3 *Implementing skill-mix changes: lessons for policy and practice*

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3.1 Introduction

Many countries across Europe are considering implementing skill-mix strategies to better meet the needs of their patients, against the backdrop of changing service delivery models, new technologies and financing as well as payment policies. Implementing skill-mix changes in a country, region or setting is a complex intervention and impacts on the education and training of providers, multiprofessional collaboration, work flow and service provision, and ultimately, the patients and families. Skill-mix reforms are often highly controversial and prone to self-interests, influenced by various stakeholders, including different professional associations, payers, regulators or trade unions. Managing the process of implementation therefore requires a good understanding of the influencing factors, potential barriers and pitfalls involved. It also requires anticipating and actively fostering potentially facilitating factors in the process.

This chapter provides an overview of the evidence on the implementation of skill-mix changes. It identifies common barriers and facilitators at various levels, from the policy to the organizational level and summarizes the evidence from Chapter 9 (education and workforce planning), Chapter 10 (policy and financing) and Chapter 11 (organizational strategies). Workforce planning and education are key elements influencing skill-mix; they are closely intertwined and therefore covered in one distinct chapter (Chapter 9). With regard to policy, Chapter 10 covers the role of legislation, regulation and other measures as well as financing and payment policies. Chapter 11 addresses the implementation and the uptake by individual health care organizations and the influence of characteristics of the skill-mix innovation and institutional, organizational, individual and process factors.

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3.2 Overview of the evidence on implementation

Based on the overview of reviews (for an overview of the methods, see Chapter 1), a total of 29 systematic reviews were identified (see Table 3.1). On implementation, the largest number, namely 21 reviews, were on the role of organization-specific factors in the implementation process (Chapter 11), whereas seven systematic reviews analysed policy-specific or finance-specific factors (Chapter 10). Only one systematic review covered education, which analysed interprofessional education and effects on outcomes (Chapter 9). Compared with the body of evidence on skill-mix changes and effects on outcomes – as shown in Chapter 2 – the number of reviews available on implementation is much lower. No review performed meta-analysis. The number of Cochrane reviews identified on implementation was very low, only one review was a Cochrane review. In sum, reviews on implementation are scarce – with the exception of reviews on implementation at the organizational level.

The systematic reviews identified covered implementation-specific factors with regard to several skill-mix typologies, including the implementation of new professions, roles or tasks for single professions, the implementation of multiprofessional teamwork and the re-allocation of tasks (Table 3.2). One systematic review analysed the outcomes of interprofessional education on a range of outcome parameters, including on teamwork and patient outcomes. Most reviews covered multiple professions, including physicians, nurses, midwives, pharmacists, social care workers and multiprofessional teamwork.

In addition to the systematic reviews, additional sources of evidence (individual studies, grey literature, mini case studies) were included. They complemented the available evidence from the overview of reviews.

Table 3.1 *Number of systematic reviews covered on implementation of skill-mix*

Implementation areas covered	Included reviews	Meta-analyses	Cochrane reviews
Education and workforce planning	1	0	1
Policy and financing	7	0	0
Organizational level	21	0	0

Sources: Based on Chapters 9–11.

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Table 3.2 *Topics and professions covered by the systematic reviews on implementation*

Areas covered	Skill-mix topics	Professions covered
Education and workforce planning	• One systematic review on interprofessional education	• Health and social care professionals
Policy and financing	• Three systematic reviews on the addition of new tasks; the expansion of roles • Two systematic reviews on the introduction of teamwork • Two systematic reviews on reallocation of tasks	• NPs, pharmacists, midwives, diverse primary care providers
Organizational level	• Five systematic reviews on the addition of new tasks and expansion of roles • Twelve systematic reviews on the introduction of teamwork • Four systematic reviews on the re-allocation of tasks	• GPs, NPs, nurses, PAs, various other professions, multiprofessional teams

Abbreviations: GP: general practitioner; NP: nurse practitioner; PA: physician assistant.

Sources: Based on Chapters 9–11.

Country examples demonstrating important lessons for implementation were identified and presented as mini case studies to situate skill-mix innovations and their implementation in the specific country contexts.

3.3 Evidence synthesis: the role of education and health workforce planning and skill-mix

How can education and health workforce planning anticipate and respond to the changing skill-mix requirements in health care? The existence of skills mismatches in Europe has prompted changes and an improved responsiveness of educational systems, as well as adaptations of health workforce planning mechanisms. Simultaneously, health workforce shortages have motivated changes to health workforce planning (Kroezen et al., 2015; Schoenstein, Ono & Lafortune, 2016). Yet, there is remarkably little evidence available on either skill-mix

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and education, or on skill-mix and health workforce planning. The overview of reviews identified only one systematic review on education. A Cochrane systematic review by Reeves et al. (2013) focused on multiprofessional education and evidence on outcomes. No systematic review was identified on skill-mix and health workforce planning and implementation or other outcomes (Chapter 9). Additional material, such as grey literature, reports or case studies, was also available and was covered, but the availability of all evidence remained limited.

Current European professional education incorporates three noteworthy developments that can respond to the changing demand for health competencies and support skill-mix innovations, namely interprofessional education (IPE), competency-based education and the academization of health professionals.

Interprofessional education involves initiatives in health educational institutions that incorporate interactive learning between different professionals to foster collaborative practice and increase an understanding of different roles in health care (Hale, 2003). Several facilitators have been identified for the implementation and uptake of IPE: these include having a shared, open culture, support and leadership as well as strategic facilitation and planning. Barriers to IPE include practical factors, such as the coordination of different academic calendars, student timetables and determining what to teach in the IPE modules, while avoiding curriculum duplication. Education such as IPE, which deviates from didactic lectures, particularly when it uses simulations and in-practice-based learning, can increase students' positive attitudes towards interprofessional collaborative practice. However, the evidence for IPE is poor overall and where the impact was measured, it was often small (Reeves et al., 2013). More research is required to evaluate which models and intensity of IPE yield which outcomes (Chapter 9).

Competency-based education, which structures the curriculum according to relevant skills and competencies, can in theory respond well to changing population health needs and required new skills. The curriculum can break down professional silos and can be adapted to new roles and skill requirements (Gravina, 2017). An example of competency-measured basic education is CanMEDS in Canada, where competencies related to skill-mix are integrated in the stipulated values and competencies for medical experts, and physicians trained through competency-based education scored high on skill-mix-related domains such as collaboration (Charles et al., 2016). Yet, the implementation of

competency-based education has been confronted with several obstacles, such as challenges to assess and measure competencies in areas of communication, collaboration or compassion (Nousiainen et al., 2016), and its effects on skill-mix innovations are largely unknown.

A further trend of particularly high relevance to skill-mix changes and innovations is the academization of some health professions, which is notably observed for the education of nurses and midwives (Lahtinen, Leino-Kilpi & Salminen, 2014). There is also an increasing trend towards moving the education of physiotherapists to higher educational institutions, for example, universities of applied science (Friedrichs & Schaub, 2011). The academization of these professions has been referred to as a stimulus to take on advanced roles (De Geest et al., 2008). Academization is seen as a driver for new roles and changes to traditional team configurations and labour markets. It remains unclear, however, to what extent it contributes overall to the implementation of skill-mix innovations.

For health professionals already in the workforce, there is a development towards postgraduate training, continuing professional development and competency based frameworks to support the uptake of skill-mix changes. Postgraduate training is often required when health professionals are faced with new tasks and assume new roles and responsibilities for which they feel inadequately prepared. In the case of professionals undertaking postgraduate training, arrangements that allow continuation of work responsibilities, such as web-enhanced courses, have been identified as key for successful engagement by participants (Kovner et al., 2012; Salyers, 2005). Continuous professional education as in-service training can provide one of the most important educational tools when implementing skill-mix in practice, if based on up-to-date knowledge and developments in health service delivery including skill-mix innovations. This trend is seen in recent French reforms, where continuing professional development is at the forefront, including skill-mix-related components such as interprofessional collaboration and shared team-based goals (Chapter 9). Lastly, competency-based education is further seen in continuing professional education, where efforts have been made to develop health workforce competencies, which are more closely related to developments in health care practice and tends to include skill-mix related domains such as teamwork.

Concurrently, health workforce planning can influence education through policies to expand or reduce student numbers and postgraduate

training posts. It should also respond to changes in the health care needs of the population and challenges regarding skill-gaps in the workforce. Conventional health workforce models do not consistently cover different professions, task shifting practices or interprofessional collaboration. Of the current health workforce models, it is the needs-based models that are most suited to incorporate skill-mix innovations, but they are rarely used because of the large number of data requirements. More development is needed for all workforce planning models to account for interprofessional collaboration, changes in education and skill-mix to improve projections and estimate effects on health care delivery.

3.4 Evidence synthesis: the role of policy and financing in implementing skill-mix changes

This section provides a synthesis of the evidence on the role of policy and skill-mix implementation. It focuses on the role of legislation and regulations as well as financing and payment models and their two-way relationship with the uptake of skill-mix changes in practice. This section summarizes the evidence from Chapter 10, which was based on seven systematic reviews, plus additional material, country examples and (grey) literature.

Overall, there are a multitude of influencing factors impacting on a policy level, and therefore a macro level. They can act as either barriers or facilitators in the implementation process. Depending on how they are designed and shaped, their outcomes can contrast with each other with regard to the implementation outcomes and processes. Most of these influencing factors are amenable to change, which means that they can be modified in such a way as to alter them from a barrier to a facilitator. The following section highlights how different instruments can act as facilitators or barriers for skill-mix changes.

Regarding the impact of policy interventions on skill-mix innovation, four main themes emerged from the systematic reviews. They require particular consideration when planning or implementing a shift in the skill-mix. The first is professional role clarification, which can act as both a facilitator (if roles are clear to the relevant groups) and a barrier (if clarity is lacking) to skill-mix, depending on the context. On the one hand, increasing the understanding of the role and skills of each health professional in a team has been suggested to facilitate a smooth transition towards a new skill-mix setting. On the other hand, roles that are too

narrowly delineated could limit flexibility and versatility in collaborative care models. The second theme identified was the formalization of communication, which also acts as an enabler for professional role clarification, so linking these two prominent themes that demand more attention in skill-mix policy. Along with informal communication, formalized channels of communications, such as protocols, are pivotal to improving collaboration and increasing the effectiveness of teamwork. As for the third theme, outdated regulatory and legal frameworks can create bottlenecks for skill-mix innovations but can also – if in line with recent educational developments – lay the foundations for a new skill-mix change to develop and formalize unofficial practice (for example, if new titles and/or scopes of practice are regulated by law). A lack of suitable regulation and a clear legal framework also create ambiguity concerning liability issues for skill-mix innovations. The fourth theme concerns the need for adequate training and education, which is per se closely linked with Chapter 9, which is pivotal to a successful re-orientation of health worker skill-mix. Regulation of new professional roles and their titles usually has direct impacts on education, because the curricula require a minimum level of harmonization and lead to a minimum of commonly available skills and competencies. Training is therefore also linked to the concept of professional role clarification as it allows the establishment of the role as well as understanding of the profession (see also Chapter 9).

Revisiting financing and payment mechanisms is critical to assess the impact of funding on the implementation process. Any skill-mix change, for example adding new tasks and roles or new division of work, requires adaptations to the financing, particularly in countries with primarily fee-for-service financing schemes. Countries should identify the impact of different financing models, including innovative payment schemes, such as bundled payments, on the implementation of skill-mix. Moreover, the recognition of new roles is influenced by the levels of payment and reimbursement, for example by acknowledging and supporting the need for more suitable payment mechanisms that would eventually replace those unfeasible to support change. One of the factors with potential for successful and sustainable uptake of skill-mix innovations is the appropriate funding for new or enhanced professional roles. Moreover, introducing financial incentives (or disincentives) can provide a stimulus to the implementation process, as demonstrated in Estonia (Chapter 10). While certain reimbursement models, such as

bundled payments, can encourage multiple providers to work together and allow for task shifting, other mechanisms that pay individual providers separately, such as fee-for-service, can hinder effective collaboration and task shifting practices. However, as mentioned in Chapter 10, although five systematic reviews on skill-mix touched partially on health financing or payment mechanisms, no review has been identified that specifically address the impact of health financing on skill-mix.

Financing reforms are necessary, but alone not sufficient to support the creation or enhancement of roles for skill-mix implementation. Instead, the whole system of organization and governance that facilitates the success of financing reforms needs to be considered, together with individual countries' context. Although financing mechanisms represent a potential powerful lever to make a case for or against a certain skill-mix change, financing is strongly intertwined with other policy levers. Evidence from the literature indicates that organizational and regulatory structures can be a vector to either accelerate or hinder change, as demonstrated in Chapter 10.

3.5 Evidence synthesis: organizational strategies to implement skill-mix changes

This section examines barriers, facilitators and strategies for implementation of skill-mix changes at the organizational level (Chapter 11). Through the overview of reviews, 21 systematic reviews were identified. They were analysed according to the most important factors found in the literature. This chapter applies the following framework in analysing the most important factors influencing the implementation of skill-mix innovations in health care settings:

- characteristics of the skill-mix innovation, such as whether the skill-mix is perceived to be imposed or not;
- institutional factors, such as the legal framework;
- organizational factors, such as organizational structure and culture;
- individual factors, such as staff knowledge; and
- process factors, such as the planning of the skill-mix before implementation.

Institutional factors were found to represent the largest barrier through financing, also identified at the policy level (Chapters 10 and 11).

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Financing acts as a barrier when there is a lack of overall funding for the skill-mix change and/or no reimbursement exists for the skill-mix innovation. This is closely linked with policy design and is shaped by laws and the financing mechanisms in place, which is highly country- and context-specific (Chapter 10). However, individual settings such as health centres and practices also have their own financing possibilities (Chapter 11), and can set up start-up funding, payment mechanisms or other financial incentives. However, the sustainability can be at risk and requires long-term planning and financing. Another institutional factor such as team-based staff training in a specific health care setting, can improve staff participation in skill-mix changes. Further enabling skill-mix changes in practice are supportive policies and regulations, which can aid organizations to initiate appropriate staff training.

Organizational factors that facilitate skill-mix innovations when addressed, are proximity of services involved in the skill-mix and established information systems. Organizational barriers are of structural nature, such as lack of time and financial resources and professional silos in individual organizations (Chapter 11). To overcome restricted financial resources for skill-mix implementation, such as insufficient start-up funding, which was identified as a strong barrier, it is suggested to analyse context-specific payment methods and identify new financing sources or newly allocated existing funding channels. One example of payment methods that are more supportive to the implementation of skill-mix innovations, such as multiprofessional teamwork, are Pay for Performance, which is seen in primary health care settings in Norway, Portugal and the United Kingdom (OECD, 2016). Pay for Performance is usually accepted by health providers, and when applied to teams, as opposed to individual providers, it may stimulate collaboration. Other payment schemes that can support skill-mix changes are bundled payments or financial incentives for multiprofessional teamwork. These can be designed at the policy level or by individual organizations, hence, there are policy options for both policy-makers and health care managers to stimulate skill-mix.

Individual barriers and facilitators were found to be interlinked and to mirror each other, where one is a barrier it can also act as a facilitator if its features are changed. Examples from Chapter 11 are (a lack of) sufficient knowledge and skills, (a lack of) good communication and (a lack of) trust and respect. Chapter 11 suggests that many individual factors are opinion-based, which are often affected

by professional silos and affiliations. To overcome such individual barriers when implementing skill-mix innovations, it is effective to have cross-professional educational sessions, developing shared goals and using pilot projects for health professionals to familiarize themselves with the skill-mix change.

Characteristics of the skill-mix innovation itself can be a facilitator if health care professionals perceive a positive effect in terms of professional development or reduced workload, or by increased quality of care for patients. Whereas the opposite is true for barriers, the skill-mix innovation is received poorly if health professionals perceive their work to be overburdened or the patient relationship to be at risk.

In the process of implementing skill-mix, there are some process factors that might influence its outcome. The staff who are involved in skill-mix changes report a lack of support as an important barrier in organizations. Access to ongoing support through supervision and mentorship for staff mitigates this barrier, and acts as an enabler for implementation. Organizations can further support staff by formalizing the new roles, relationships and tasks.

3.6 Strength of the evidence and limitations

Overall, fewer systematic reviews were identified on the implementation of health workforce skill-mix changes or larger-scale reforms within and across countries, if compared with skill-mix and outcomes (Chapter 2). At the organizational level, with a total of 21 reviews, there was more evidence available (Chapter 11).

The methodology of the overview of reviews faced several limitations with regard to implementation and skill-mix. First, although a broad search was conducted in the major databases (see Chapter 1 on the methodology), relevant reviews may have been missed. The search focused on systematic reviews of the evidence and outcomes, including scoping reviews; however, unsystematic evidence summaries or syntheses (not called a systematic review) were not covered. Nevertheless, for all chapters, the systematic reviews were complemented with additional evidence from other sources, including grey material, country case studies and other material. Although this information is critical to provide an overview of the contextual side of implementation, the material was primarily a description of reforms with limited specific information on evaluations or outcomes.

In sum, there is still limited research on the implementation side of skill-mix, and high-quality studies and reviews to analyse implementation are particularly scarce. More implementation research is required, taking a systematic, cross-country comparative design. Second, context is highly relevant in implementation, but rarely taken sufficiently into account, particularly in the systematic reviews. Few countries formally evaluate the implementation of reforms, which is critical to understand why some reforms have been effectively implemented and others have been delayed or not taken off.

3.7 Policy lessons and recommendations

The implementation of skill-mix changes requires changes at various levels, including at the level of policy-making (macro), the managerial decision-making (meso) and individual providers (micro).

From a policy perspective, effective implementation requires not only strategic, multiprofessional and intersectoral workforce planning that takes into account skill-mix changes. The planning should also be linked and integrated with the educational system and requires updated curricula. Multiprofessional education has shown some positive outcomes, for example, improved collaboration, but overall has resulted in mixed findings and requires more, high-quality research on outcomes. Changes to the education and workforce planning are therefore critical to equip professionals with the new skills and project the future supply required. The research evidence base remains very weak on the interlinkage between education, workforce planning and skill-mix implementation.

Adjusting regulation and payment mechanisms is critical for skill-mix implementation. Due to the highly regulated nature of many health professionals (particularly with higher educational degrees, for example, physicians, nurses, pharmacists), a review of the respective scope-of-practice laws and regulation of the professions affected by skill-mix changes is required to identify and subsequently, remove potential regulatory barriers to practice. This concerns the regulation of specific professional titles, the scopes-of-practice, if regulated via legislation and other policies that are impacted by these professions and their daily practice. Adjusting payment mechanisms are critical to support the full implementation of skill-mix changes, but alone are not sufficient. Financial incentives may accelerate implementation.

At the organizational level, developing a clear communication strategy and related change management positively influences skill-mix uptake in practice, particularly if it involves all professions in the process and explains the (perceived) added value of the skill-mix innovation. Other factors that impact on teams and individuals are provision of sufficient information, fostering a culture of mutual trust and respect and – as required – exploring additional funding options to ensure a smooth process, full uptake and sustainability. To strengthen skill-mix implementation, the specific context should be analysed for influencing local factors, staff characteristics and organizational factors, in order to adopt the most appropriate implementation strategies for the specific context.

These are commonly cited enablers, each country and organization requires careful assessment of the exact measures needed and should tailor the strategies to its specific contexts, a bundle of measures at all three levels – macro, meso, micro – is likely to yield the best results.

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