

8 *Addressing the particular challenges of patients living in rural and remote areas and for disadvantaged groups: skill-mix innovations to improve access and quality of care*

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8.1 Introduction

The 2018 Declaration of Astana on Primary Health Care strengthens the importance of access to services (World Health Organization, 2018a). In the EU, the Council of Health Ministers had agreed in 2006 that “Equity relates to equal access according to need, regardless of ethnicity, gender, age, social status or ability to pay” (Council of the European Union, 2006). However, according to the data from the European Union Survey of Income and Living Conditions, in many countries up to 19% of the population report unmet needs for health care (EXPH, 2017).

Access can be defined as “the opportunity to reach and obtain appropriate health care services in situations of perceived need for care” (Levesque, Harris & Russel, 2013). There are different dimensions that contribute to access: geographical (distance, accessibility of infrastructure); financial (absence of out-of-pocket payments, especially important to enable access for vulnerable people); administrative (being insured, being registered, access for undocumented people); cultural (ethno-sensitive approaches, availability of translators and cultural mediators) and psychosocial (to what extent the patient experiences services as paying attention to their psychological and social condition). Worldwide, based on data in 174 countries, 56% of populations living in rural areas have shown not to be covered by basic health care, compared with 22% in cities and towns (World Health Organization, 2018b). Tackling gender, cultural, age and geographical issues is paramount to achieving equity of access for rural populations.

This chapter focuses on two population groups: those living in rural and remote areas and population groups that are described as vulnerable

in accessing high-quality care, due to their ethnicity, or socioeconomic or other backgrounds. Both groups have in common that they have shown to be disadvantaged in their access to health care services compared with the majority of the population in a country, which may also impact on the quality of care. Definitions of rural and remote areas and vulnerable populations are provided in Box 8.1.

When it comes to strategies in relation to access of services, the Marmot Review (2010) *Fair Society, Healthy Lives* suggests starting from a universal approach, but implementing the principle of so-called proportionate universalism. This means that actions must be universal, but with the scale and intensity that is proportionate to the level of the disadvantage. Selective approaches targeting specific subgroups in society (according to socioeconomic status, ethnicity, disease), are not always sustainable and risk contributing to fragmentation of care and creating inequity by disease (De Maeseneer et al., 2011). The challenge for policy-makers, planners and health professionals alike is to identify the vulnerable population groups at risk of not seeking health care and offer services that are tailored to their specific needs and, to the extent that it is possible, integrated within health care services.

Box 8.1 Definitions: populations living in rural and remote areas and disadvantaged groups

Rural and remote areas populations:

For the purpose of this volume, rural and remote populations are defined as groups of persons who live in a non-urban area, which is scarcely populated and faces a shortage of health professionals. Definition of remote and rural populations varies according to country-specific context (World Health Organization, 2009).

Disadvantaged population groups:

There are various definitions of disadvantaged groups in the literature (Whiteman, 2014). For this volume, we focus on groups of persons that face higher levels of poverty, social exclusion, discrimination and violence than the general population, including, but not limited to, ethnic minorities, migrants, drug users, homeless and other groups, based on and modified from the definition of the European Institute for Gender Equality¹.

¹ European Institute for Gender Equality (website) N.D. (<https://eige.europa.eu/thesaurus/terms/1083>) [accessed 20/05/2019]

In addition to the overview of systematic reviews, we conducted a broad search on country reforms, programmes and experiences, drawing on PubMed and google scholar, to determine peer-reviewed as well as grey literature. In addition, we conducted manual checks of the reference lists of retrieved articles and citation searches. Individual webpages were also searched (OECD, WHO, DG Sante and other EU websites) and other institutions with a focus on rural health or vulnerable groups and health, moreover case studies from the European Observatory on Health Systems and Policies were included. In this chapter, we will explore which skill-mix strategies, used in various countries, have proven successful or seem to be promising for (i) rural populations and (ii) vulnerable population groups.

8.2 Skill-mix in relation to access to services and evidence on outcomes

The overview of reviews identified 13 systematic reviews that, taken together, summarized the results of 418 studies (see Box 8.2).

The population groups targeted by the skill-mix interventions were twofold: skill-mix innovations for rural populations; and skill-mix interventions for vulnerable, often socioeconomically disadvantaged population groups. Only one systematic review looked at rural populations, with a focus on mental health services (Table 8.1). The other 12 reviews focused on different vulnerable population groups, including

Box 8.2 Overview of the evidence

- Number of reviews: 13 systematic reviews covering a total of 418 studies were identified, focusing on improving access, quality of care and waiting time for rural or vulnerable population groups
- Country coverage: The majority of studies were conducted in the USA. Other countries were Australia, Austria, Canada, France, Italy, Ireland, New Zealand, Sweden and the United Kingdom, among others.
- Quality of the evidence: Overall, the reviews were based on limited evidence with mixed quality, and several studies showed limitations. One Cochrane systematic review was identified. Several systematic reviews included RCTs and two meta-analyses were conducted.

Table 8.1 *Skill-mix innovations in rural and remote areas*

Skill-mix interventions			Outcomes				
Description of intervention [Source]	Content of interventions and skill-mix changes	Profession(s) in intervention and in comparator group	Population	Countries	Patient-related outcomes	Health-system-related outcomes	Profession-specific outcomes
Task shifting and sharing in mental health care teams [1]	(i) CHWs (e.g. outreach, education, addressing stigma, cultural issues, mental health crisis management), (ii) non-mental health primary care providers collaboration with mental health specialists (e.g. shared consultations, telehealth)	Intervention: (i) CHWs or similar lay workers with some trainings, (ii) primary care providers, e.g. GPs, nurses, medical assistants, pharmacists, social workers; in collaboration with psychiatrists/psychologists Comparison: n/r	Rural population/ mental health patients including at-risk groups	AU, NZ, UK, USA	<ul style="list-style-type: none"> Task shifting/sharing involving: CHWs Improved knowledge about depression and how to seek treatment, decreased stigma Partnerships with rural communities improved treatment 	<ul style="list-style-type: none"> CHWs Expanded access to (mental) health services and outreach Primary care providers Improved communication between GP and psychiatrists Teleconferencing improved delivery of collaborative care 	<ul style="list-style-type: none"> CHWs Increased knowledge, coping skill and perceived social support Primary care providers Collaborative care models improved GP satisfaction

Abbreviations: CHW: community health worker; GP: general practitioner; n/r: not reported (for the majority of studies, no comparison groups available).

Country abbreviations: AU: Australia; NZ: New Zealand; UK: the United Kingdom; USA: the United States of America

Source: [1] Hoefl et al. (2018).

Box 8.3 *Definition of community health workers*

The meaning of the term and profile of Community Health Workers (CHWs) varies in different countries. WHO defined CHWs as follows: “Community health workers should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers” (World Health Organization, 1989).

As the CHWs come from the community they serve, they act as a link between health and social services and the community, promoting trust and cultural competence. CHWs can be unpaid volunteers, or receive an allowance/salary.

ethnic minorities, socially deprived groups (such as mothers with low socioeconomic status, drug users) or young women at risk for unintended pregnancies.

Skill-mix innovations for rural populations and evidence on outcomes

In rural and remote regions, many countries face a shortage of primary care providers and certain specialties. One systematic review analysed mental health skill-mix models and the effects of task shifting and competency sharing in teams to improve access to mental health services in the USA, the United Kingdom, Australia and New Zealand (Hoefl et al., 2018) (Table 8.1). Interventions comprised task shifting and competency sharing from mental health specialists, first to community health workers (CHWs) and second, to primary care providers (for example, GPs, nurses) who are not mental health specialists. First, task shifting and competency sharing in teams that integrated CHWs or similar lay health workers were aimed at providing outreach, education, health literacy or personal assistance in rural areas. One example of CHWs working with predominantly Hispanic communities in the USA and offering tailored, culturally adapted services with a focus of health literacy was the *promotora* model, which addressed female migrant groups from Latin American origins. The review focusing on CHWs and task

re-allocation to other providers, generally showed positive effects on several outcome parameters, namely improved patient access to mental health services, general health and knowledge about mental health. Moreover, CHWs' contributions were also associated with improved treatment outcomes for mental health patients. Most interventions actively reached out to communities or were fully community-based (Hoeft et al., 2018).

The second skill-mix model analysed included task-shifting and competency sharing between mental health specialists and primary care providers. Interventions included home visits, outreach at rural schools or universities, and collaborative care models between primary care providers in local clinics and remote expert teams. Often telepsychiatry and other new technologies were used as a means of communication and form of (co-)treatment (Hoeft et al., 2018). Collaborative care improved communication between GPs and psychiatrists and increased GP satisfaction. Yet, CHWs employed in clinic settings or added to Assertive Community Treatment showed no improved patient-related effects (Hoeft et al., 2018). Generally, the skill-mix models covering CHWs varied considerably across the regions and communities, suggesting that bottom-up, community grown models are effective. Yet, integrating CHWs showed to be effective in countries with very different health systems, such as the USA, but also in Australia, New Zealand and the United Kingdom. However, several studies highlighted the importance of ensuring the sustainability of CHW programmes and retention.

Skill-mix innovations for vulnerable populations

- Skill-mix interventions directed at vulnerable population groups included various models, ranging from patient navigation, CHW interventions, case management, shared care models to pharmacist-led care and were assessed in 12 reviews (Table 8.2). Patient navigation involved (former) patients, peers or other lay people with intense user knowledge by experience or professionals who act as navigators through the system (Bush, Kaufman & Shackelford, 2017; Genoff et al., 2016; Glick et al., 2012; Ranaghan et al., 2016, Roland et al., 2017).
- Patient navigation incorporated different components: facilitated communication between providers, outreach activities, cultural and

Table 8.2 *Skill-mix innovations with a focus on vulnerable populations and socially deprived populations*

Skill-mix interventions			Outcomes				
Description of intervention [Sources]	Content of interventions and skill-mix changes	Profession(s) in intervention and in comparator group	Population	Countries	Patient-related outcomes [Sources]	Health-system-related outcomes [Sources]	Profession-specific outcomes [Sources]
Patient navigation [1–5]	Facilitating communication with providers, outreach, assistance with appointments and scheduling, education, follow up, counselling	Intervention: CHWs, patient navigators (or other lay workers) and various professional backgrounds Comparison: Radiologists, physicians, breast surgeons	Cancer patients (incl. ethnic minority, [2–4] uninsured) [2, 3]; medically underserved populations [1], limited English proficient patients [5]	CA, KR, USA	<ul style="list-style-type: none"> Improved patient satisfaction, statistically insignificant [2] Improved adherence [3, 4] 	<ul style="list-style-type: none"> Mixed results on time to diagnosis: shorter [3], non-significant [2] Earlier treatment and treatment initiation [3] Increased screening rates [1, 4, 5] Improved referral and follow up [1] Improved completion of diagnostics [1] and completion of screening [4, 5] Care coordination improved, statistically insignificant [2] 	

Lay health workers for child and maternity care and management of infectious diseases [6]

Various lay health worker interventions included home visits, reminders, education, referral and the facilitation of meetings

Intervention:
Lay health worker (paid or voluntary) including CHW, birth attendants, peer counsellors, home visitors
Comparison:
Not reported

Mothers and their children under the age of five with low socioeconomic status

AU, CA, NZ, UK, USA, IE, BR, CN, IN, MX, PH, TH, ZA, TR, BD, BF, ET, GH, IQ, JM, NP, PK, TZ, VN

- Positive effect on pulmonary TB cure rates (RR 1.22, 95% CI 1.13–1.31, $P < 0.0001$)
- May reduce child morbidity (RR 0.86, 95% CI 0.75–0.99, $P = 0.03$) and child mortality (RR 0.75, 95% CI 0.55–1.03, $P = 0.07$) and neonatal mortality (RR 0.76, 95% CI 0.57–1.02, $P = 0.07$)
- Effectiveness in promoting immunization childhood uptake (RR 1.22, 95% CI 1.10–1.37, $P = 0.0004$) and promoting initiation of breastfeeding (RR 1.36, 95% CI 1.14–1.61, $P < 0.00001$)
- Increase the likelihood of seeking care for childhood illness (RR 1.33, 95% CI 0.86–2.05, $P = 0.20$)
- Little or no effect on TB preventive treatment completion (RR 1.00, 95% CI 0.92–1.09, $P = 0.99$)

Table 8.2 (cont.)

Skill-mix interventions			Outcomes				
Description of intervention [Sources]	Content of interventions and skill-mix changes	Profession(s) in intervention and in comparator group	Population	Countries	Patient-related outcomes [Sources]	Health-system-related outcomes [Sources]	Profession-specific outcomes [Sources]
CHW and other supplementary roles to improve the management of people with chronic conditions [7]	Education, counselling, case management, navigation assistance, facilitation to access social services and support delivered in collaboration with other health professionals or under their supervision	Intervention: CHW, primary care providers, nurse case managers, dieticians, social workers, psychologists Comparison: Physicians, CHWs, not consistently reported	Vulnerable population groups (incl. patients with cancer, CVD, diabetes, hypertension)	IN, PK, TW, USA	<ul style="list-style-type: none"> • Significant improvement for blood pressure and HbA1c • Significant improvement on CVD risk reduction, lipid profile and blood pressure control • Mixed results on self-reported physical activity and mental-health-related outcomes 	<ul style="list-style-type: none"> • Improvement in cancer screening behaviours and mammogram and Pap test uptake • Positive effect on cost effectiveness 	

CHW interventions to improve screening rates [8]

Components of CHW interventions included education, referring to health care services, scheduling appointments, emotional and social support

Intervention: CHW
Comparison: Not reported

Women from ethnic minorities at risk for breast cancer

USA

- Statistically significant effect on mammography rates (RR 1.6, 95% CI 1.02–1.11, $P = 0.003$)
- An increase in statistically significant effects regarding mammography rates when the number of intervention components given by CHW increased
- Matching CHW interventions with population by race or ethnicity showed significant improvements in adherence to screening (RR 1.03, 95% CI 1.01–1.05, $P = 0.02$)

Table 8.2 (cont.)

Skill-mix interventions			Outcomes				
Description of intervention [Sources]	Content of interventions and skill-mix changes	Profession(s) in intervention and in comparator group	Population	Countries	Patient-related outcomes [Sources]	Health-system-related outcomes [Sources]	Profession-specific outcomes [Sources]
Various skill-mix changes in primary care for medication-assisted treatment [9]	Coordinated care models, multiprofessional models, shared care models, chronic care models, physician-centric models (e.g. coordinated care between specialized services and primary care, use of non-physician staff and home induction, use of technologies)	Intervention: Primary care providers, GP physicians, nurses, NP, LPN, pharmacists, psychologist, counsellors, social workers, mental health workers Comparison: Physicians, others not reported	Drug users/ opioid use disorder	AT, AU, CA, FR, IR, IT, UK, USA	<ul style="list-style-type: none"> • Patient retention • Positive health outcomes • Increased knowledge about comorbidities • Patient satisfaction 	<ul style="list-style-type: none"> • Improved performance processes and collaborative work with nurses as liaison in coordination 	<ul style="list-style-type: none"> • Increased provider confidence • Benefits of providing coordinated care
Community-based case management [10, 11]	Treatment planning, counselling, home visits, comprehensive assessment, treatment coordination, referral	Intervention: Case managers with background in nursing, social work and mental health care	Patients with substance use disorder (incl. women and court judgements [10])	CA, SE, USA	<ul style="list-style-type: none"> • Reduced substance use [11] • Improved patient satisfaction [10, 11] 	<ul style="list-style-type: none"> • Improved access to health care and linkage between providers [10] • Increased treatment initiation [10] 	

		Comparison: Not reported [10] compared with clinical case management and usual care [11]			<ul style="list-style-type: none"> Improved health related outcomes, socioeconomic factors [10] and retention rates [10, 11] Mixed results on hospitalization [10] Reduction in mental health service use, but no effect on health service use [11]
Pharmacists in expanded roles providing access to emergency contraceptives [12]	Expanding scope of practice: providing access to emergency contraception; partnerships between pharmacists, clinics and physicians	Intervention: Pharmacists Comparison: Not reported	Women (incl. young women at risk for unintended pregnancy, diverse ethnicities)	USA	<ul style="list-style-type: none"> Increased patient satisfaction No effect on health-related outcomes and pregnancy rates 700 prevented pregnancies in one (pilot) study Improved access to emergency contraceptives Pharmacists feel comfortable providing service

Abbreviations: CHW: community health worker; CI: confidence interval; CVD: cardiovascular disease; GP: general practitioner; HbA1c: glycated haemoglobin; NP: nurse practitioner; RR: relative risk.

Country abbreviations: AU: Australia; AT: Austria; BR: Brazil; CA: Canada; CN: China; BD: Bangladesh; BF: Burkina Faso; ET: Ethiopia; FR: France; GH: Ghana; IN: India; IR: Ireland; IT: Italy; IQ: Iraq; JM: Jamaica; MX: Mexico; NZ: New Zealand; NP: Nepal; KR: Korea; PH: The Philippines; PK: Pakistan; SE: Sweden; TH: Thailand; TR: Turkey; TW: Taiwan; TZ: Tanzania; UK: the United Kingdom; USA: the United States of America; VN: Vietnam; ZA: South Africa.

Sources: [1] Roland et al. (2017); [2] Ranaghan et al. (2016); [3] Bush, Kaufman & Shackleford (2017); [4] Glick et al. (2012); [5] Genoff et al. (2016); [6] Lewin et al. (2010); [7] Kim et al. (2016); [8] Wells et al. (2011); [9] Lagisetty et al. (2017); [10] Penzenstadler et al. (2017); [11] Joo et al. (2015); [12] Farris et al. (2010).

linguistic support, education and follow up. Patient navigators from the same community, same language and similar patient experience were reported to be well placed to reach out to at-risk populations in the community (Bush, Kaufman & Shackleford, 2017; Genoff et al., 2016; Glick et al., 2012; Ranaghan et al., 2016; Roland et al., 2017). Three reviews focused on cancer patients, including ethnic and other minorities, uninsured individuals and medically underserved and socioeconomically deprived population groups (Bush, Kaufman & Shackleford, 2017; Glick et al., 2012; Ranaghan et al., 2016), uninsured individuals (Bush, Kaufman & Shackleford, 2017; Ranaghan et al., 2016) and population groups with limited English proficiency (Genoff et al., 2016). One review included a wide range of different patients from medically underserved rural, suburban and urban areas (Roland et al., 2017). Across all systematic reviews, overcoming language barriers through the introduction of a patient navigator was considered very important (Bush, Kaufman & Shackleford, 2017; Genoff et al., 2016; Glick et al., 2012; Ranaghan et al., 2016; Roland et al., 2017).

- Other skill-mix interventions for vulnerable population groups included pharmacist-led services, case management in the community and various other interventions, for example for opioid users. The latter specifically targeted buprenorphine or methadone treatment for opioid use disorder linked with psychosocial care. Most interventions were shared care models between primary care and specialized services, but also task re-allocation (for example, care coordination, counselling or supervision of medication dispensing) from physicians to other professions such as nurses or pharmacists (Lagisetty et al., 2017).
- One Cochrane review focused on lay health workers providing support and delivering child and maternity care and being responsible for the management of infectious diseases for mothers and their children with low socioeconomic status. Intervention components varied widely and included home visits, reminders and education, among others (Lewin et al., 2010).
- Interventions by CHWs were the focus of two reviews. While the components of CHW interventions were similar, one review included CHWs along with other professionals and interventions were delivered in collaboration with or with the supervision of

health professionals such as nurse case managers or psychologists. The review included components such as education, counselling, case management and navigation assistance (Kim et al., 2016). The other review, targeting women from ethnic minorities who were at risk for breast cancer, covered education, referral, scheduling and emotional and social support (Wells et al., 2011).

- Two systematic reviews assessed the outcomes of case management in the community for patients with substance use disorder, including individuals with court judgements. The interventions often used a combination of services and treatment planning, counselling, treatment coordination and home visits performed by nurses, social workers or mental health professionals (Joo et al., 2015; Penzenstadler et al., 2017). The comparator was either not reported (Penzenstadler et al., 2017) or covered usual care or clinical case management (Joo et al., 2015).

The pharmacist intervention focused on the expansion of their clinical role. It involved providing access to emergency contraceptives to prevent unintended pregnancies or administering re-injection of depot medroxyprogesterone acetate and providing other contraceptives in collaboration with clinics and physicians. Studies included women at different ages, adolescents at risk for unintended pregnancy and various ethnic minorities (Farris et al., 2010).

Outcomes on skill-mix innovations for vulnerable population groups

Involving patient navigators in outreach, education and coordination for patients with cancer, primarily for ethnic minorities and other vulnerable groups, was shown to improve access to screening (Genoff et al., 2016; Glick et al., 2012; Roland et al., 2017), and earlier treatment and treatment initiation (Bush, Kaufman & Shackelford, 2017). In terms of patient-related outcomes, the studies showed improved adherence rates in two systematic reviews (Bush, Kaufman & Shackelford, 2017; Glick et al., 2012). Results on patient satisfaction were mixed (Ranaghan et al., 2016). One systematic review reported improved care coordination (Ranaghan et al., 2016) and another reported improved completion of diagnostics (Roland et al., 2017). Improved completion of screening (Genoff et al., 2016; Glick et al., 2012) and referral and follow up (Roland et al., 2017) were also demonstrated. Mixed effects

were found for time to diagnosis (Bush, Kaufman & Shackleford, 2017; Ranaghan et al., 2016).

Introducing lay health workers in child and maternity care and management of infectious diseases for mothers and their children showed significantly improved patient and health system outcomes in a Cochrane review. Concerning the latter, effectiveness in promoting immunization uptake during childhood and initiation of breastfeeding was reported. Likelihood of seeking care for childhood illness significantly increased but little or no effect was shown on preventive tuberculosis (TB) treatment completion. In terms of patient outcomes, lay health worker interventions showed a positive effect on cure rates for pulmonary TB. The review reported reduction in child morbidity and child and neonatal mortality (Lewin et al., 2010).

Use of CHWs in combination with other supplementary roles to improve the management of people with chronic conditions in vulnerable populations showed significant improvement for blood pressure control, HbA1c, lipid profile and cardiovascular disease risk reduction. Although there were mixed results for self-reported physical and mental health, cancer screening behaviour and mammogram and Papanicolaou test uptake improved. Positive effects on cost effectiveness were reported (Kim et al., 2016).

Interventions that only included CHWs showed statistically significant effects on mammography rates. Moreover, this effect increased when the number of intervention components increased and when CHWs were matched by population, race or ethnicity screening adherence was positively impacted (Wells et al., 2011).

Most of the included studies that targeted skill-mix interventions to drug users and patients with opioid use disorder, showed enhanced patient adherence to buprenorphine or methadone treatment. Some studies in the review showed improved health outcomes and knowledge about comorbidities for patients with opioid use disorder. Patients reported to be satisfied with the treatment models. Providers reported increased confidence and benefits from providing coordinated care (Lagisetty et al., 2017).

The studies that included case management in the community for populations with substance use disorders showed generally improved access to health care services, treatment initiation and linkage between providers (Penzenstadler et al., 2017). Although there was a reduction in mental health service use, the intervention showed no effect on the

use of health services (Joo et al., 2015). There were mixed results for the effect on hospitalization rates. Health outcomes and socioeconomic factors ameliorated for patients benefiting from case management (Penzenstadler et al., 2017). A reduction in substance use (Joo et al., 2015) and increased patient satisfaction and treatment retention were found (Joo et al., 2015; Penzenstadler et al., 2017).

The systematic review analysing the effect of pharmacists in expanded roles, providing women direct access to contraceptives, reported improved access to contraceptives. Although some studies showed other improved patient- and profession-related outcomes, the reported effects were limited to individual studies (Farris et al., 2010).

Education and training of the professions involved in the skill-mix changes

Several reviews described the training in the skill-mix intervention groups, but not always in a systematic manner and they lacked details of the nature, length and curricula/contents changes. The education and training of the professions in the comparator groups were very rarely reported.

The CHWs and patient navigators received some additional training, for example, skills-based training covering motivational interviewing and communication (Hoeft et al., 2018; Kim et al., 2016; Roland et al., 2017; Wells et al., 2011). Kim et al. (2016) included bilingual CHWs; the training received varied between 4 and 240 hours. Patient navigators supporting cancer patients received information relating to cancer and health, screenings guidelines and patient support (Roland et al., 2017). Yet, detailed information was lacking.

In the review of patient navigators for underserved population groups, training covered health education, public speaking, and observing a mammography unit (Ranaghan et al., 2016). The review on access to medication-assisted treatment reported more specific details about the duration of training for their counsellors in some studies (Lagisetty et al., 2017). For instance, primary care providers received a 1-day training in methadone induction guidelines and procedures in one study, a drug misuse training twice a year in another study and 8 hours of didactic methadone maintenance training for nurse practitioners and community pharmacists in a third study.

Box 8.4 Examples of skill-mix innovations and new technologies/eHealth

- In rural and remote areas, a large number of interventions were highlighted that supported skill-mix changes and task shifting. Telepsychiatry was used in rural schools and universities with off-site mental health specialists. It was also suggested to support home visit models for patients with mental health conditions. Televideo conferencing showed to support the delivery of collaborative care. Telemedicine was suggested to be an important means for education, support and supervision particularly for staff in rural areas (Hoeft et al., 2018)
- In the skill-mix interventions targeting patients with opioid use disorder, the use of electronic medical records facilitated treatment, communication and helped update patient information. Panel management structure was used to monitor patient level data (Lagisetty et al., 2017)

Training for pharmacists to work in expanded roles offering emergency contraception covered contraceptive management, injection techniques and 12 hours of continuing education addressing reproductive physiology and practice guidelines (Farris et al., 2010). Concluding, the training and educational background were not systematically reported and the education and professional training in the interventions differed to a large extent.

Limitations and strength of the evidence

The overview of reviews identified a limited number of systematic reviews on the topic, particularly when compared with other themes covered in this volume, for example, chronic care (see Chapter 6). The quality of the included reviews was mixed, which limits the attribution of causality. While several RCTs were covered in the systematic reviews, only two meta-analyses were performed and one of them was a Cochrane review. Furthermore, most of the included studies were based in the USA. Due to the variety of interventions and population groups covered in the systematic reviews and the non-systematic reporting of outcome measures, transfer of the findings has to be made with caution. Moreover, evidence on profession-related effects is very limited across all reviews.

Conclusions

The systematic reviews showed a positive effect of expanding teams to incorporate CHWs, lay workers or other professions into teams as an important strategy towards improving access for vulnerable groups. Promising effects were also reported for rural and disadvantaged populations for mental health. The roles of patient navigators and CHWs were identified as one policy option to overcome obstacles in accessing primary care services. Moreover, case management in the community for drug users seems important to assist with accessing services and seems to positively affect the course of treatment. Community-based strategies and partnerships were considered critical in supporting the expanded skill-mix teams and outreach activities.

8.3 Skill-mix innovations and reforms: country skill-mix examples for vulnerable and rural populations

Several skill-mix innovations have been evaluated for their effectiveness and access (Tables 8.1 and 8.2). While reviews are important to assess the potential impacts of different skill-mix strategies in various country contexts, additional evidence on country developments and reforms is required to complement the picture.

Several reforms have emerged across Europe to tackle the challenges in accessing care faced by disadvantaged groups and remote/rural populations. Elaborating on the review of the literature, this section presents several examples of innovations from Europe, North America and some high-income countries identified in the grey literature and single case studies.

Remote and rural populations

Recruitment and retention of health care providers in rural and remote areas is a well-established challenge (World Health Organization, 2010). Monetary incentives alone are not sufficient to convince health care personnel to settle in remote areas (European Commission, 2015). There is increasing evidence that local recruitment for primary care careers, early exposure to primary health care, embedding training in health services that reach those most in need, an emphasis on more generalist competencies (Strategic Advisory Board, 2015) in undergraduate training and ensuring a curriculum guided by social

Box 8.5 Delivering on social accountability: Canada's Northern Ontario School of Medicine (Strasser, 2016)

- The Northern Ontario School of Medicine (NOSM) opened in 2005 with a social accountability mandate to contribute to improving the health of the people and communities of Northern Ontario, which is a vast underserved rural part of Canada. NOSM recruits students from Northern Ontario or similar backgrounds and provides distributed community engaged learning in over 90 clinical and community settings located in the region.
- The curriculum was developed through a community consultative process and emphasizes learning at the local level, exposing students to different health service settings.
- After 10 years, outcomes suggest that NOSM has been successful in fulfilling its social accountability mandate: 92% of all students are from Northern Ontario, including 7% indigenous and 22% francophone students; 62% of all NOSM medical graduates have chosen family practice (predominantly rural) training; 69% of the graduates of NOSM's postgraduate education are practising in Northern Ontario; 94% of the doctors who completed undergraduate and postgraduate education with NOSM are practising in Northern Ontario.
- Because of its social accountability mandate, NOSM has also monitored its socioeconomic impact on the communities, which included new direct and indirect economic activity; enhanced retention and recruitment for the universities and hospitals/health services; and a sense of empowerment among community participants attributable in large part to NOSM.

accountability are strategies to increase appropriate human resources for primary health care in rural and remote areas (Strasser & Neusy, 2010). Some of the providers at primary care level will also require a broader scope of practice (with a specific skill-mix), when secondary care services are far away or transport is problematic. Box 8.5 illustrates the successful trajectory at Canada's Northern Ontario School of Medicine.

In addition to recruitment and retention strategies, a common skill-mix response to geographical and health workforce shortage is task shifting from physicians to nurses and other health professionals. Several countries in Europe (including Finland, Hungary, Latvia, Germany),

and from outside Europe, (for example, Australia and Canada), have introduced reforms to instigate the expansion of roles for health professionals and task shifting. This is most commonly found affecting the nursing profession. In Finland, nurses lead consultations in remote areas and can prescribe medicines, supported by e-consultations with physicians if needed (Delamaire & Lafortune, 2010; World Health Organization, 2015). In Australia, the so-called Scheduled Medicines registered nurses administer and supply a limited set of medicines in rural and remote settings to improve access to medicines (Nursing and Midwifery Board of Australia, 2010)². Nurses also play an increasing role in outreach services. In certain provinces of Canada, nurse practitioners employed in rural practices perform outreach activities (for example, in British Columbia) and prescribe medications (Maier, Aiken & Busse, 2017). In Hungary, the role of health visitors – also called public health nurses – was expanded to include carrying out cervical cancer screening in rural areas, which improved participation rates for cervical cancer screening (Döbrössy et al., 2015). The project was initially implemented as a pilot and then extended nationally, using a train-the-trainer approach to educate about 1400 volunteer health visitors on effective communication and support, as well as in smear taking, which was then included as part of the traditional undergraduate training for health visitors.

Other examples of task shifting and roles expansion include *feldsher* or midwives, who still provide a considerable share of primary care in rural areas in Latvia, in which about a third of the population lives (OECD, 2016). In Canada, the role of physician assistants was introduced to improve care in rural and remote areas in four provinces (New Brunswick, Alberta, Manitoba and Ontario). There are about 500 physician assistants practising in Canada (300 of them in Ontario), with plans for further expansion (Canadian Association of Physician Assistants, n.d)³. Further, in line with the literature review highlighting the role of pharmacists in providing emergency contraception for vulnerable groups (Farris et al., 2010), evidence of the expanded role

² Nursing and Midwifery Board of Australia (website): <https://www.nursingmidwiferyboard.gov.au/registration-and-endorsement/endorsements-notations/registration-standard-for-endorsement.aspx> [accessed 20/05/2019]

³ Canadian Association of Physician Assistants (website), N.D: <https://capa-acam.ca/about-capa/strategic-plan-2015-2018/> [accessed 20/05/2019]

of pharmacists was also found in remote areas of Australia, where pharmacists administer influenza and other vaccines (OECD, 2015).

There are several country examples of skill-mix strategies that have been introduced in conjunction with service re-design to enhance health services outreach in remote and rural areas. One example is the increased use of mobile facilities to reach people in countries where geographic distances are particularly challenging, for example, Finland, Romania, Australia and New Zealand. Examples include a 3-year pilot in eight communities in rural Finland. In these communities, a bus with a planned route was covering 100 000 potential patients, staffed by nurses, in which health monitoring services, influenza vaccines and small operations were carried out (European Network for Rural Development, n.d). In Romania, every month, the Caravana cu medici NGO's mobile unit brings a multiprofessional team of doctors (20–30 specialists, residents and medical students) to one of Romania's remote villages (Caravana Cu Medici, n.d)⁴. They engage with the local authorities, the local GP and the community, to raise awareness and examine the health status of about 150–250 people, providing specialist consultations and medical equipment that are often missing in remote areas, as well as educating patients on their health. This initiative started in 2014, and had reached 3000 people in 25 villages by 2017. The Heart of Australia project includes three mobile units staffed by a team of cardiologists and respiratory specialists who, on a rotating roster, bring cardiology, neurology, endocrinology and respiratory services to 16 rural and outback communities (Heart of Australia, n.d)⁵. In New Zealand, mobile health bus units deliver low-risk elective day surgery to rural New Zealanders, and have provided continuing education to rural health professionals via a telepresence network since February 2002. Teams of surgeons, anaesthetists and nurses are transported to and from the bus location on the day of surgery bookings, and so far the service has treated about 24 000 patients in rural New Zealand, and provided over 50 000 hours of education (Mobile Health, n.d)⁶.

⁴ Caravana cu Medici (website), N.D: https://www.caravanacumedici.ro/en/mobile_unit.html [accessed 20/05/2019]

⁵ Heart of Australia website, N.D: <https://www.heartofaustralia.com/services-2/> [accessed 20/05/2019]

⁶ Mobile Health (website), N.D: <http://www.mobilesurgical.co.nz> [accessed 20/05/2019]

Vulnerable groups

Several systematic reviews highlighted changes in the skill-mix of individual professions and teams to address the specific needs of vulnerable population groups. These groups vary considerably and include ethnic minorities, drug users, uninsured individuals and socioeconomically disadvantaged or other medically underserved populations. Moreover, a further search of the grey literature and individual country case studies identified skill-mix innovations concerning immigrants, homeless people, alcohol users, minorities, men who have sex with men (MSM), people who have been in prison and seasonal agricultural workers.

Overall, there is evidence that an increasing number of high-income countries have implemented strategies to employ CHWs, following similar experiences with CHWs in low- and middle-income countries. Among high-income countries, most programmes exist in the USA, Canada, New Zealand and Australia. CHWs can act as an effective bridge between communities and providers to reach vulnerable populations. A specific enabler is the cultural sensitivity component, particularly relevant for CHWs among First Nations in Canada, Maori communities in New Zealand, and Aboriginal and Torres Strait Islander health workers across Australia. Similarly, in the USA (North Carolina), Latino MSM were recruited and trained as part of a behavioural intervention to serve as lay health advisors (known as *Navegantes*) to promote sexual health among Spanish-speaking MSM groups of Latin-American origin. The intervention was found to be efficacious in reducing risk behaviour among study participants (Rhodes et al., 2017). Another example is the role of *promotores* who act as important support figures contributing to health care delivery and health outreach services among immigrants (Frank et al., 2013).

In Europe, one training for CHWs working with LGBTQ communities in Europe is the *European Surveys and Training to Improve MSM Community Health* (ESTICOM). The programme aims to develop a toolbox-training package suitable for CHWs, to improve access, quality of prevention, diagnosis of HIV and other sexually transmitted infections and viral hepatitis, and health care for MSM. The programme was piloted in 2018 in Training of Trainer Workshops and National Pilot Trainings involving participants from 29 European countries. In Germany, the ESTICOM programme defined CHWs as all people providing sexual health support to gay, bisexual and other MSM in a community setting, and they were referred to as peer CHWs (ESTICOM,

n.d)⁷. In Belgium, CHWs have been employed as part of multidisciplinary teams in community health centres (Box 8.6).

Box 8.6 Community Health Centre Botermarkt – Ledeborg in Ghent (Belgium)⁸

- The CHC Botermarkt is a not-for-profit organization, operating since 1978 in Ledeborg, at the time a deprived area of the city of Ghent. The interprofessional team is composed of family physicians, nurses and assistant nurses, social workers, dentists, nutritionists, specialists in tobacco addiction, psychologists, receptionists and health promoters, which put the preventive function of CHWs in practice. The CHC takes care of 6200 patients, representing 95 nationalities, and of 250 undocumented persons. Further, it is responsible for health promotion activities for a community of 10 000 people.
- The main purpose of the Centre is to deliver integrated primary health care, including promotion, prevention, curative care, rehabilitation, palliative care and social care (De Maeseneer, 2017). The service delivery invests in universal accessibility (no financial, geographical or cultural threshold, but so-called proportionate efforts, for example through interpreters, Webcam-translation) and quality, using a comprehensive eco-bio-psycho-social frame of reference. Special focus is on the empowerment of patients and enhancing social cohesion.
- Participation of the population and the community is of utmost importance. CHC Botermarkt implements community-oriented primary care and regularly, local stakeholders meet on the platform of Society–Welfare–Health. Using epidemiological, sociological and practice-based information, they perform a community diagnosis and develop interprofessional and intersectoral programmes that tackle the upstream causes of ill-health (for example, poverty, traffic safety, lack of playgrounds, bad housing conditions, epidemics, oral health).
- All patients are registered on a patient-list, open to all people living in the defined geographical area. Payment is through a monthly integrated needs-based capitation (taking into account sociodemographic, epidemiological, contextual and income variables). This financing mechanism stimulates task-shifting and

⁷ ESTICOM website, N.D: https://www.esticom.eu/Webs/ESTICOM/EN/about-project/consortium-partners/About_DAH_rev.html [accessed 20/05/2019]

⁸ www.wgcbotermarkt.be/en/

Box 8.2 (cont.)

competency sharing and strengthens prevention and the self-reliance of people. An interprofessional goal-oriented electronic health record (Tange, Nagykaldis & De Maeseneer, 2017), accessible to all health care providers as well as the patient, documents the episodes of care (encoded using the International Classification of Primary Care-2, developed by the WONCA International Classification Committee, n.d).

- An analysis of the performance of CHCs (compared with usual practices in fee-for-service settings) in Belgium concluded that the centres score excellently on access, especially for vulnerable groups; they demonstrate good quality of prevention, antibiotic prescription and other indicators; and patients in CHCs cost less than usual practices in utilization of secondary care services (Annemans et al., 2008).

In Europe, CHWs are less well-known than in other regions of the world and the terminology overlaps with a variety of other titles, such as community advocates, outreach workers and peer counsellors. This may explain why a search of the literature reported only a few CHW programmes in Europe. Further, similar groups such as peers or other groups that emanate from the same community may take up roles that are similar to those of CHWs. It may also be that informal caregivers, relatives or other volunteers implicitly assume this role.

Spearheaded by the USA (Valaitis et al., 2017), the role of patient navigators has slowly emerged in Europe (for example, Belgium, Austria), and have been shown to overlap with the CHWs' role. For example, a pilot project in Belgium recruits patient navigators for Dutch-speaking cancer patients receiving treatment (Anticancer Fund, n.d)⁹. Another example in Belgium is the establishment of the roles of patient navigators as well as cultural mediators who help to guide migrants across a new health care system (European Commission, 2018). In Austria, although on a small scale, cultural mediators or trained patient navigators are available to help migrants in accessing health care (International Organization for Migration, 2015). However, the exact tasks and roles

⁹ Anticancer fund (website), N.D: <https://www.anticancerfund.org/nl/my-cancer-navigator> [accessed 20/05/2019]

of these new health workers are not described in sufficient detail, nor evaluated, which limits the assessment of their contribution.

An example of skill-mix changes as part of larger service re-design is the use of mobile units for outreach, also identified specifically for vulnerable populations. Examples include units in Romania, the United Kingdom and the USA. In Romania, a mobile medical unit staffed by a team specifically trained on the use of equipment for diagnostics offers screenings for early detection of TB for homeless people, drug users and minorities such as Roma, who may have limited access to health care (E-detect TB, n.d)¹⁰. Similarly in London (the United Kingdom), the Find & Treat outreach service promotes early detection of TB for homeless people, drug or alcohol users, vulnerable migrants and people who have been in prison. It screens almost 10 000 high-risk people annually using a mobile digital X-ray unit. The programme also recruits TB patients who have experienced homelessness to support others through treatment and out of homelessness in a peer advocate role similar to that of patient navigators identified in the literature review; this is now expanding outside London (UCLH, n.d)¹¹. The United Kingdom also presents a particular case of cross-professional collaboration and outreach activities, where firefighters work together with NHS England to perform home checks to identify health risks such as loneliness and isolation among the older population. Health and local authority colleagues support fire and rescue services in training and raising the awareness of their staff if deemed necessary (NHS England, n.d)¹². In the USA, in some states (for example, California, Maine) there are medical mobile programmes staffed with primary care providers, nurses and CHWs providing primary and preventive care, oral health, mental health and substance abuse services especially for migrant and seasonal agricultural workers (Central City Health, n.d)¹³.

There is evidence that an effective way to address the needs of vulnerable populations is through a primary health care multi-level approach,

¹⁰ E-detect TB (website): <https://e-detecttb.eu/2018/03/24/e-detect-factsheets-available-now/> [accessed 20/05/2019]

¹¹ University College London Hospitals (website) N.D: <https://www.uclh.nhs.uk/ourservices/servicea-z/htd/pages/mxu.aspx> [accessed 19/05/2019]

¹² National Health Service England (website), N.D: <https://www.england.nhs.uk/ourwork/clinical-policy/older-people/working-together/> [accessed 20/05/2019]

¹³ Central City Health website: <https://centralcityhealth.org/migrant-seasonal-agricultural-worker-program-msaw/>

such as that observed in Norway and Slovenia. In Norway, a new team model consisting of a GP, a nurse and a health secretary is being implemented to provide multi-level care for vulnerable patients, for example, patients suffering from substance or alcohol abuse. To date, the project is run as a pilot until March 2021, and so far, eight municipalities with 80 teams are participating (the companion volume; Wismar, Glinos & Sagan, forthcoming). In Slovenia, a new model of Health Promotion Centres focuses on integrating different health prevention and promotion services, targeting mostly the unemployed, homeless and socially and economically disadvantaged groups. The pilot project concluded in 2016 with plans to introduce the new model to at least 25 additional Health Promotion Centres by 2020, supported by €15 million from the European Union cohesion funds (World Health Organization, 2018c).

This trend in promoting a multiprofessional approach targeted to local needs also applies to Community Health Centres (CHCs). Accountable for a defined population (for example, based on empanelment or patient-lists, or geographic areas), CHCs are community-oriented primary care organizations that deliver health and social services through interprofessional teams, focusing on the specific health and social needs of local communities. CHCs involve members of the community in planning and programming, and implement an intersectoral approach to address social determinants of health. CHCs currently exist in dozens of countries around the world (Susic et al., forthcoming), and the International Federation of Community Health Centres is in the process of scaling-up CHCs worldwide. Examples in North America and Europe include over 300 CHCs across Canada (101 in Ontario alone), which offer services by a range of primary care providers (GPs, nurse practitioners, social workers, dieticians) and cover mainly individuals from disadvantaged backgrounds (the companion volume; Wismar, Glinos & Sagan, forthcoming). There are about 1400 CHCs in all 50 states and United States territories. CHCs also exist in Europe, such as the CHC Botermarkt in Ledeborg, Ghent, Belgium (Box 8.6).

CHCs present an opportunity to contribute to the attainment of the Universal Health Coverage and health-related Sustainable Development Goals. Moreover, CHCs contribute to the growing expertise on skill-mix innovations in interprofessional teams, especially concerning vulnerable populations.

In addition, investment is needed in the recruitment of future health professionals from the communities they will serve. More resources

should be invested in interprofessional training modules (International Organization for Migration, 2013) for all students in health and welfare professional education, teaching students to address the social determinants of health (The National Academies of Sciences-Engineering-Medicine, 2013) and enhancing community participation. Some institutions have integrated interprofessional community-based learning activities, where students of the second Bachelor year participate in a community-oriented primary care exercise (Art et al., 2008).

8.4 Conclusions

A variety of different skill-mix strategies have been implemented across Europe and other Anglophone countries to improve the access to care for populations living in rural and remote areas. While certain recruitment and retention strategies hold some promise, they have been shown to be insufficient. Additional skill-mix strategies include task shifting and re-allocation within teams to share workloads effectively and expand access to care. Other strategies involve skill-mix changes within teams combined with activating outreach to remote regions, for example, via mobile units. There is limited evidence on the effectiveness of these different skill-mix strategies in underserved regions, which also affects the transferability across regions and countries. However, several countries have shown that in very remote regions, mobile units staffed by multiprofessional teams and clear division of work, supported by e-technology, may be promising for expanding outreach activities.

For vulnerable population groups, several innovative skill-mix strategies have been implemented across Europe and other countries. These include the establishment of community-based workers or other, similar roles, such as patient navigators, who are close to and understand the needs of these vulnerable communities. Community-based strategies and partnerships among stakeholders are considered critical in supporting the expanded skill-mix teams and outreach activities. In order to enhance the contribution of new disciplines (CHWs or other community-based roles) that will improve the access to care for vulnerable groups, investment in a strong comprehensive team-based primary care model is critical, with appropriate financing-mechanisms, such as CHCs.

Despite a relative lack of scientific evidence, there is a move in the field towards an optimized skill-mix approach in improving access in

rural and remote areas and for vulnerable groups. To an extent, evidence from high-income countries points to skill-mix innovations that are also mirrored in low- and middle-income countries. At the same time, other countries may not have the education and regulatory prerequisites for adopting similar models or may not apply them in the same ways. On the other hand, there is a lot of practice-based expertise, for example, in low- and middle-income countries, that could contribute to innovation. The creation of global so-called learning communities could be a way forward.

There is a recognized need to promote a community-oriented focus that spans across sectors. Such an approach should be mirrored in the education and curricula that prepare the next generation of health care professionals, to include skills training in shared decision-making, social determinants of health, intercultural communication and interprofessional cooperation, ideally complemented by more training facilities and more placements in disadvantaged and remote areas. Increased dissemination of community diagnosis, facilitated by multiprofessional teams, could further enhance health care and health promotion tailored to specific community contexts. Finally, there is a need for integration of public health services and primary care (Allen et al., 2018) to be responsive to today's challenges that require both a person- and population-centred approach.

References

- Allen LN, Barkley S, De Maeseneer J et al. (2018). Unfulfilled potential of primary care in Europe. *BMJ*, 363:k4469 doi: 10.1136/bmj.k4469
- Annemans L, Closon JP, Closons MC et al. (2008). Comparison of cost and quality of two financing systems for primary care in Belgium. Health Services Research. Brussels, Federal Knowledge Centre for Health Care (KCE); KCE report 85A (D/2008/10.273/49) (<https://kce.fgov.be/en/comparison-of-the-cost-and-the-quality-of-two-financing-systems-of-primary-health-care-in-belgium> accessed 17 May 2019)
- Art B, De Roo L, Willems S et al. (2008). An interdisciplinary community diagnosis experience in an undergraduate medical curriculum: development at Ghent University. *Acad Med*, 83(7):675–683.
- Bush M, Kaufman M, Shackelford T (2007). Adherence in the cancer care setting: a systematic review of patient navigation to traverse barriers. *J Cancer Educ*, 33(6):1222–1229.

- Council of the European Union (2006). Council conclusions on common values and principles in European Union health systems. Official Journal of the European Union (2006/c 146/01).
- De Maeseneer J (2017). Family medicine and primary care at the crossroads of societal change. Leuven, LannooCampus Publishers. ISBN 978 94 014 4446 0
- De Maeseneer J, Roberts RG, Demarzo M et al. (2011). Tackling NCDs: a different approach is needed. *Lancet*, 379:1860–1861.
- Delamaire M, Lafortune G (2010). Nurses in advanced roles: a description and evaluation of experiences in 12 developed countries. OECD Health Working Papers, No. 54. Paris, OECD Publishing (<http://dx.doi.org/10.1787/5kmbrcfms5g7-en>).
- Döbrössy L, Kovács A, Budai A et al. (2015). Education and training of health visitors to undertake cervical screening. *J Nurs Educ Pract* 5:28.
- European Commission (2015). Recruitment and retention of the health workforce in Europe. Final Report. (https://ec.europa.eu/health/sites/health/files/workforce/docs/2015_healthworkforce_recruitment_retention_frep_en.pdf, accessed 20 May 2019).
- European Commission, European website on Integration (2018). Migrant health across Europe: little structural policies, many encouraging practices. (<https://ec.europa.eu/migrant-integration/feature/migrant-health-across-europe>, accessed: 17 May 2019).
- European Network for Rural Development (website) (n.d). (https://enrd.ec.europa.eu/sites/enrd/files/fi-mallu-does-the-rounds-gp_web.pdf, accessed 17 May 2019).
- Expert Panel on Effective Ways of Investing in Health (EXPH) (2017). Opinion on benchmarking access to health care in the EU. Brussels, European Commission.
- Expert Panel on Effective Ways of Investing in Health (EXPH) (2019). Task shifting in healthcare systems. Brussels, European Union.
- Farris K, Ashwood D, McIntosh J et al. (2010). Preventing unintended pregnancy: pharmacists' roles in practice and policy via partnerships. *J Am Pharm Assoc*, 50(5):604–612.
- Frank A, Liebman A, Ryder B et al. (2013). Health care access and health care workforce for immigrant workers in the agriculture, forestry, and fisheries sector in the southeastern US. *Am J Indust Med*, 56:960–974. DOI 10.1002/ajim.22183
- Genoff M, Zaballa A, Gany F et al. (2016). Navigating language barriers: a systematic review of patient navigators' impact on cancer screening for limited English proficient patients. *J Gen Intern Med*, 31(4):426–434.
- Glick S, Clarke A, Blanchard A et al. (2012). Cervical cancer screening, diagnosis and treatment interventions for racial and ethnic minorities: a systematic review. *J Gen Intern Med*, 27(8):1016–1032.

- Hoefl T, Fortney J, Patel V et al. (2018). Task-sharing approaches to improve mental health care in rural and other low-resource settings: a systematic review. *J Rural Health*, 34(1):48–62.
- International Organization for Migration (IOM) (2015). Country Report: Austria. Migrant Integration Policy Index Health Strand. (https://eea.iom.int/sites/default/files/publication/document/AUSTRIA_MIPEX_Health.pdf, accessed: 17 May 2019).
- Joo JY, Huber DL (2015). Community-based case management effectiveness in populations that abuse substances. *Int Nurs Rev*, 62:536–546.
- Kim K, Choi J, Choi E et al. (2016). Effects of community-based health worker interventions to improve chronic disease management and care among vulnerable populations: a systematic review. *Am J Public Health*, 106(4):e3–e28.
- Lagisetty P, Klasa K, Bush C et al. (2017). Primary care models for treating opioid use disorders: What actually works? A systematic review. *PLOS One*, 12(10):p.e0186315.
- Levesque JF, Harris M, Russel G. (2013). Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *Int J Equity Health*, 12(18), (<https://doi.org/10.1186/1475-9276-12-18>).
- Lewin S, Munabi-Babigumira S, Glenton C, et al. (2010). Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. *Cochrane Database Syst Rev*, 2010(3):CD004015.
- Maier C, Aiken L, Busse R (2017). Nurses in advanced roles in primary care: policy levers for implementation. OECD Health Working Papers, No. 98. Paris, OECD Publishing. (<https://dx.doi.org/10.1787/a8756593-en>).
- Marmot Review (2010). Fair Society, Healthy Lives. Strategic review of health inequalities in England, post-2010. London, University College London.
- OECD (2015). Reviews of health care quality: Australia, 2015. Raising standards. Paris, OECD Publishing. (<https://doi.org/10.1787/9789264233836-en>).
- OECD (2016). Reviews of health systems: Latvia 2016. Paris, OECD Publishing. (<https://doi.org/10.1787/9789264262782-en>).
- Penzenstadler L, Machado A, Thorens G et al. (2017). Effect of case management interventions for patients with substance use disorders: a systematic review. *Front Psychiat*. 8(51).
- Ranaghan C, Boyle K, Meehan M et al. (2016). Effectiveness of a patient navigator on patient satisfaction in adult patients in an ambulatory care setting. *JBHI Database Syst Rev Implement Rep*, 14(8):172–218.
- Rhodes SD, Alonzo J, Mann L et al. (2017). Small-group randomized controlled trial to increase condom use and HIV testing among Hispanic/Latino gay, bisexual, and other men who have sex with men. *Am J Public Health*, 107(6):969–976. DOI: 10.2105/AJPH.2017.303814

- Roland K, Milliken E, Rohan E et al. (2017). Use of community health workers and patient navigators to improve cancer outcomes among patients served by federally qualified health centers: a systematic literature review. *Health Equity*, 1(1):61–76.
- Strasser R (2016). Delivering on social accountability: Canada's Northern Ontario School of Medicine. *Asia Pacific Scholar*, 1(1):3–9.
- Strasser R, Neusy AJ (2010). Context counts: training health workers in and for rural and remote areas. *Bull WHO*, 88:777–782.
- Strategic Advisory Board Wellbeing, Health, Family (2015). Vision Statement: New professionalism in Care and Support as a Task for the future. Brussels, Flemish Community, 2015. (http://www.sarwgg.be/sites/default/files/documenten/SARWGG_20151217_New%20Professionalism_Vision%20statement_DEF.pdf, accessed 17 May 2019).
- Susic AP, De Maeseneer J, Wolfe SW et al. (forthcoming). Community Health Centres: a century of “Alma-Ata” in practice. *Europororama*.
- Tange H, Nagykaldi Z, De Maeseneer J (2017). Towards an overarching model for electronic medical-record systems, including problem-oriented, goal-oriented, and other approaches. *Eur J Gen Pract*, 23(1):257–260.
- The National Academies of Sciences-Engineering-Medicine (2013). A framework for educating Health Professionals to address the Social Determinants of Health. Washington DC, The National Academies Press. 2013. ISBN 978 0 309 39262 4
- Valaitis R, Carter N, Lam A et al. (2017). Implementation and maintenance of patient navigation programs linking primary care with community-based health and social services: a scoping literature review. *BMC Health Serv Res*, 17(116): (<https://doi.org/10.1186/s12913-017-2046-1>).
- Wells K, Luque J, Miladinovic B et al. (2011). Do community health worker interventions improve rates of screening mammography in the United States? A systematic review. *Cancer Epidemiol Biomarkers Prevent*, 20(8):1580–1598.
- Whiteman J (2014). Tackling socio-economic disadvantage: making rights work. *Equal Rights Rev*, 12:95–108.
- Wismar M, Glinos I, Sagan A (forthcoming). Skill-mix innovation in primary and chronic care. Mobilizing patients, peers, professionals. Copenhagen, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.
- WONCA International Classification Committee (n.d) International Classification of Primary Care. Wonca (World Organisation of Family Doctors) (<https://www.globalfamilydoctor.com/site/DefaultSite/filesystem/documents/Groups/WICC/International%20Classification%20of%20Primary%20Care%20Dec16.pdf>, accessed 17 May 2019).

- World Health Organization (1989). Strengthening the performance of community health workers in primary health care. Report of a WHO Study Group. Tech Rep Ser 780:1–46.
- World Health Organization (2009). Increasing access to health workers in remote and rural areas through improved retention. Background paper draft. 2009: (https://www.who.int/hrh/migration/background_paper.pdf?ua=1, accessed 17 May 2019).
- World Health Organization (2010). Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations. (https://apps.who.int/iris/bitstream/handle/10665/44369/9789241564014_eng.pdf?sequence=1&isAllowed=y, accessed 17 May 2019).
- World Health Organization (2018a). Global Conference on Primary Health Care. Declaration of Astana. (<https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration.pdf>, accessed 17 May 2019).
- World Health Organization (2018b). The Delhi Declaration: Alma Ata revisited. (https://www.who.int/hrh/news/2018/delhi_declaration/en/, accessed 17 May 2019).
- World Health Organization (2018c). Health promotion centres in Slovenia: Integrating population and individual services to reduce health inequalities at community level. (<http://www.euro.who.int/en/countries/slovenia/publications/health-promotion-centres-in-slovenia-integrating-population-and-individual-services-to-reduce-health-inequalities-at-community-level-2018>, accessed 17 May 2019).
- World Health Organization Regional Office for Europe (2015). Nurses and midwives. A vital resource for health. European compendium of good practices in nursing and midwifery towards Health 2020 goals. (http://www.euro.who.int/__data/assets/pdf_file/0004/287356/Nurses-midwives-Vital-Resource-Health-Compendium.pdf?ua=1, accessed 20 May 2019).