defined as the orientation of the system. This could be measured as high ratios of PCPs to patients, or patient populations that frequently have usual sources of care that provide primary care functions.

# What is the quality of evidence identified?

Most studies reviewed used observational data, and they often used quasi-experimental designs, such as cross-sectional, case–control and cohort studies. In cases for which genuine uncertainty exists about the supposed benefits of specific interventions within the primary care setting, such as transitional care or case management programmes, then randomized controlled trials (RCTs) were also used. In many cases, the use of RCTs led to a meta-analysis.

Measure	Evidence reviewed	Overall findings	
Health outcomes			
All-cause and cause-specific mortality (cancer, heart disease, stroke)	4 systematic reviews (18,42–44) 1 nonsystematic review (4)	Strong evidence that supply of PCPs leads to reduction in all-cause and cause-specific mortality.  Strong evidence that continuity of care leads to a reduction in all-cause mortality.	
Maternal, neonatal and child mortality	7 systematic reviews (16,45–50)	Strong evidence that primary care is associated with significant reductions in maternal, neonatal and child mortality in LMIC.	
Mental health outcomes (anxiety, depression, suicide)	5 systematic reviews (51–55) 1 nonsystematic review (56)	Strong evidence that primary care interventions can have a positive impact on measures of severity for depression, anxiety and suicide.	
Health system efficiency			
Total hospitalizations	4 systematic reviews (57–60)	Strong evidence that continuity of care can reduce total hospitalizations.  Some evidence that case management programmes in primary care are associated with a reduction in total hospitalizations.	
Avoidable hospitalizations	3 systematic reviews (61–63)	Strong evidence that PCP supply and greater access to PCPs can reduce the number of avoidable hospitalizations. Strong evidence that continuity of care can reduce avoidable hospitalizations.	

Measure	Evidence reviewed	Overall findings	
Hospital readmissions	3 systematic reviews (64–66)	Some evidence that case management and transitional care programmes can reduce hospital readmissions.	
Emergency department use	6 systematic reviews (58,59,67–70)	Strong evidence that reduced access to primary care (PCPs per capita, distance to primary care) is linked to increased emergency department use.  Strong evidence that continuity of care is linked to reduced emergency department use.	
Health care costs	5 systematic reviews (18,60,69,71,72) 3 nonsystematic reviews (4,6,73)	Some evidence that PCP supply, speciality of provider, continuity of care and improved access to primary care can reduce total health care costs.  Mixed evidence regarding the association between case management and medical home programmes in primary care and health care costs.	
Health equity			
Equitable access	2 systematic reviews (74,75) 4 individual studies (76–79)	Some evidence that primary care, as compared with other health services, can improve equity of access, especially for disadvantaged adults. Although dependent upon the design of PHC services including the reimbursement mechanisms for PCPs.  Some international evidence that access to primary care services are distributed evenly whereas access to specialist care is often pro-rich.	
Equitable health outcomes	3 nonsystematic reviews (13,80,81) 7 individual studies pri- mary care (10,12,82–86)	Strong evidence from the USA that primary care improves equity of health outcomes across a range of measures. Some international evidence that strong PHC systems are associated with reduced inequities in self-rated health.	



#### Health outcomes

Outcome measures studied: All-cause and cause-specific mortality (cancer, heart disease, stroke), maternal, neonatal and child mortality, suicidal ideation, suicide attempts, depression onset and anxiety severity.

Countries studied: Predominantly English-speaking HICs, apart from maternal, neonatal and child mortality where focus is LMIC.

#### Main findings

There is significant evidence that primary care improves health outcomes, even when using alternative measures of primary care. Several reviews demonstrate how the supply of PCPs is associated with a reduction in all-cause mortality (4,42,43), with one meta-analysis showing an increase of one PCP per 10 000 is associated with an average mortality reduction of 5.3%, or 4.9 per 10 000 per year in the United States of America (USA) (43). Continuity of care, a core primary care function, was associated with a reduction in all-cause mortality in nine countries in 16 studies (44,60).

There is also overwhelming evidence that primary care interventions, such as the use of CHWs, reduce maternal, child and neonatal mortality in LMIC (16,42,46–50,87). However, one systematic review found mixed evidence regarding the use of CHWs to improve health outcomes in HIC (41). Another review assessed current evidence that primary care is linked to improved adult health outcomes in LMIC, and concluded that "there is little peer reviewed evidence on the role of PHC in adult health in low and middle-income countries" (45). Nevertheless, under-5 child mortality is a major component of life expectancy, and poor child health is linked to worsening adult health (27,88). Hence under-5 mortality is a useful benchmark for monitoring progress of health outcomes across health care systems. There is also evidence that PHC services are a useful platform for implementing interventions that improve mental health outcomes related to depression, anxiety and suicide (51–56).

#### Health system efficiency

Outcome measures studied: Total hospitalizations, avoidable admissions, hospital readmissions, emergency department use, total health care costs per capita (US\$).

Countries studied: Predominantly English-speaking HICs.

#### Main findings

Many studies looked at the impact of primary care on avoidable admissions and hospital readmissions (89). Avoidable admissions are typically defined as preventable admissions for ambulatory care sensitive conditions, which include acute diseases such as gastroenteritis and urinary tract infections, and chronic diseases such as asthma and diabetes (90). The arrangement of primary care is relevant, because continuity of care reduced total hospitalizations, avoidable admissions and emergency department use (58–61,63,67,68,70). In addition, reduced access to primary care, quantified as either PCPs per capita or distance to primary care centre, is associated with increased emergency department use and avoidable admissions (62,67,68). Although some evidence suggested that the implementation of case management and transitional care programmes in primary care is associated with a reduction in both total hospitalizations and readmissions (57,64,65), one meta-analysis of case management programmes in PHC found no significant association (71).

In terms of health care costs, most of the evidence identified was from the USA, although this paper primarily concerned systematic and nonsystematic reviews of the literature. Regarding speciality of the provider, PCPs use fewer resources than subspecialists (e.g. diagnostic tests, prescribing, procedures) (18). Also some evidence suggests that, compared with subspecialists, PCPs are associated with reduced health care costs (6). Further, increased supply of PCPs (i.e. PCP per capita) is associated with reduced health care costs (6). In addition, the key primary care functions of first point of contact and continuity of care are associated with more appropriate, effective and less costly care (4,60). Evidence from literature that analysed the association between case management and medical home models in primary care and health care costs is mixed, with studies either showing a reduction, an increase or no significant difference in health costs (71–73).

## **Health equity**

Outcome measures studied: equity of access, equity of health outcomes.

Countries studied: predominantly USA.

#### Main findings

care system (74,78).

The literature focused on the impact of primary care in reducing both inequities in access to health care services and inequities in health outcomes. There is strong evidence that primary care improves access to health care services and mitigates the health implications of disparities in socioeconomic status in the USA (79,81-85). An international study also found that access to PCPs was more equitable than access to specialists groups (76). A later study in Europe found that stronger primary care systems in were associated with lower inequity in self-rated health (10). However, the extent to which primary care can improve equity of access and health outcomes depends on the reimbursement mechanisms for PCPs and the financing arrangements of the health

The literature focused on the impact of primary care in reducing both inequities in access to health care services and inequities in health outcomes. There is strong evidence that primary care improves access to health care services and mitigates the health implications of disparities in socioeconomic status in the USA (79,81-85). An international study also found that access to PCPs was more equitable than access to specialists groups (76). A later study in Europe found that stronger primary care systems in were associated with lower inequity in self-rated health (10). However, the extent to which primary care can improve equity of access and health outcomes depends on the reimbursement mechanisms for PCPs and the financing arrangements of the health care system (74,78).

15

# Areas for future research

# Maximizing the economic benefits of PHC

The delivery of primary care is not homogenous among or even within countries. Maximizing the economic benefits of primary care primarily depends on our understanding of which aspects of primary care have the highest potential to improve health outcomes, health system efficiency and health equity. For example, accessibility, continuity of care and consultation time are crucial for improving health outcomes and reducing hospitalizations and emergency department use (58–61,63,67,68,70,91). Studies also show a high return on investment for certain interventions within PHC, such as childhood immunizations and the use of CHWs (19,20).

There is a need to characterize the aspects of primary care that maximize economic benefits; this could direct policy-makers tasked with strengthening primary care systems towards the facets of primary care to prioritize. After establishing these priority areas, the barriers and enablers to implementing and maximizing the economic benefits of primary care need to be identified. For example, the extent to which PC can improve health equity depends on PCP reimbursement mechanisms and health care financing arrangements (74,78,92). This important work could provide a roadmap for strengthening PHC globally.

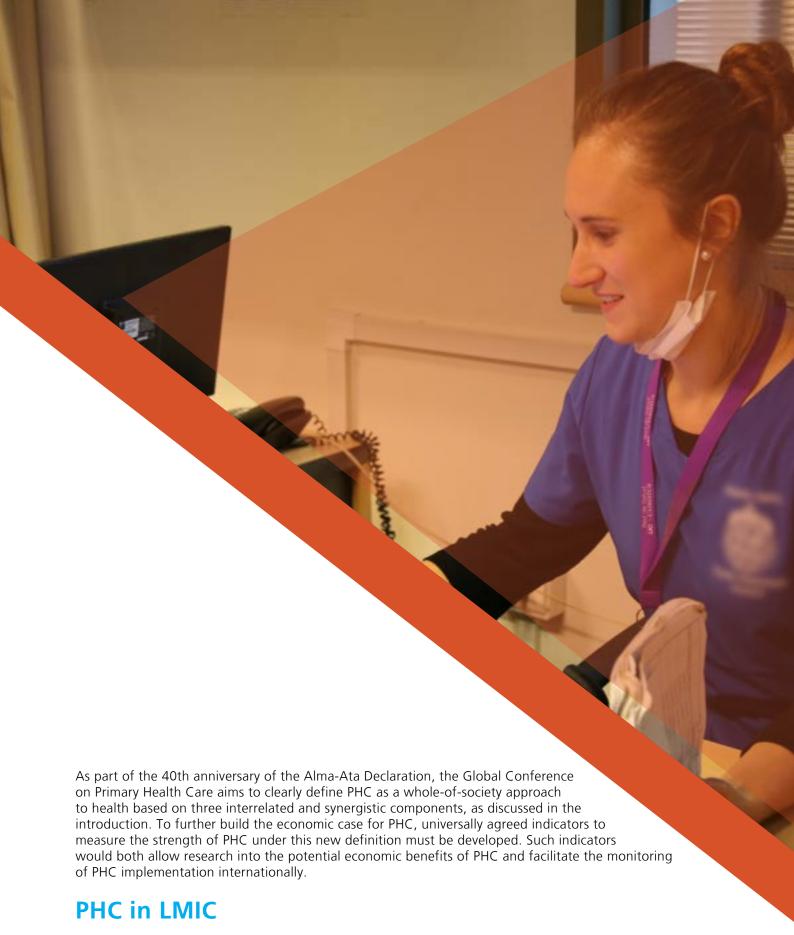
## **Further international comparisons**

Much can be gained from analysing the strength of PHC among countries and the subsequent implications for health outcomes, health system efficiency and health equity. To achieve this, a clear measure of the strength of PHC is required. Currently, this analysis is limited to health service delivery and orientation towards primary care. Further evidence is needed about the economic impact of the other components of PHC, including multisectoral policies and action on the determinants of health, as well as the empowerment of individuals, families and communities. Even within the scope of health services and primary care, different approaches have been taken to measure the strength of primary care, using a combination of publicly available data, expert panels and questionnaires (Table 2).

Table 2. Measures of PHC strength

Starfield and Shi 2002 (9)	PHC Activity Monitor for Europe (PHAMEU) (10)	Quality and Costs of Primary Care in Europe (QUALICOPC) (93)	Primary Health Care Performance Initia- tive (PHCPI) (94,95)
Data collected from OECD health data and expert panel	Data collected from international literature, governmental publica- tions, statistical databas- es and national expert consultations	A set of four surveys (1 for GPs, 2 for patients, 1 for practices); data collected between October 2011 and December 2013	International health databases (e.g. DHS, GHO, SARA, SDI, SHA, SPA, UNICEF, WDI, WHO)
Nine characteristics, including mode of financing, type of PCP, percentage of PCPs versus specialists, PCP salaries, any cost-sharing, requirement for patient lists, access arrangements and strength of academic primary care departments	77 indicators across 5 key dimensions: structure, access, coordination, continuity and compre- hensiveness	60 questions split across 10 dimensions: process (access, continui- ty, coordination, compre- hensiveness), structure (governance, economic conditions, workforce development), and outcomes (quality, efficiency, equity)	25 indicators across 5 categories; system, inputs, service delivery, outputs, outcomes

DHS: Demographic and Health Surveys; GHO: Global Health Observatory; OECD: Organisation for Economic Co-operation and Development; PHAMEU: Primary Health Care Activity Monitor for Europe; PHCPI: Primary Healthcare Performance Initiative; QUALICOPC: Quality and Costs of Primary Care in Europe; SARA: Service Availability and Readiness Assessment; SDI: Service Delivery Indicator; SHA: Strategic Health Accounts; SPA: Service Provision Assessment; UNICEF: United Nations Children's Fund; WDI: World Development Indicators; WHO: World Health Organization.



Although the substantial evidence linking primary care delivery in LMICs to reductions in maternal, neonatal and child mortality is positive, further research is required on the impact of primary care in LMIC regarding adult health outcomes, health system efficiency and health equity. Currently, the sparse evidence available is mostly observational (96). Many LMIC are experiencing rapid economic and social changes and, without high-quality evidence, it is impossible to rule out alternative explanations for any results observed.

# **Limitations**

Because the focus of this scoping review is broad and the review attempts to summarize a great deal of evidence, systematic and nonsystematic reviews were prioritized. In addition, the selected search terms were applied only to titles and abstracts, and the common search terms (primary care and general practice) did not include "family medicine" or "family doctors", or any analysis of the other two components of PHC (empowered people and multisectoral policy and action). These factors limit the results. Therefore, relevant literature may have been missed, although this limitation must be balanced against the feasibility of summarizing such a large body of evidence.

Further, this scoping review did not undertake a complete review of specific interventions within PHC, and only reviewed interventions that encompassed aspects of primary care functions (i.e. first contact of care; comprehensive care; long-term, person-focused care; and care coordination). Some examples include the implementation of transitional care, case management and medical home programmes in the primary care setting. A breadth of specific programmes and interventions are used within primary care, and it is possible that some have not been reviewed. However, a full review of any individual interventions within PHC that are linked to improved health outcomes, health system efficiency or reduced health care costs was outside the scope of this review.

In addition, the quality of the systematic reviews was not assessed; for example, using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) or A Measurement Tool to Assess Systematic Reviews (AMSTAR) criteria (97,98). Therefore, the estimation of the relative strength of association between primary care and health outcomes, health system efficiency and health equity was not systematic and could be challenged.

# **Conclusions**

This document offers a useful introduction to the multiple pathways through which PHC, particularly primary care, can lead to economic benefits. Powerful evidence links primary care to improved health outcomes, health system efficiency and health equity. Despite some limitations, this body of evidence builds a strong economic case for increased investment in primary care and PHC. This scoping review reinforces the increasing imperative to prioritize PHC globally, because these arguments are equally relevant in LMIC and HIC.

To further develop the case for prioritizing PHC, we need to better characterize which aspects of primary care and PHC can maximize the associated economic benefits, and to identify any enablers and barriers to replication elsewhere. This work will provide a roadmap for strengthening PHC systems and allow policy-makers to target investments.





# References

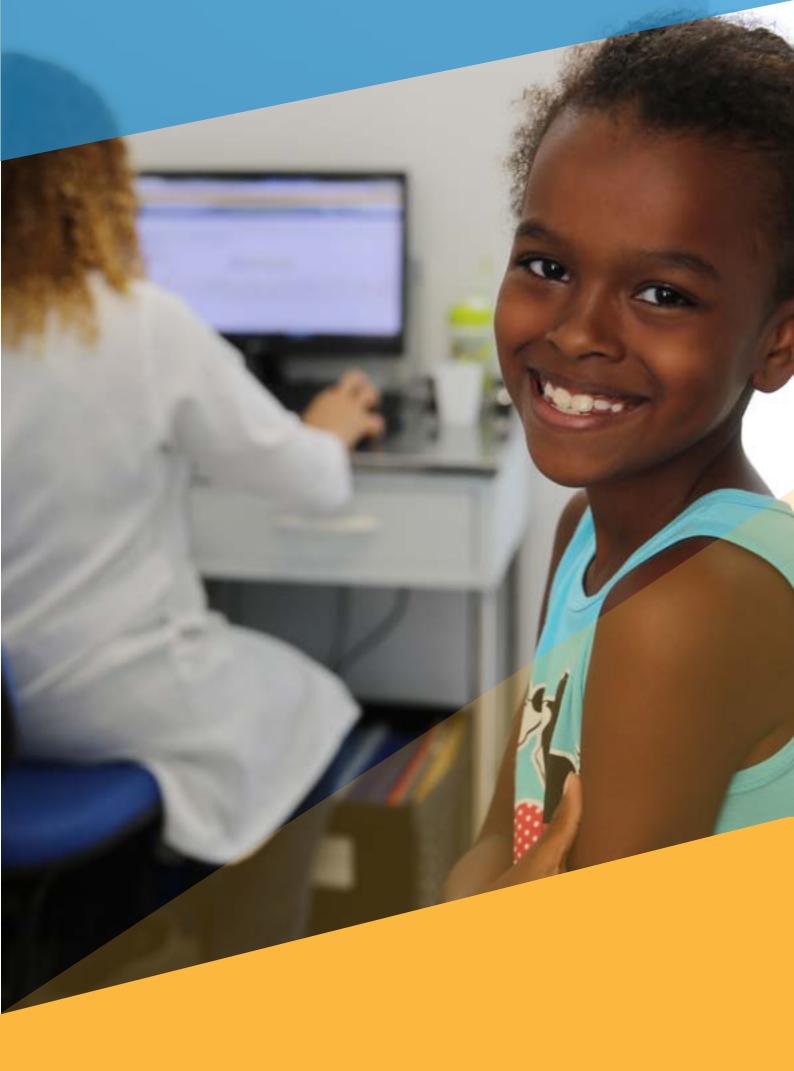
- 1. Tangye CE. The Dawson report. Public Health. 1920;34:42-4.
- 2. Declaration of Alma-Ata International Conference on Primary Health Care, Alma-Ata, USSR, 6–12 September 1978. Development. 2004;47:159–61.
- 3. Sustainable Developmental Goal 3: Ensure healthy lives and promote well-being for all at all ages. United Nations; 2015 (https://sustainabledevelopment.un.org/sdg3, accessed 3 August 2018).
- 4. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. Milbank Q. 2005;83:457–502.
- 5. The 10 essential public health operations. 2018 (http://www.euro.who.int/en/health-topics/ Health-systems/public-health-services/policy/the-10-essential-public-health-operations, accessed 27 September 2018).
- 6. Friedberg MW, Hussey PS, Schneider EC. Primary care: a critical review of the evidence on quality and costs of health care. Health Aff (Millwood). 2010;29:766–72.
- 7. Pavlic DR, Sever M, Klemenc-Ketiš Z, Švab I, Vainieri M, Seghieri C, et al. Strength of primary care service delivery: a comparative study of European countries, Australia, New Zealand, and Canada. Prim Health Care Res Dev. 2018;19:277–87.
- 8. Primary health care performance initiative methodology note. PHCPI; 2015. (https://improvingphc.org/sites/default/files/PHCPI%20Methodology%20Note\_0.pdf, accessed 8 October 2018).
- 9. Starfield B, Shi L. Policy relevant determinants of health: an international perspective. Health Policy Amst Neth. 2002;60:201–18.
- 10. Kringos DS, Boerma W, van der Zee J, Groenewegen P. Europe's strong primary care systems are linked to better population health but also to higher health spending. Health Aff (Millwood). 2013;32:686–94.
- 11. Gravelle H, Morris S, Sutton M. Are family physicians good for you? Endogenous doctor supply and individual health. Health Serv Res. 2008;43:1128–44.
- 12. Shi L, Macinko J, Starfield B, Wulu J, Regan J, Politzer R. The relationship between primary care, income inequality, and mortality in US States, 1980–1995. J Am Board Fam Pract. 2003;16:412–22.
- 13. Starfield B. Primary care: an increasingly important contributor to effectiveness, equity, and efficiency of health services. SESPAS report 2012. Gac Sanit. 2012;26:20–6.
- 14. Weiss LJ, Blustein J. Faithful patients: the effect of long-term physician-patient relationships on the costs and use of health care by older Americans. Am J Public Health. 1996;86:1742–7.
- 15 Macinko J, Starfield B, Shi L. The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development (OECD) countries, 1970–1998. Health Serv Res. 2003;38:831–65.
- 16. Perry HB, Rassekh BM, Gupta S, Freeman PA. Comprehensive review of the evidence regarding the effectiveness of community-based primary health care in improving maternal, neonatal and child health: 7. shared characteristics of projects with evidence of long-term mortality impact. J Glob Health. 2017;7:010907.
- 17. Greenfield S, Nelson EC, Zubkoff M, Manning W, Rogers W, Kravitz RL, et al. Variations in resource utilization among medical specialties and systems of care. Results from the medical outcomes study. JAMA. 1992;267:1624–30.
- 18. Harrold LR, Field TS, Gurwitz JH. Knowledge, patterns of care, and outcomes of care for generalists and specialists. J Gen Intern Med. 1999;14:499–511.
- 19 Strengthening primary health care through community health workers: investment case and financing recommendations. World Health Organization; 2015 (http://www.who.int/hrh/news/2015/CHW-Financing-FINAL-July-15–2015.pdf?ua=1, accessed 8 October 2018).
- 20. Ozawa S, Clark S, Portnoy A, Grewal S, Brenzel L, Walker DG. Return on investment from childhood immunization in low- and middle-income countries, 2011–20. Health Aff (Millwood). 2016;35:199–207.

- 21. Mays N, Roberts E, Popay J. Synthesising research evidence. In: Fulop N, Allen P, Clarke A, Black N, editors. Studying the organisation and delivery of health services: research methods. London: Routledge; 2001:188–220. (http://researchonline.lshtm.ac.uk/15408/, accessed 15 July 2018).
- 22. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol. 2005;8:19–32.
- 23. Sachs J, editor. Macroeconomics and health: investing in health for economic development; report of the Commission on Macroeconomics and Health. Geneva: World Health Organization; 2001.
- 24. Jamison DT, Summers LH, Alleyne G, Arrow KJ, Berkley S, Binagwaho A, et al. Global health 2035: a world converging within a generation. Lancet. 2013;382:1898–955.
- 25. High-level commission on health employment and economic growth. Working for health and growth. Investing in the health workforce. World Health Organization; 2016 (http://apps.who.int/iris/bitstream/handle/10665/250047/9789241511308-enq.pdf?sequence=1, accessed 8 October 2018).
- 26. Bloom DE, Canning D, Sevilla J. The effect of health on economic growth: a production function approach. World Dev. 2004;32:1–13.
- 27. Palloni A, Milesi C, White RG, Turner A. Early childhood health, reproduction of economic inequalities and the persistence of health and mortality differentials. Part Spec Issue Early Life Eff Socioecon Perform Mortal Later Life Full Life Course Approach Using Contemp Hist Sources. 2009;68:1574–82.
- 28. Case A, Fertig A, Paxson C. The lasting impact of childhood health and circumstance. J Health Econ. 2005;24:365–89.
- 29. Doyle O, Harmon CP, Heckman JJ, Tremblay RE. Investing in early human development: timing and economic efficiency. Econ Hum Biol. 2009;7:1–6.
- 30. Amiri A, Gerdtham U-G. Impact of maternal and child health on economic growth: new evidence based Granger causality and DEA analysis. Study Comm Partnersh Matern Newborn Child Health PMNCH. 2013;30.
- 31. Adult Health in Great Britain, 2013. Office for National Statistics; (https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/compendium/opinionsandlifestylesurvey/2015–03–19/adulthealthingreatbritain2013, 13 June 2013).
- 32. Evans-Lacko S, Knapp M. Global patterns of workplace productivity for people with depression: absenteeism and presenteeism costs across eight diverse countries. Soc Psychiatry Psychiatr Epidemiol. 2016;51:1525–37.
- 33. Goetzel RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W. Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. J Occup Environ Med. 2004;46:398.
- 34 Sadatsafavi M, Rousseau R, Chen W, Zhang W, Lynd L, FitzGerald JM. The preventable burden of productivity loss due to suboptimal asthma control: a population-based study. Chest. 2014;145:787–93.
- 35. Løken K, Lundberg S, Riise J. Lifting the burden: formal care of the elderly and labor supply of adult children. J Hum Resour. 2017;52:247–71.
- 36. Mossialos E, editor. Funding health care: options for Europe. Buckingham; Philadelphia: Open University Press; 2002.
- 37. Cylus J, Papanicolas I, Smith PC, editors. Health system efficiency: how to make measurement matter for policy and management. Copenhagen, Denmark: WHO Regional Office for Europe; 2016.
- 38. Mackenbach JP, Meerding WJ, Kunst AE. Economic costs of health inequalities in the European Union. J Epidemiol Community Health. 2011;65:412–9.
- 39. Glied SA. Universal public health insurance and private coverage: externalities in health care consumption. NBER. 2008;13885. (http://www.nber.org/papers/w13885, accessed 31 August 2018).
- 40. The economics of social determinants of health and health inequalities: a resource book. Geneva: World Health Organization; 2013.
- 41. Viswanathan M, Kraschnewski JL, Nishikawa B, Morgan LC, Honeycutt AA, Thieda P, et al. Outcomes and costs of community health worker interventions: A systematic review. Med Care. 2010;48:792–808.

- 42. Engström S, Foldevi M, Borgquist L. Is general practice effective? A systematic literature review. Scand J Prim Health Care. 2001;19:131–44.
- 43. Macinko J, Starfield B, Shi L. Quantifying the health benefits of primary care physician supply in the United States. Int J Health Serv Plan Adm Eval. 2007;37:111–26.
- 44. Gray DJP, Sidaway-Lee K, White E, Thorne A, Evans PH. Continuity of care with doctors—a matter of life and death? A systematic review of continuity of care and mortality. BMJ Open. 2018;8:e021161.
- 45. Macinko J, Starfield B, Erinosho T. The impact of primary healthcare on population health in low- and middle-income countries. J Ambulatory Care Manage. 2009;32:150–71.
- 46. Black RE, Taylor CE, Arole S, Bang A, Bhutta ZA, Chowdhury AMR, et al. Comprehensive review of the evidence regarding the effectiveness of community-based primary health care in improving maternal, neonatal and child health: 8. Summary and recommendations of the Expert Panel. J Glob Health. 2017;7:010908.
- 47. Bhutta ZA, Ali S, Cousens S, Ali TM, Haider BA, Rizvi A, et al. Alma-Ata: rebirth and revision 6 interventions to address maternal, newborn, and child survival: what difference can integrated primary health care strategies make? Lancet Lond Engl. 2008;372:972–89.
- 48. Christopher JB, May AL, Lewin S, Ross DA. Thirty years after Alma-Ata: a systematic review of the impact of community health workers delivering curative interventions against malaria, pneumonia and diarrhoea on child mortality and morbidity in sub-Saharan Africa. Hum Resour Health. 2011;9:27.
- 49. Kruk ME, Mbaruku G, McCord CW, Moran M, Rockers PC, Galea S. Bypassing primary care facilities for childbirth: a population-based study in rural Tanzania. Health Policy Plan. 2009;24:279–88.
- 50. Nkonki L, Tugendhaft A, Hofman K. A systematic review of economic evaluations of CHW interventions aimed at improving child health outcomes. Hum Resour Health 2017;15:19 (https://www.ncbi.nlm.nih.gov/pubmed/28245839, accessed 1 October 2018).
- 51. Conejo-Cerón S, Moreno-Peral P, Rodríguez-Morejón A, Motrico E, Navas-Campaña D, Rigabert A, et al. Effectiveness of psychological and educational interventions to prevent depression in primary care: A systematic review and meta-analysis. Ann Fam Med. 2017;15:262–71.
- 52. Fernandez A, Moreno-Peral P, Zabaleta-del-Olmo E, Bellon JA, Aranda-Regules JM, Luciano JV, et al. Is there a case for mental health promotion in the primary care setting? A systematic review. Prev Med. 2015;76 Suppl:S5–11.
- 53. 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. 2016:3:CD006560.
- 54. Smith SM, Cousins G, Clyne B, Allwright S, O'Dowd T. Shared care across the interface between primary and specialty care in management of long term conditions. John Wiley & Sons, Ltd; 2017 (http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD004910.pub3/full, accessed 4 August 2018).
- 55. Muntingh ADT, Van DF-C, Van M, Spinhoven P, Van B. Collaborative care for anxiety disorders in primary care: A systematic review and meta-analysis. BMC Fam Pract. 2016;17:62.
- 56. Dueweke AR, Bridges AJ. Suicide interventions in primary care: A selective review of the evidence. Fam Syst Health J Collab Fam Healthc. 2018;36:289–302
- 57. Huntley AL, Johnson R, King A, Morris RW, Purdy S. Does case management for patients with heart failure based in the community reduce unplanned hospital admissions? A systematic review and meta-analysis. BMJ Open. 2016;6:e010933–e010933.
- 58. Cabana MD, Jee SH. Does continuity of care improve patient outcomes? J Fam Pract. 2004;53:974–80.
- 59. Worrall G, Knight J. Continuity of care for older patients in family practice. Can Fam Physician. 2006;52:755.
- 60. Sans-Corrales M, Pujol-Ribera E, Gené-Badia J, Pasarín-Rua MI, Iglesias-Pérez B, Casajuana-Brunet J. Family medicine attributes related to satisfaction, health and costs. Fam Pract. 2006;23:308–16.
- 61. Wolters RJ, Braspenning JCC, Wensing M. Impact of primary care on hospital admission rates for diabetes patients: A systematic review. Diabetes Res Clin Pract. 2017;129:182–96.

- 62. Rosano A, Loha CA, Falvo R, van der Zee J, Ricciardi W, Guasticchi G, et al. The relationship between avoidable hospitalization and accessibility to primary care: a systematic review. Eur J Public Health. 2013;23:356–60.
- 63. van Loenen T, van den Berg MJ, Westert GP, Faber MJ. Organizational aspects of primary care related to avoidable hospitalization: a systematic review. Fam Pract. 2014;31:502–16.
- 64. Jones CE, Hollis RH, Wahl TS, Oriel BS, Itani KMF, Morris MS, et al. Transitional care interventions and hospital readmissions in surgical populations: a systematic review. Am J Surg. 2016;212:327–35.
- 65. Joo JY, Liu MF. Case management effectiveness in reducing hospital use: a systematic review. Int Nurs Rev. 2017;64:296–308.
- 66. Verhaegh KJ, MacNeil-Vroomen JL, Eslami S, Geerlings SE, de Rooij SE, Buurman BM. Transitional care interventions prevent hospital readmissions for adults with chronic illnesses. Health Aff Proj Hope. 2014;33:1531–9.
- 67. Huntley A, Lasserson D, Wye L, Morris R, Checkland K, England H, et al. Which features of primary care affect unscheduled secondary care use? A systematic review. BMJ Open. 2014;4:e004746–e004746.
- 68. Carret MLV, Fassa ACG, Domingues MR. Inappropriate use of emergency services: a systematic review of prevalence and associated factors. Cad Saude Publica. 2009;25:7–28.
- 69. Kirkland SW, Soleimani A, Newton AS. Review: The impact of pediatric mental health care provided outpatient, primary care, community and school settings on emergency department use a systematic review. Child Adolesc Ment Health. 2018;23:4–13.
- 70. O'Malley AS. Current evidence on the impact of continuity of care. Curr Opin Pediatr. 2004;16:693–9.
- 71. Stokes J, Panagioti M, Alam R, Checkland K, Cheraghi-Sohi S, Bower P. Effectiveness of case management for "at risk" patients in primary care: a systematic review and meta-analysis. PloS One. 2015;10:e0132340.
- 72. Jackson GL, Powers BJ, Chatterjee R, Bettger JP, Kemper AR, Hasselblad V, et al. The patient-centred medical home: a systematic review. Centre for Reviews and Dissemination (UK); 2013 (https://www.ncbi.nlm.nih.gov/books/NBK114596/, accessed 16 July 2018).
- 73. Collins S, Piper KB "Kip", Owens G. The opportunity for health plans to improve quality and reduce costs by embracing primary care medical homes. Am Health Drug Benefits. 2013;6:30–8.
- 74. Tao W, Agerholm J, Burström B. The impact of reimbursement systems on equity in access and quality of primary care: A systematic literature review. BMC Health Serv Res. 2016;16:542.
- 75. Batista R, Pottie K, Bouchard L, Ng E, Tanuseputro P, Tugwell P. Primary health care models addressing health equity for immigrants: a systematic scoping review. J Immigr Minor Health. 2018;20:214–30.
- 76. van Doorslaer E, Masseria C, Koolman X. Inequalities in access to medical care by income in developed countries. Can Med Assoc J. 2006;174:177–83.
- 77. Richard L, Furler J, Densley K, Haggerty J, Russell G, Levesque J-F, et al. Equity of access to primary healthcare for vulnerable populations: the IMPACT international online survey of innovations. Int J Equity Health. 2016;15:64.
- 78. Sweeney R, Mulou N. Fee or free? Trading equity for quality of care for primary health care in Papua New Guinea. Int Health. 2012;4:283–8.
- 79. Ferrer RL. Pursuing equity: contact with primary care and specialist clinicians by demographics, insurance, and health status. Ann Fam Med. 2007;5:492–502.
- 80. Schleiff M, Kumapley R, Freeman PA, Gupta S, Rassekh BM, Perry HB. Comprehensive review of the evidence regarding the effectiveness of community-based primary health care in improving maternal, neonatal and child health: 5. equity effects for neonates and children. J Glob Health. 2017;7:010905.
- 81. Shi L. The impact of primary care: a focused review. Scientifica. 2012;2012:432892.
- 82. Shi L, Starfield B, Politzer R, Regan J. Primary care, self-rated health, and reductions in social disparities in health. Health Serv Res. 2002;37:529–50.

- 83. Shi L, Starfield B, Kennedy B, Kawachi I. Income inequality, primary care, and health indicators. J Fam Pract. 1999;48:275–84.
- 84. Shi L, Macinko J, Starfield B, Politzer R, Xu J. Primary care, race, and mortality in US states. Soc Sci Med 1982. 2005;61:65–75.
- 85. Shi L, Starfield B. The effect of primary care physician supply and income inequality on mortality among blacks and whites in US metropolitan areas. Am J Public Health. 2001;91:1246–50.
- 86. Cookson R, Mondor L, Asaria M, Kringos DS, Klazinga NS, Wodchis WP. Primary care and health inequality: Difference-in-difference study comparing England and Ontario. PloS One. 2017;12:e0188560.
- 87. Vaughan K, Kok MC, Witter S, Dieleman M. Costs and cost-effectiveness of community health workers: evidence from a literature review. Hum Resour Health. 2015;13:71.
- 88. Rohde J, Cousens S, Chopra M, Tangcharoensathien V, Black R, Bhutta ZA, et al. 30 years after Alma-Ata: has primary health care worked in countries? Lancet. 2008;372:950–61.
- 89. Health Care Quality Indicators Primary Care OECD. (http://www.oecd.org/els/health-systems/hcqi-primary-care.htm, accessed 26 August 2018).
- 90. Purdy S, Griffin T, Salisbury C, Sharp D. Ambulatory care sensitive conditions: terminology and disease coding need to be more specific to aid policy makers and clinicians. Public Health. 2009;123:169–73.
- 91. Pereira Gray DJ, Sidaway-Lee K, White E, Thorne A, Evans PH. Continuity of care with doctors—a matter of life and death? A systematic review of continuity of care and mortality. BMJ Open 2018;8:e021161 (http://bmjopen.bmj.com/content/8/6/e021161.abstract, accessed 8 October 2018)
- 92. Effective payment for primary care: an annotated bibliography. Center TRG. 2016.
- 93. Schäfer WLA, Boerma WGW, Kringos DS, De Ryck E, Greß S, Heinemann S, et al. Measures of quality, costs and equity in primary health care instruments developed to analyse and compare primary care in 35 countries. Qual Prim Care. 2013;21:67–79.
- 94. Primary health care performance initiative. 2018.
- 95. Bitton A, Ratcliffe HL, Veillard JH, Kress DH, Barkley S, Kimball M, et al. Primary health care as a foundation for strengthening health systems in low- and middle-income countries. J Gen Intern Med. 2017;32:566–71.
- 96. Kruk ME, Porignon D, Rockers PC, Van Lerberghe W. The contribution of primary care to health and health systems in low- and middle-income countries: a critical review of major primary care initiatives. Soc Sci Med 1982. 2010;70:904–11.
- 97. GRADE approach. (https://training.cochrane.org/grade-approach, accessed 12 August 2018)
- 98. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both | The BMJ 2017;358:j4008 (Available from: https://www.bmj.com/content/358/bmj.j4008.full.print, accessed 12 August 2018)



# TECHNICAL SERIES ON PRIMARY HEALTH CARE