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Health services delivery: a concept note

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Abstract

In order for health services delivery to accelerate gains in health outcomes it must continuously adapt and evolve according to the changing health landscape. At present, the case for change is a compelling one. However, despite mounting attention put to reforming health services delivery, there remains a persisting lack of consensus on its conceptualization. This paper aims to take stock of the developments in the literature on health services delivery and lessons from the firsthand experiences of countries, viewing clarity on the performance, processes and system dynamics of health services delivery a prerequisite for the rollout, scale-up and sustainability of reforms. Through a mixed-methods approach, evidence from existing frameworks and tools for measuring services delivery, country case examples and commissioned papers have been reviewed around three key questions: what are the outcomes of health services delivery? How can the health services delivery function be defined? And, how do other health system functions enable the conditions for health services delivery?

Keywords

DELIVERY OF HEALTH CARE
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List of abbreviations

eHealth	Information and communication technology for health
GP	General practitioner
HSD	Health services delivery
ICT	Information and communication technology
IHSD	Integrated health services delivery
mHealth	Mobile health
NCDs	Noncommunicable diseases
TB	Tuberculosis
WHO	World Health Organization

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The work has taken shape between 2013 and 2015. At several stages consultations were convened with Member States and partnered experts in the context of discussing integrated health services delivery concepts and tools. Meetings were convened in Istanbul (Turkey), Brussels (Belgium) and Copenhagen (Denmark). This has included two technical meetings: a first kick-off meeting in February 2014 and in February the following year, for discussion and refinement of concepts. Participants at these events have included ministry of health appointed focal points on integrated health services delivery invited from all Member States as well as international experts in the field. Stakeholders, including provider and patient associations and civil society groups, have additionally met on one separate occasion, in April 2014, on related topics reviewed here. Discussions across technical units of the WHO Regional Office for Europe and with Heads of Country Offices have also been held throughout.

Note, this version (October 2015) of the document is undergoing invited expert review and following a period of revisions it will be superseded by an updated, final version in autumn of 2016.

For further information on this and related works, please visit the Health Services Delivery Programme webpage at http://www.euro.who.int/en/health-topics/Health-systems/health-service-delivery or contact the authors at CIHSD@euro.who.int.

Preface

WHO recognizes that well-performing health systems are critical if population health and well-being are to be achieved. In 2000, in an effort to advance a shared vision and measurement framework for health systems, WHO classified four essential health system functions: stewardship (governing), financing, generating resources and delivering services (1). Overtime, an understanding of each has continued to evolve and deepen with subsequent reports and agreements: in 2007, the functions were reinforced as 'building blocks' defined in an approach for health system strengthening (2); in 2010, a monitoring and evaluation framework was aligned to provide a core set of indicators to monitor progress (3); and, in-parallel throughout the past decade, other, function-specific works have allowed advancements on their individual particularities[1].

At present, putting health system concepts into practice remains of great importance and priority continues to be weighted to health system strengthening globally. This is made explicit in the WHO Twelfth General Programme of Work for the period 2014-2019, with a priority cluster of technical activities and corporate services concentrated on strengthening health systems. The forthcoming global strategy for people-centred and integrated health services has been developed in line with this priority and is to be put to the World Health Assembly in 2016 (8).

In the WHO European Region, the signing of the 2008 Tallinn Charter marked the importance of well-functioning health systems for health and development and signalled the commitment of Member States for improving and being accountable for the performance of their health systems (9). More recently, the European health policy framework, Health 2020, recognized health system strengthening as one of four priority action areas in setting out a course of action for achieving the Region's greatest health potential by year 2020 (10).

The vision put forward by Health 2020 calls for people-centred health system. In doing so, it extends the same principles as first set out in the health-for-all agenda and primary health care approach from more than four decades earlier in the landmark Declaration of Alma-Ata of 1978. This includes equity, social justice, community participation, health promotion, the appropriate use of resources and intersectoral action (11). The continuity of these principles follows the proven usefulness of a primary health care approach worldwide and in the WHO European Region, as strong and equitable primary health care has been critical for health systems that have made significant progress towards universal health coverage, contributing to improved health outcomes, economic and social development (5), as well as wealth creation (3,9,12,13).

The importance of people-centred health systems echoes the priorities of partners in the European Region including the European Commission, OECD, Global Fund and the World Bank, as well as professional associations and civil society organizations, each supporting their constituents to strategize for strong health systems that enable citizens to lead healthy and self-determined lives.

In line with this collective priority and the implementation of Health 2020, the WHO Regional Office for Europe has worked to highlight specific entry points for strengthening people-centred health systems. To this end, the Regional Office has defined an approach for working intensively with Member States over the 2015-2020 period in two priority

1 This includes, for example, subsequent World Health Reports and documents looking in-depth to health system functions of governance (4), financing (5), resourcing (6) and delivering services (7) as well as relevant resolutions of the World Health Assembly and summits on health systems strengthening such as the International Conference dedicated to the 30th and 35th Anniversary of the Alma-Ata Declaration on Primary Health Care, Almaty, Kazakhstan.

areas: transforming health services to meet the health challenges of the 21st century and moving towards universal coverage for a Europe free of catastrophic out-of-pocket payments (14).

This document takes the first of these priorities a step further. Observing the continuously evolving concepts related to health services delivery, both in reaction to the changing context and innovations, this work aims to bring together the literature and experiences of countries for a snapshot on current thinking. This is seen as a prerequisite to better supporting Member States in the rollout, scale-up and sustainability of health services delivery reforms.

The concepts explored here will be taken forward in the forthcoming Regional framework for action on integrated health services delivery (15): an action-oriented health systems framework committed to Member States in response to requests for technical support in accelerating health services delivery reforms. The development of the Framework was initiated in 2013 and has been defined in a planning document which serves as a guide for framing phases within a common vision; promoting coherence in activities and flagging opportunities for ample consultation and engagement with countries and partners (15). The Framework and its supporting implementation package will be presented to Member States for their endorsement at the 66th session of the WHO Regional Committee for Europe in fall of 2016.

About this document

Just as the principle objective of a health system is to improve a population's health and well-being, the chief process that any health system needs to perform is the delivery of services (16). The health system's other functions of *governing*, *financing* and *resourcing* each have a stake in this process. For example, in some instances quality services may fail to be delivered at the right place and right time because health professionals have inadequate skills or because of a lack of medicines and equipment: these bottlenecks being the consequence of suboptimal training and investment, respectively. In other instances, misaligned incentives, for example, may contribute to barriers in the provision of services: this being the result of inadequate purchasing or payment.

These and other potential health system bottlenecks aside, even with all needed inputs, financial support and governance, the delivery of health services can be suboptimal for reasons that can be attributed exclusively to the function itself. This underscores the importance of the health services delivery function in strengthening health systems and its distinct role and contribution for ensuring that priorities of population health are realized.

The link between the performance of health services delivery and health outcomes is a compelling case for the prioritization of the services delivery function. For example, strong primary health care has been a successful approach for health systems to make significant progress towards universal health coverage, better health outcomes and economic and social development (5), as well as wealth creation (2,9,12,13). Focusing on those most pertinent population health problems and risk factors, for example, in tobacco control, obesity, HIV/AIDS and tuberculosis (TB), have too proven a clear link between robust health services delivery interventions and accelerated improvements in population health (10,17–20).

While solidified in its importance, characterizing health services delivery as a health system function has remained ambiguous (7,21). This is not for an absence of conceptual thinking. Numerous frameworks and tools for analysing and reporting on aspects of services delivery have been developed. Nevertheless, the study of health services delivery is multifaceted by nature. For example, its performance is not only predicted in part by other health system functions, it is also a composite of actions across all levels of the health system: from policies set nationally down to its most atomized form as the interaction between health professionals and patients (16,21). The challenge to conceptually account for this and its other dynamics has arguably stalled sophisticating an understanding of the function itself and its processes.

Conceptual challenges aside, there is clear consensus that in order for health services delivery to accelerate gains in health outcomes, it must continuously adapt and evolve according to the changing health landscape (22). At present, responding to these changes is an imperative. Across the European Region, populations are living longer than ever before and with increasing longevity has come greater susceptibility to disease and disability (23–25), multi-morbidities and chronicity (26–29). This has included in particular noncommunicable diseases (NCDs) like cancers, diabetes, chronic respiratory and cardiovascular diseases and mental illnesses (22). The delivery of services previously oriented towards a reactive, episodic, acute care model has in effect, rendered many systems ill-equipped to provide the proactive, continuous, preventive and promoting type of health services necessitated today.

Other trends calling attention to health services delivery have included in many countries the growing burden of persistent and re-emerging infectious diseases like TB; especially compromising among vulnerable and marginalized populations such as prisoners, ethnic minorities, and those living in remote areas (30). Concurrently, fiscal

constraints (31), new, amplified and worsened environment-associated risk factors (22), increasing public expectations about quality and safety (32), changing lifestyle and behavioural risk factors (33)"publisher":"World Bank","publisher-place":"Washington (DC and a growing demand for access to health services across borders (34,35), have placed added strain on both the demand and supply of health services delivery, while challenging the adequacy of conventional models of care.

A further catalyst motivating the continued evolution of health services delivery are those advancements in research, design and manufacturing that have made possible drastic changes in the way in which we alleviate pain, restore health and extend life. For example, innovative drug treatments and therapies have increasingly allowed the treatment and management of illness in the community and at-home. Similarly, new technologies have made possible ehealth, mhealth and other remote applications for care that can provide more personalized and often more affordable services in ways previously unimaginable (36).

In the context of these changes, across the WHO European Region health services delivery has shown an impressive ability to respond and adapt. While empirical evidence on impact remains to be realized (37), there has been a substantive volume of innovations and the widespread implementation of initiatives, from local, facility-specific efforts to regional or nationwide reforms in recent years. Despite this activity and presumed successes, many of these efforts have remained small-scale and context-specific, often with pre-set timeframes and funding limits, lying outside the system and rarely treated as core business from the outset (15,38). In effect, good intentions, ideas and projects have fallen short to fully benefit those whom reforms were originally designed to serve.

Transforming health services delivery is no easy task. The challenge to repurpose, reorganize, reconfigure or re-profile health services delivery has exposed the number of explicit choices to be taken in the process. What is more, services delivery reforms face the constraints of previous decisions taken, often accumulated over many decades, which dictate the basic features of the health system and thus, the institutional space for manoeuvring proposed changes. Ultimately, sophisticating a common understanding of the health services delivery function – its measurement, processes, and dynamics with the health system – is of pressing need, as a means to optimize the rollout, scale-up and sustainability of reforms and, ultimately, to ensure improvements in health and well-being are realized.

Purpose and rationale

This document sets out to review ideas and experiences in reforming health services delivery towards a theoretically-informed and empirically-based understanding of the function; seen here as a requisite for optimizing reforms in real-world health systems. To do so, the following key questions were posed to guide the review process:

1. What are the outcomes of health services delivery?
2. How can the health services delivery function be defined? And;
3. How do other health system functions enable the conditions for health services delivery?

For the purpose of this paper, health services delivery is viewed at the interface with both the population and the individual's it aims to serve and the health system according to its other functions and the conditions these set. While the contribution of other factors,

notably the role of other sectors in delivering services, is recognized, a full review of aspects beyond the health system was considered outside the scope of work.

Applying the framework and notion of health systems, as first indicated in the World Health Report 2000 (16), the review has looked to understand health services delivery as a core health system function. Approached in this way, health services delivery has been defined as a function of its processes, seeing these as an indication of its unique contribution to health systems, and thus, offering greatest explanatory power to rationalize its performance. Using a functional approach to health systems, this work has not differentiated between different types of services (e.g. primary care, day care, emergency care, specialized care, long-term care, palliative care, rehabilitative care) or specific interventions provided (e.g. health promotion, diagnostic care, emergency services, etc.). In a similar way, settings of care (e.g. ambulatory, in-patient, residential, community, home) or the different facilities where services are delivered (e.g. general hospital, polyclinics, primary care centre, etc.) have not dictated the review itself. It is assumed findings on the goals, processes and system inputs for services delivery are applicable across each of these more descriptive properties of services.

Methods and sources of evidence

This work has adopted the methods of a scoping review (39,40). Three main approaches to data collection were taken. This includes: (1) a literature review of analytical frameworks, tools for monitoring and evaluating health systems and health services delivery and strategies on focused health improvement areas (e.g. HIV/AIDS, NCDs, TB); (2) a horizontal analysis across documented experiences of countries in the WHO European Region, in their efforts to reform health services delivery taken nationally, regionally or in specific communities and settings of care; and (3) a review of findings from parallel topic-specific reports commissioned to experts. With the intention to build upon existing concepts as far as possible, the available frameworks and tools for monitoring and evaluating health systems and health services delivery have constituted the main source of evidence.

1. Analytical frameworks and tools for health systems and services delivery

Consolidating and aligning earlier works of WHO and its Regional Offices on health systems and health services delivery, notably (2,16,41–46), served as the starting point for this work. Concepts and frameworks developed by international partners and in academia with a focus on services delivery have additionally been closely reviewed (47–53). An analysis of the approach for strengthening health services delivery adopted by thematic programmes and strategies, has also been included, looking specifically to the approach taken in order to improve services for vaccines (54,55), NCDs (17,54), TB (18,56), HIV/AIDS (19,57) and maternal and child health (20). The interim global strategy on people-centred and integrated services delivery (8) and European health policy, Health 2020, and related health system documents (14,22), are among those most recent works reviewed in an effort to keep at pace with current priorities and concepts.

Documents reviewed were primarily collected by hand searching websites of relevant organizations. This was complemented by searching databases including GIFT, WHOLIS and PubMed. Each database was searched on health services delivery and related topics, including primary care, primary health care and integrated services delivery. The reference lists of documents deemed relevant for analysis were additionally consulted and expert recommendations were solicited. The works reviewed are listed in Annex 1.

2. Experiences from countries

To validate and refine findings of the document analysis, first-hand experiences of Member States in transforming health services delivery, have been analysed. These experiences have offered unique insights into the realities of health services delivery in practice, signalling the multi-level dynamics at play. This has subsequently, enriched the interpretation of the function, accounting for services delivery processes as well as the relative levels at which these are carried out in real-world health systems.

Country-specific examples captured as case profiles, have been developed through varied methods including a web-based public questionnaire, key informant interviews conducted in-person and at-distance, a review of project-specific reporting. These experiences, spanning all 53 Member States of the WHO European Region, are documented in full elsewhere (58).

The approach of each initiative to reform health services delivery varies widely. Notably, these differences include: their specific aims, being driven by differing health needs and bottlenecks in health services delivery; their scale of implementation, from national to regional or local, facility-specific efforts; and in their stage of reforms, from initial piloting, to further rollout or national scale-up. In an effort to account for their differences, country experiences have been reviewed with attention to describe the nature of the changes activated. We have interpreted these efforts to reason their underlying aims, crossed then with findings from the literature to refine the core processes of services delivery captured. The respective key informants for each case have reviewed the drafts and validated their accuracy.

3. Commissioned reports

A series of working papers and reviews have been commissioned to experts on a sub-set of topics. These working papers were prepared between 2013 and 2015, adopting varied methods to review the literature, policies and experiences on topics such as integrated health services, health system accountability and health workforce competencies. The authors here have overseen the development of each; undertaking a final review to extract, analyse and report on the findings. Contributing experts to these working papers have been noted in the acknowledgements.

Overview of sections

Responding to the key questions posed has in-turn informed the sections of the document, each summarized in brief as follows.

Section one: performance outcomes for measuring health services delivery

This first section looks to strengthen the linkage between the performance of services delivery and improvements in health outcomes. To do so, a problem-based approach is defined, looking to specify the measurable properties of services delivery in association with the performance of the health system. A causal chain, as an analytical tool for sequencing these associations, offers an ordering for reasoning the link between health system inputs (e.g. the competencies of the workforce) to processes and outputs of services delivery (e.g. the comprehensiveness of interventions and coordination of services) and in-turn, intermediate health system outcomes (e.g. responsiveness and equity) and health impact (morbidity and mortality). Clarifying the measurable

contribution of health services delivery is of particular importance in order to strategically guide interventions and assess and monitor their effects.

Section two: health services delivery processes defined

There is a degree of consensus on some well-established requirements, as the processes to be undertaken, for health services delivery. In reviewing the literature and experiences of countries, this section looks to define the function by exploring its unique processes; avoiding a description of what services *ought* to be and focusing rather, on those factors that can be acted upon. Strengthening services delivery necessitates actions across different levels of the health system: from the context of national policies and priorities, to a regional perspective serving a defined catchment area, and at the level of frontline health workers, at the very core of services delivery. These levels have been accounted where deemed relevant to give context to how these processes appear in practice.

Section three: enabling health system conditions for services delivery

Finally, as health systems thinking reasons, changes in one aspect of the health system has repercussions on others, and thus, the distinct parts of the system must feedback on one another in alignment to optimally perform. Looking across the literature and empirical evidence, the interactions between health services delivery and the health system's other functions of governing financing, resourcing human resources, medicines, technologies and information, are explored.

In addition, a glossary of key terms has been prepared as a reference for those technical terms described throughout the document. Definitions have been adapted from the literature reviewed for consistency in concepts described here.

Section one

Performance outcomes for measuring health services delivery

Reforms led in countries to strengthen health services delivery are found to consistently share a common starting point: a clearly defined, well-articulated problem. In order to sharpen the case for undertaking reforms, many initiatives have worked to quantify these performance challenges according to outcomes. An obstacle to this task appears to arise in attempting to reason the root causes of problems, facing constraints to disentangle and measure the contribution of health services delivery from the multiple factors affecting health system performance.

The challenge to specify the performance of health services delivery in practice, mirrors the difficulty to arrive in the literature to a commonly accepted framework for defining health services delivery performance measures. There are in fact many definitions and characterizations of how health services 'ought' to be while the specific way in which services are operationalized will vary by context, as will the relative emphasis given to its measures. However, there is still a need for a structured approach to reason causality that can distinguish services delivery from other health system outcomes, providing the potential to account for the sub-optimal performance of health services and strategize actions accordingly.

In reviewing the literature and learning from the practical experiences of countries, the critical links that connect root causes of sub-optimal services delivery to ultimate system performance goals have been reasoned. To do so, performance outcomes that can be uniquely attributed to health services delivery are highlighted as a reflection of how decisions across health services delivery processes dictate outcomes. Those outcomes that are measurable, where concrete variables can be identify, have been prioritized as the most relevant to the process of strategizing reforms and informing targeted policy interventions.

The result is illustrated as the common input-process-output-outcome sequence, where health services delivery outcomes are measured by comprehensiveness, coordination, effectiveness and person-centredness (Figure 1.1). These are differentiated from commonly described health system outcomes of quality, accessibility, and efficiency, seeing these outcomes as composite measures resulting from the interaction of health services delivery and the other health system functions of governing, financing and resourcing. Based on review findings, in what follows the outcomes of health services delivery are first described according to their common characterization, with examples of indicators for measurement.

Figure 1.1 Health services delivery causal chain: health services delivery outcomes

Impact	Health system outcomes	HSD outcomes	HSD Processes*	Inputs*
Health impact (level and distribution)	Quality Accessibility Efficiency	Comprehensiveness Coordination Effectiveness Person-centredness	Selecting services Designing care Organizing providers Managing services Improving performance	Governing Financing Resourcing

*HSD processes refer to those processes of health services delivery described in section two and inputs refer to those other health system functions described in section three.

Comprehensiveness

Selected population and individual health services extend across a broad care continuum and across life stages, to include services from health protection, health promotion and disease prevention to diagnosis, management, treatment, long-term care, rehabilitation and palliative care, for services that are whole-person facing, adapted from (8,41,50,51).

Comprehensiveness in health services delivery describes the provision of services that accounts for the complexity of interactions between biological, behavioural and psychosocial factors over the lifetime and according to an individual's needs in the context of other needs (59). Comprehensiveness measures the ability of health services to mobilize a range of population interventions and individual services along a broad spectrum of care. This includes services related to health protection, health promotion and disease prevention as well as diagnosis, management, treatment, long-term care, rehabilitation and palliative care (41,50,60). Comprehensive services can be described as whole-person-focused, with services delivery having the foresight to anticipate and account for the different routes an individual's health needs may direct them, with this being reflected in the diversity of available services. For example, a comprehensive approach to increasing breast cancer screenings, includes also the availability of timely diagnostic testing after an abnormal mammogram and appropriate treatment for breast cancer, as needed (61).

The benefits of comprehensive services on health outcomes are well documented (7,62). Contributing to gains are factors including greater success of treatment, finding multiple interventions more likely to be successful than single factors (63,64); an increased uptake of preventive care such as blood pressure screening, mammograms, pap smears as well as health promotion to reduce risky behaviours (65); improved care-seeking behaviours, as people more readily use services if it is known a comprehensive range is offered (7); improved cost-effectiveness in primary care (66); and consistently lower hospitalization rates for preventable complications of chronic, ambulatory care sensitive conditions (65–67). Additionally, comprehensive services have been found to minimize the potential for fragmentation resulting from highly specialized, often siloed service packages, that may result, for example, in the treatment of an individual's TB without considering their HIV status or whether they smoke (7).

Measures for comprehensiveness typically capture its performance by the properties of inputs, for example the range of resources in practices (e.g. physical premises and equipment) and the technical skills of health professionals (41,68). As an outcome of service delivery processes, comprehensiveness can be captured in relation to the actual provision of activities, including for example, the range of services employed for prevention and education in primary care.

Table 1.1 Examples of measures for the comprehensiveness of services delivery

Measure	Example indicator
Output of services and activities (e.g. rehabilitation; prevention; education; etc.)	Proportion of older people (65 years and over) who were offered rehabilitation services following discharge from acute or community hospital. Consolidated score for the provision of prevention and educational services provided by GPs based on selected services (scored as total on number of items)

Source: adapted from (69) and (68)

Coordination

The resultant of the selection, design, organization, management and improvement of services in a specific episode of care and in the provision of services at intervals overtime and across the life span to promote the best results.

Coordination describes the degree to which health services proactively tunes the organization of health providers and the management of services, to implement the design of care, according to the optimal sequence of interventions. Coordination of services delivery processes then measures the extent to which services and providers and, by extension, the related infrastructure, referral and information systems, for example, are well-organized both in a given episode of care and overtime according to an individual's needs (8).

Lack of coordination is widely considered to be one of the key causes for poor quality of care with fragmented care or care insufficiently coordinated found harmful to patients (70) and inefficient, for reasons including duplications in diagnostics tests, inappropriate treatment and at times, conflicting rather than complementary services (71). Several studies suggest positive associations between improvements in coordination with health status, levels of coverage and quality (72–76). Poor coordination has been attributed to unnecessary suffering for patients, avoidable readmissions to hospital, surplus emergency room visits, increased medical errors and higher health costs (77).

In the literature, coordination of services can frequently be found as an indicator for the extent to which the processes of services delivery are coordinated. This often means measuring the presence of multidisciplinary teams as a proxy for the extent to which a patient's care is delivered by clinicians and staff who regularly work together in an integrated way to serve patients and their families (69). Reasoning the coordination of services as a composite of the performance across all processes of services delivery, then coordination can be reported by measures such as avoidable readmission, described by the rate of readmission or fall prevention, as a comprehensive measure of coordination capturing elements such as the number of home safety evaluations conducted.

Table 1.2 Examples of measures for the coordination of services delivery

Measure	Example indicator
Avoidable in-patient care	Lower limb amputations in people with diabetes.
Fall prevention	Number of home safety evaluations conducted.
Avoidable readmission	Readmission rate likely to indicate a problem with prevention or community-based care.

Source: adapted from (69).

Person-centredness

The extent to which the delivery of services adopts a person-facing perspective, including selecting services according to an individual's needs and known risks, designing care to engage patient's in decision-making, organizing providers to realize their delivery, with management and improvement mechanisms in place towards optimal health outcomes.

Person-centredness puts focus on the individual: the patient. The measure is closely related to the concept of people-centred health systems; where people-centred health systems account for the crucial role of health system functions to ensure services are oriented towards an individual and population's needs (14) and person-centredness measures the extent to which the provision of services consciously adopts a person-facing perspective in practice. Person-centredness is an outcome across processes of services delivery, including for example, the selection of services according to an individual's needs and known risk factors or the design of care to engage patient's in decision-making.

Reporting person-centredness of services may include aspects of care continuity, described as the extent to which a series of discrete services or health care events are connected, coherent and consistent with a patient's health needs, personal circumstances

(78) and preferences (42). The degree of continuity is evaluated based on an individual's experience of services (40,78–81) with some frameworks for assessing continuity of care extended to include also the views of informal caregivers and family members (82).

The growing evidence base demonstrates adopting a person-centred perspective by way of developing enduring and meaningful relationships in health services delivery, is an important predictor for quality in chronic disease management, reproductive health or mental health (83). In primary care, promoting continuity and ongoing patient communication has proven a cost-effective intervention associated with a reduction in resource utilization (50,84). Contributions to improved outcomes have also been recorded with improved continuity of care contributing to lower all-cause mortality as well as reduced hospitalizations (85), fewer consultations with specialists, better detection of adverse effects of medical interventions and improved prevention services (7). Service outcome improvements may also include better access to appropriate levels of care, better quality of care (86,87) and, in general, more positive experiences with services received (86).

Relevant measures for reporting on patient-centredness are most likely to be collected in surveys of patient experiences. Work has been initiated to develop standard survey instruments however, they are often not routinely conducted and evidence to-date is not necessarily comparable across countries[2]. Patient-centredness can also be measured as the proportion of people who use services who say that those services have made them feel safe and secure or the proportion of patients with involuntary admission or involuntary treatment (69).

Table 1.3 Examples of measures for the person-centredness of services delivery

Measure	Example indicator
Patient satisfaction	Proportion of people who use (social) services and their carers who reported that they have had as much social contact as they would like.
Patient/family experience of service providers	Asking patients (and to a lesser extent families) about the extent to which care is person-centred.

Source: adapted from (69).

Effectiveness

The extent to which services are delivered, in line with the current evidence-base, for the optimal delivery of services for desired outcomes, adapted from (88).

Looking across outcomes of health services delivery, while care may be comprehensive, coordinated and person-centred, the optimal provision of services should also ensure interventions achieve the desired outcomes (89). Reported as the effectiveness of services, this measure signals the correct provision of evidence-based health care (16,89), promoting services that are consistent with current professional knowledge and best-available research.

Measuring the effectiveness of services delivery is often captured by the acceptability and appropriateness of services and also by its direct contribution to quality (89). Thought to in this way, effectiveness may be reported by hospital admission rates for ambulatory

2 Since the late 1990s, international efforts have been made to collect patient experience measures through surveys developed by the Picker Institute, and Consumer Assessment of Healthcare Providers and Systems surveys by the US Agency for Healthcare Research and Quality. WHO also collected different dimensions of patient experience in its 2000-01 World Health Survey, and the Commonwealth Fund's International Health Policy Survey has been collecting patient experience data every three years since 1998. Since 2006, the OECD has been involved in developing and validating a tool to measure patient experiences systematically. In order to measure general patient experiences in health care system, the OECD recommends monitoring patient experiences with any doctor rather than asking patients about their experiences with their regular doctor.

care sensitive conditions, such as asthma, or rates of anti-microbial resistance, caused in-large part by the inappropriate prescribing or use of antibiotics.

Reporting on the effectiveness of health services often takes a clinical focus, with patient records and administrative data the main source of information. Lack of standardized, electronic patient files, often limits the extent to which measuring effectiveness at the national level is possible.

Table 1.4 Examples of measures for the effectiveness of services delivery

Measure	Example indicator
Appropriateness of care	Proportion of deliveries by Caesarean section (88). Hospital admission rate for asthma (3).
Anti-microbial resistance	Proportion of aminopenicillins resistant *enterococcus faecalis* isolates.

Source: adapted from (69).

Health system outcomes

Other measures of performance contributing to health outcomes beyond health services, yet within the boundaries of the system's performance, can be attributed to intermediate performance measures or 'health system outcomes' (90). Varied terms and measures are used to describe these intermediary effects and their link to health. Some are widely discussed and heavily influenced by health service delivery outcomes. These can be captured as measures of quality, efficiency and access (3,47,48,90) (Figure 1.2). While the health system's performance on these measures is ultimately a composite of the contribution of each system function, in reviewing these outcomes, the specific link with the performance of health services delivery is described.

Figure 1.2 Health services delivery causal chain: health system outcomes

Impact	Health system outcomes	HSD outcomes	HSD Processes*	Inputs*
Health impact (level and distribution)	Quality Accessibility Efficiency	Comprehensiveness Coordination Effectiveness Person-centredness	Selecting services Designing care Organizing providers Managing services Improving performance	Governing Financing Resourcing

*HSD processes refer to those processes of health services delivery described in section two and inputs refer to those other health system functions described in section three.

Quality. The multidimensional nature of quality has presented a challenge to arrive, with clear consensus in the literature on how it can be measured. This is evidenced by the number of varied dimensions relied on in framing and reporting on quality as an outcome of the health system.

Indeed, quality is a composite of many factors such as the standard of medicines determined by the resourcing function, or quality assurance practices like accreditation reflecting on processes of governance. Nevertheless, a line can be drawn to extend from the processes of services delivery and its outcomes, denoting the contribution of services to overall quality. Thus, while the health system's performance on quality measures will not be predicted alone by services delivery, the contribution of its processes can in any case, be distilled.

Health services are often said to be of quality if measured as effective and centred on a patient's needs, as described, while also safe and delivered in a timely fashion (3). Safety for example, can be measured as the degree to which care processes avoid and prevent adverse outcomes or injuries that stem from the processes of care itself (89). Measuring the contribution of health services to quality can be reported in a variety of ways; comparing patient records or be measured indirectly by outcome data like rates of adverse events or unintended harm.

Table 1.5 Examples of measures for the quality of services delivery

Measure	Example indicator
Patient safety	Reduction in adverse events. Unintended harm from medications in people aged over 65 dispense with five or more long-term medications (83).
Amenable mortality	Number of avoidable deaths for treatable conditions, including infections, cancers, cardiovascular disease, diabetes, injuries, maternal and infant conditions (91).

Source: adapted from (69).

Efficiency. The system's efficiency describes the optimal utilization of available resources to yield maximum benefits or results (90). The contribution of services delivery to the efficiency of the health system reflects the extent to which services are selected, designed, organized, managed and improved for the delivery of those services to yield maximum outputs given available resources. Reporting the contribution of services delivery to the efficiency of the health system includes measures on the productivity and the optimal use of capacity in the provision of care.

Table 1.6 Examples of measures for the efficiency of services delivery

Measure	Example indicator
Productivity	Length of stay for selected tracers (88).
Use of capacity	Inventory in stock for pharmaceuticals. Occupancy rate.

Source: adapted from (69).

Access. Access describes the extent to which services are directly and permanently accessible, with no undue barriers of cost, language, culture or geography (3). The measure of access captures also the extent to which a person obtains needed care despite possible physical, financial, social-cultural and psychological barriers. Access is often measured as a proxy of physical availability of health services or health service providers, for example, distance travelled to health facilities, opening hours for consultations or waiting times for elective surgery. It can also be reported by the distribution of health workers, for example, as the ratio of nurses to physicians, the balance of generalist and specialist physicians, or the share of midwives versus gynaecologists.

Table 1.7 Examples of measures for the access of services delivery

Measure	Example indicator
Working hours	Extended hours are implemented to facilitate access to care.
Outreach services	Proportion of health facilities offering outreach services.
Provider workload	Number of patients per GP. Number of office consultations per day per GP; or home visits per week per GP; or working hours per week per GP.

Source: adapted from (69).

Section two

Health services delivery processes

Motivated to accelerate improvements in health outcomes, reformers have looked to identify the root causes of sub-optimal health services delivery performance. This has called attention to the composition of the health services delivery function in order to adjust bottlenecks that fall within the boundaries under the purview of the function itself. Following the functional approach to health systems (16,92), it is possible to identify subsidiary processes that pertain to health service delivery function. The ability to distinguish processes inherent to the health services delivery function from the other system functions, allows for those unique and single contributions to the health system to be accounted for and to recognize their interaction contributing to final outcomes.

Despite its multifaceted nature, it is possible to identify recurrent subsidiary processes of the health services delivery function. Synthesizing across the evidence reviewed, five key processes are signalled. The sequencing and specificities of each will inevitably vary by context.

Table 2.1 Overview of the health services delivery processes

Selecting services	Entitlements Population health needs assessment Types of services
Designing care	Standardization of practice Pathways Transitions
Organizing providers	Role and scope of practice Delivery settings Practice modalities
Managing services	Plans and budgets Resourcing Operations Measurement and problem-solving
Improving performance	Learning mechanisms Clinical governance

The subsidiary processes of the health services delivery function can be described as follows.

- Selecting services. The prioritization of health services for a clearly defined population in order to equitably promote, preserve and restore health throughout the life course, ensuring a broad continuum, from health protection, health promotion, disease prevention, diagnosis, management, treatment, long-term care, rehabilitation to palliative care can be provided according to an individual and the population's need.

- Designing care. The development of service paths that standardize a course for services according to best-available evidence, planning pathways for services delivery and mechanisms to manage transitions between types and levels of care, while also accounting for the personalization of services to match an individual's unique needs.

- **Organizing providers.** The alignment of the health workforce to match selected services and their design with the distribution of professional roles and scopes of practice and the arrangements in which the health workforce works according to settings of care and practice modalities for the provision of services.

- **Managing services.** The process of planning, budgeting, aligning resources, overseeing implementation and monitoring of results to maintain a degree of consistency and order in the delivery of services and act upon observed deviations from plans by problem-solving and troubleshooting as needed.

- **Improving performance.** The process of establishing feedback loops that enable a learning system for spontaneous testing and adoption of adjustments towards a high standard of performance, made possible through cycles of continuous learning and the regular review of clinical processes.

Table 2.2 Health services delivery: services, settings and providers

Types of care	Services	Settings	Facilities	Health workforce
Health protection	Addiction services	Ambulatory	Ambulance	Allied health professionals
Health promotion	Ambulatory	Community	Day-centres	Community health worker
Disease prevention	Catering & hygiene	Home	Fledsher assistance points	Executives
Diagnosis	Chiropractic care	In-patient	General hospital	Feldshers
Treatment	Diagnostic care	Residential	Health centre	Family assistants
Management	Emergency		Hospice	Family provider
Long-term care	Family planning		Home	General practitioner
Rehabilitation	Health promotion		Housing facilities	Home helper
Palliative care	Home care		Individual or group practice	Informal caregiver
	Minor surgeries		Laboratory & diagnostic centres	Lay health worker
	Orthopedic		Nursing home	Paramedic
	Pain management		Outpatient department	Pharmacist
	Pediatric care		Physiotherapy centre	Physician
	Physiotherapy		Polyclinic	Physiotherapists
	Psychotherapy		Primary care centre	Managers
	School health		Rehabilitation centre	Midwife
	Specialist care		Sanatoria	Narrow specialist
	Specific programs		Specialist hospital	Nurses
	Surgical procedures		Tertiary hospital	Specialists
	Telemedicine		Walk-in treatment centres	Social workers
				Therapists
				Nutritionist
				Volunteer

Notes: This summary has been developed following a review across country specific reports (n=30) of the Health Systems in Transition Series published between 2010 and 2015. Definitions of terms can be found in the Template for Authors and glossary of terms in each report.

Health services delivery described: Services, settings, providers, levels and actors

Services, settings and providers

Health services delivery it is often characterized as a composite of at least three key properties: services, settings and providers (table 2.2). *Services* denote the types of care delivered, typically clustered around services for health protection, health promotion,

disease prevention, diagnosis, treatment, management, long-term care, rehabilitation or palliative care, with the specific services provided characterized by the specific population interventions and individual services delivered, such as family planning, minor surgeries or pain management. *Settings* describe services delivery by the different types of facilities, institutions and organizations that provide services, where facilities include clinics, health centres, district hospitals, dispensaries or other entities such as mobile clinics, pharmacies and homes. Finally, the *health workforce* can be classified as private or public, for-profit or not-for-profit, formal or informal, professional or non-professional, and by the varied trainings and scopes of practice that distinguish the profiles of providers, from nurses, primary care physicians, and specialists, among others (21).

Levels and actors

The way health services delivery processes are carried out can be discerned by two key properties: the different actors of services delivery and the varied organizational levels where they have influence.

Actors for health services delivery are defined as those individuals, organizations, groups or coalitions with both an interest at stake and capacity to mobilize power over the function of services delivery[3]. In general, the profile of key actors and their contribution to the processes of services delivery can be organized by the macro, meso and micro level of services, described as follows, with common actors influencing each summarized in table 2.3.

- Macro: system-level. This overarching, all-encompassing level is often made synonymous with policy, as the context in which the direction and architecture of institutional arrangements is set (93). Actors at the macro-level include, for example, the ministry of health and other government units, state or republican centres, arm's length institutions, medical schools and large national research institutes.

- Meso: organizational-level. This level of services delivery describes where policy takes shape in practice, by interpreting and operationalizing aims and objectives for application according to the scope of a defined sub-set of the population (94). The spectrum of organizations at this level can vary widely by context, based on the institutional arrangements of regional and district authorities among other sub-national entities (94).

- Micro: clinical-level. The most operative level of services delivery, the micro level refers primarily to those processes for the provision of clinical and non-clinical services, typically engaging the health workforce, health managers, health administrators and clinical providers as well as patients, family members and other carers.

The intricacies between these levels and the varied number and profiles of actors that influence each is captured when crossed with the health services delivery processes of selecting services, designing care, organizing providers, managing services and improving performance. As table 2.2 indicates, the role and responsibility of each

3 This role is differentiated from stakeholders, to emphasize power relations, as stakeholders may be affected one way or another by the outcome of reforms, yet may have little capacity to affect how reforms are defined, decided upon and put in operation. In this way, actors are always stakeholders, but not all stakeholders are actors.

level for these processes varies, with the selection of services and design of care for example, leaning on macro, system-level actions as part of the overarching steering and standardization of services. Other processes, like managing services and improving performance, rely rather on the meso and micro level to carryout key actions closer to the actual provision of services.

Table 2.3 Examples of actors by levels of health services delivery

Macro: system-level	Meso: organizational-level	Micro: clinical-level
Ministry of health	Regional health authorities	Health professionals
Units within ministry of health	Local health authorities/trusts	Health managers
Prime minister's office	Health boards	Patients
Ministry of finance	Law enforcement agencies*	Family members & care givers
State or republican centres	Health related NGOs	Non-governmental health providers
Medical schools, training institutes and health policy schools	Business associations	Hospital boards
	Accreditation agencies*	Primary care centres/units
Bilateral agencies	Auditing agencies*	Clinical leaders
Think tanks	Unions of health workers*	Quality teams
Research universities	Associations of health professionals*	Community and social workers
Procurement agencies		
Health insurance funds		
Media and communication outlets		
Institutes of public health		
Statistic offices		

Note: alignment by levels has considered where the roles and responsibilities of actors are directed. Actors with (*), denotes those where this mandate differs from their status as national, regional or local bodies. For example, accreditation agencies, while often a national actor, carry out their mandate working sub-nationally.

Table 2.4 The role of the macro, meso and micro levels of services across HSD processes

HSD processes	Macro: systems-level	Meso: organizational-level	Micro: clinical-level
Selecting services	+ + +	+ +	+
Designing care	+ + +	+ +	++
Organizing providers	++	+ + +	+
Managing services	+	+ + +	+ +
Improving performance	++	+ +	+ + +

Note: (+) have been assigned along a gradient from (+ + +) denoting greatest to (+) least roles and responsibilities. The assigned influence is relative and based on general trends in the frame of how processes are described to follow.

Health services delivery processes

The description and specification of the five core processes for selecting, designing, organizing, managing and improving services delivery have been reasoned through a prioritization of those properties acted upon in countries or signalled in the literature. The systematization of factors describing each process is not exhaustive. Moreover, 'who' (which actors) and 'where' (what level) processes of services delivery are carried-out reflect general trends and ultimately require tailoring to a given context for accurate interpretation.

Selecting services

The prioritization of health services for a clearly defined population in order to equitably promote, preserve and restore health throughout the life course, ensuring a broad continuum, from health protection, health promotion, disease prevention, diagnosis, treatment, management, long-term care, rehabilitation to palliative care can be provided according to an individual and population's needs, adapted from (48,63).

The process of selecting services calls attention to the prioritization of what health services are to be provided to a target population in order to meet health needs and its determinants. The contents of care described as core population interventions and individual service can be characterized as those evidence-based, high impact, cost-effective, affordable, acceptable and feasible services critical to achieve expected health gains (95). For example, the detection and management of hypertension is a core service to improve cardiovascular health just as increased tax on tobacco is a core population intervention for smoking related cancers. In some instances, trade-offs need to be made in selecting core services, such as resource constraints that inevitably require setting priorities in determining which services to devote resources to (1).

Ideally, the selection of services draws from a well-founded understanding of the population and its health needs, while also promoting equity with consideration for risks and vulnerabilities for different segments of the population (7,63). Recognizing that multiple factors jointly determine health, the delivery of services is challenged to provide an array of interventions, at times simultaneously, responding to individual episodes of care and their effect cumulatively over the life course. This is in addition to the regular maintenance of health and well-being. Thought to in this way, the selection of services adopts a person-facing orientation to meet all health needs – in contrast to a disease-specific programme that concentrates on specific services within the scope of focus for that disease. Realizing this in practice relies on closely engaged patients, their families and caregivers in decision-making about their own health and considering available options based on their values and preferences (96).

In the WHO European Region, Member States have led a number of initiatives to strengthen the selection of services. For example, introducing palliative services for end-of-life care like in the case of Serbia and incorporating rehabilitation and occupational therapy services following improved treatment outcomes in Switzerland and the Netherlands. Across countries, in response to population health needs, particular emphasis on expanding the delivery of health promotion and disease prevention services have been recorded in order to ensure a range of services in the community support behaviour change and broader lifestyle adaptations (97).

Shifting perspective to view population needs has proven greater potential to synergize with services beyond the health domain, like the social and education sector (59). Cross-sector approaches have been activated in a number of countries, linking, for example, parental education and day care services for healthy child development like in the case of Bosnia and Herzegovina's for integrated childhood development centres (98). Similarly, strengthening mental health services has been shown to extend types of services to align with social service interventions for both acute and continuous needs and expanded community supports (e.g. finding employment opportunities) like in the case of Belgium and Cyprus.

From these efforts and based on the literature, the selection of services can then be described by a defined package of entitlements, a demand-driven, equity-enhancing orientation for the selection of services based on needs for a given population, and the specification of health services across a broad continuum, from health protection, health promotion, disease prevention, diagnosis, treatment, management, long-term care, rehabilitation and palliative care as the services to be provided according to an individual's needs.

While the roles and responsibilities of actors typically engaged in the process of selecting services span across levels of health services delivery, the selection of services is arguably skewed towards the macro level. These decisions trickle down throughout the

system, determining at the micro, clinical-level, what services are available to go about the selection process with patients in defining a tailored package of services. Nevertheless, the initial decisions taken by national actors like the ministry of health in its stewardship role and other national agencies, are relied on to determine a core package of services. The process of doing so should reflect overarching priorities and population needs, involving negotiations to include the considerations of health insurers, financers, and other sectors.

Table 2.5 Examples of measures for selecting services

Measure	Example indicator
Population risk and needs stratification	Use of health information, administrative and population data in annual review and planning processes, advocating for equity and increased resources to disadvantaged groups and communities (48). Use of scenario planning in the selection of services (48).
Individual risk and needs	Are clinical patient records from GPs used in identifying health needs and priorities? (68).

Entitlements

Which population interventions and individual health services are provided as part of the benefits package?

Formulating a service package and defining entitlements describes the process of determining a core set of interventions to be provided to all people based on needs. A minimum set of core population interventions and individual health services have been proposed in areas such as NCDs (17), TB (99), HIV/AIDS (19), and maternal and child health (20), based on evidence for their effectiveness and feasibility for implementation (100). Nonetheless, the exercise of specifying a core package of entitlements is a value-laden process, looking to decision-makers and system stewards to establish a strategic policy position and equitable framework for protected access to health services when faced with competing priorities.

How entitlements are defined has been aided by tools such as the WHO's Package of Essential Noncommunicable Disease Interventions for Primary Care (100) or disease specific strategies, recommending a set of core services. Using current population data, as well as data projections regarding population demographics and the burden of disease, along with data collected through patient and community engagement processes, a tailored service packages can be identified.

Box 2.1 Population stratification to tackle chronicity in the Basque Country

The Basque Country is one of seventeen autonomous communities in Spain. In 2009, the Basque Government launched a system-wide strategy to tackle the challenge of chronicity in the context of an ageing population and increasing burden of chronic illness. The strategy leans on the implementation of fourteen top-down and bottom-up mid-term projects, which drive initiatives to improve upon prevention and promotion services, patient autonomy, continuity of care and adapted interventions. These efforts first and foremost adopt a population focus through the stratification and targeting of the population (106). In 2010, as part of the implementation for the first priority area, a statistical tool was developed based on data of drug consumption, hospitalization, medical diagnoses of primary and specialized care, and socio-demographic data for each patient, producing a predictive index locating the individual on a scale of risk for needed assistance (110). By anticipating needs, this effort has aimed to maximize resources and prevent health complications, and to reorient the mentality from a 'patient' focus to that of a 'population'. By 2013, of the more than 860,000 chronic patients in the Basque Country, 50,000 had been stratified, selected and classified as intervention groups at core risk levels for the selection of interventions in adapted population plans designed by local 'microsystems' in place. (111).

Population health needs assessment

What are the needs, risk factors and known vulnerabilities for the defined population that the delivery of health services aims to serve?

The assessment of health needs for a given population, stratifying for epidemiological, demographic or geographic variables, is acknowledged as a precursor for the planning and targeting of services to manage needs and to proactively address known risk factors (59,61,101–103). This focus on population health ensures, among other planning considerations, such as financial resources, staff, medicines and supplies (see management of services delivery), that the package of services is tailored to a defined population (1).

Population stratification and predictive risk models related to the usage of health services offer vital information for the prioritization of interventions that proactively target different strata of the population based on their health status and known risks (104,105). These approaches shift the perspective of selecting services from a 'patient' focus to a 'population' focus, considering an individual's needs holistically and longitudinally, rather than solely in response to acute, episodic needs (106). The proactive selection of services in this way has been widely acknowledged as a means to reduce disparities and contribute to better health outcomes (50,61,103,105,107).

Assessments stratifying for needs and risks of a defined population has proven successful internationally, for example, by the widely recognized managed care organization *Kaiser Permanente* in the United States (108) adopting a 'pyramid of care' to target proactive, community-based interventions according to three levels of complexity (109). Similarly, in the WHO European Region the PRISM-predictive risk stratification model applied in Wales (107), Adjusted Clinical Groups in the Veneto Region of Italy and the population pyramid underpinning the Basque Country's strategy to tackle chronicity (106) (Box 2.1), are examples of health needs assessments which share an aim to segment the population through demographic data and health records by their common needs for targeted services and heightened prevention.

Importantly, these and similar techniques have a high dependency on the health system to establish the infrastructure for needed data (e.g. demographic and census data providing information regarding population density, age ranges, income marital state; Electronic Medical Record data or provider billing data regarding service utilization; patient surveys; rates of chronic conditions; availability of health resources) (see section three on information systems).

Types of services

What health interventions are provided, including services for health protection, health promotion, disease prevention, diagnosis, treatment, management, long-term care, rehabilitation and palliative care according to population and individual needs?

The types of interventions available have historically been largely dictated by individual, acute, curative episodes (50). This reactive approach is increasingly incongruent with morbidity trends, including the growing burden of chronic conditions, NCDs and multi-morbidities, underscoring the diversity of health needs and the necessity to mobilize a range of comprehensive services across stages of the lifespan (7,63).

Selecting which types of services to provide in order to respond to the bulk of population and individual's health needs should be thought to across levels of care as the various stages of disease progress call on varied types of services and providers competencies (95). Screening tools and individual clinical risk assessment are examples of those resources to aid in the process of identifying clinical risks and selecting individual services. In countries such as Norway (Box 2.2), Lithuania and Malta, services delivery transformations have worked to ensure mechanisms for selecting a comprehensive package of services according to an individual's needs are activated.

Box 2.2 Norway's comprehensive health promotion and chronic disease prevention centres

Healthy Life Centres have been supported by the Directorate of Health since 2004 as municipally planned, designed and implemented sites for preventive primary health services (112). Healthy Life Centres now cover over 200 municipalities across the country, aiming to support behaviour changes through expanded and intensified prevention and treatment services (113). Interventions provided at the Centres are tailored to the specific needs of the municipality's population. In general, these sites have expanded the care continuum to include interventions such as alcohol and drug counselling, smoking cessation, nutritional counselling, weight management, diabetes management, supports for coping with depression and services to increase physical activity and fitness (114). A comprehensive package of services is defined according to an individual's needs and provided through individual counselling, supervised group exercise, or referral to local resources such as leisure centres or sports organizations. Evaluations to-date have shown favourable results for self-perceived health and improved management of obesity-related cardiovascular risk factors following physical fitness services for adults and the elderly (115).

Designing care

The development of service paths that standardize a course for services according to best-available evidence, mapping transitions between types and levels of care, while also accounting for the personalization of pathways to match an individual's unique needs, adapted from (41).

Designing care describes the process of developing standard service paths that systematize a course for selected services delivery according to best-available evidence. The range of clinical and non-clinical services activated in responding to an individual's health needs is often highly diverse, with the real potential for patients to become lost as they navigate the system. The process of designing care should also account for this, personalizing the route and sequencing of care to optimally match an individual's needs.

Evidence-based guidelines and protocols have come to play an important role in the process of design care, by supporting the conscientious and explicit use of best available evidence in decision-making for service provision (111). Clearly designed care, has also been found to contribute to improvements in service provision including minimizing discrepancies in core services in terms of both what is provided and how care is delivered; improving adherence or adoption to service guidelines and protocols and extending use of services across the continuum of care, particularly public health and social services or palliative care.

Table 2.6 Examples of measures for designing care

Measure	Example indicator
Presence of care plan	Stroke patient discharge from hospital with a joint health and social care plan.
Existence of gatekeeping function	The frequency of direct patient visits to specialists, bypassing GPs.
Existence of care coordinator	Number of personnel and clinicians whose jobs are primarily to coordinate services from different providers for patients.
Follow up after discharge	Stroke patients who receive a follow-up assessment 4-8 months after initial admission.
Transition to rehabilitation	Proportion of older people (65 years of age and over) who were offered rehabilitation following discharge from acute or community hospital.
Discharge management	Stroke patients discharged from hospital with a joint health and social care plan.
Existence of a joint care plan	Offering or coordinating a determined proportion of recommended preventive services.
Assignment of a named person of contact	Stroke patients discharged or carers given a named person to contact after discharge.

Source: adapted from (69).

In designing services, national actors again play a key role to adopt, adapt and set national standards, as the guidelines and protocols that facilitate the uniform delivery of services according to best available evidence. Key to realizing the design of services in clinical practice is the role of meso level actors, with the oversight for programmatic and organizational arrangements including establishing the supporting conditions for managing care transitions. At the micro level, designing care relies on the tailoring of service standards in the process of strategizing personalized care plans and anticipating transitions. This process in practice should aim to support the skills and confidence for individuals to take an active role in managing their own health (96).

Standardization of practice

Are services standardized according to best available evidence with their specifications for the optimal management of health needs?

The standardization of practice relies on instruments such as clinical guidelines and protocols that inform decision-making towards the optimal provision of services. Through the standardization of practice, clinical decisions can be streamlined in order to promote interventions of proven benefit and to discourage others, while also making clear their appropriate use in a given context (63,116,117).

The insufficient or inappropriate use of evidence-based clinical guidelines has been attributed to systemic unwarranted variations in medical practice; underscoring the importance of practical, up-to-date resources to aid in responding to an individual's needs (118,119). The standardization of clinical practice has also proven vital for clarifying roles and specific responsibilities of health professionals (53,103); of particular importance for shared decision-making and for supporting interdisciplinary action and managing multi-morbidities demanding tailored and simultaneous care. In a similar way, treatment guidelines and protocols have been found an important resource for overcoming clinical inertia by way of making clear when to initiate or intensify services and avoid errors.

Box 2.3 Integrated childhood management: streamlining guidelines in the Republic of Moldova

In the early 2000s, high infant mortality rates for largely preventable causes, coupled with the momentum of the Millennium Development Goals, raised the integrated management of childhood illnesses as a national priority in the Republic of Moldova (122). Integral to the national strategy launched was the adaptation of screening protocols and guidelines in an effort to improve the usability of these resources. The importance weighted to this followed exploratory efforts observing a lack of timely and accurate screening and prevention measures, contributing to the treatment of illness at late-stages. Further inquiry brought to light the perception of the health workforce that guidelines were largely 'overcomplicated' and a challenge to apply. Measures taken to simplify guidelines aimed to lessen the range of symptoms to an absolute minimum of the most important factors in assessing a patient's condition for regular monitoring in the community. Revisions additionally sought to limit the need for laboratories and other additional equipment. In simplifying, interventions were categorized according to three clusters dependent upon the child's severity of needs: requiring immediate hospitalization, treatment as an out-patient or in need of specialized care at home. This approach improved both adherence by providers and observed gains in outcomes as symptoms of children were responded to within a more appropriate time frame, decreasing the risk of hospitalization and the number of children hospitalized at an advanced stage of illness (123).

Advancements in biomedical research and information technologies have greatly increased the potential to define effective clinical practice. Standardized methodologies, such as the Appraisal of Guidelines for Research and Evaluation (AGREE) Instrument,

have supported the standardization of processes in developing clinical practice guidelines (120). However, as the pace of new knowledge accelerates with modern research methods, there is an increasing challenge for providers to interpret and assimilate best available evidence into their practice. Responding to this challenge importantly signals the role of services delivery to follow how evidence evolves and to translate these findings into the context of existing standards (117). Increasingly, these resources are computerized, as electronic algorithms, reminders or other aids to clinical decision-making, which is thought to further accelerate their optimal use in clinical practice (121)but are rarely sufficient by themselves to ensure actual clinical use of the technology. The process from innovation to routine clinical use is complex. Numerous computerised decision support systems. The surveillance of standards and roll-out of technologies at-scale relies in large part on inputs of the health system (see section three: resourcing; information systems).

Renewing and further operationalizing clinical guidelines, protocols and other instruments for the standardization of services is a demonstrated priority across Member States. For example, in the Republic of Moldova, a lack of timely and accurate screening and prevention measures in primary care for childhood illness was found a key contributing factor to infant mortality rates for largely treatable and preventable causes (122) (Box 2.3). A core component of the multi-pronged strategy launched was the redesign of services to streamline interventions, translated into simplified provider clinical guidelines for the then newly-trained primary care workforce. This proved effective to promote the timely and appropriate use of interventions with known benefit.

Pathways

Defining the sequencing and timing of health interventions, pathways for services delivery serve to minimize delays and maximize resource utilization and quality (124). They do so by articulating a route for services, visualizing how individuals are expected to progress through the delivery system, making this common and known. Designing pathways can therefore, aid in accounting for the dynamics of services, for example, how they combine and influence one another and their advantages and disadvantages in a given sequence.

Are service pathways in place, designing the route for service and the settings, facilities and providers engaged for a specific episode of care and their sequence overtime?

In the context of the growing burden of multi-morbidities and chronicity, increasingly demanding multi-drug regimens and simultaneous treatment and rehabilitation schemes, the ability to adapt the route of services to best respond to an individual with multiple health conditions is a key challenge put to health services delivery. This means applying standardized service protocols yet providing individualized care by incorporating an individual's circumstances and preferences into the design of a personalized care plan (53,103,116).

Transitions

Transitions between types and settings of care describe the explicit criteria directing a change or the simultaneous delivery of services across types and settings of care for the smooth, continuous provision of services needed in order to respond to an individual's health status. Transitions are often thought to as a linear process in which a patient transits from one provider to another. In practice, these transitions typically include a series of referrals or counter-referrals with the parallel use of services in varied settings, necessitating the sophistication of measures to allow for the simultaneous provision of services and smooth transition between providers.

How are services linked between health providers and across settings of care for a single episode of need and overtime?

Strategies to tighten transitions between services for the seamless delivery of services may look to the optimization of referral and counter-referral systems, ensuring

feedback between the different settings and facilities involved in the provision of services to support appropriate follow-up (125)the health care system and health care costs. There is considerable evidence that the referral processes can be improved. The design of these systems for referral and counter-referral aim ultimately to improve quality and efficiency in services delivery by ensuring that people receive appropriate and well-coordinated care. Referral systems also contribute to efficiency by minimizing inappropriate care and duplication.

Access to services dependent on referral is one strategy to manage transitions applied widely across the Region, especially between transitions from primary to secondary care. In some instances, primary care assumes a gatekeeping function, controlling access to other services in an effort to prevent unnecessary use of more specialized care. In doing so, primary care assumes the responsibility not only for providing care but also for granting access to use more specialised services through targeted referrals (80) and directing patients to the most appropriate provider (116). The transitions relies on clearly defined roles and scopes of practice of different providers for the prevention, promotion, diagnosis, treatment and management of care, for example, within and between levels of care.

Uncoordinated transitions are widely considered to be one of the key causes for poor quality services (71,86) with fragmented care or care insufficiently coordinated found harmful to patients (70) and inefficient, due to duplication of diagnostics tests, inappropriate treatment and at times, conflicting rather than complementary services (71). Furthermore, several studies suggest positive associations between improvements in coordination with health status, levels of coverage and quality (72–76). Optimizing the fluidity of care overtime has also been recorded to improve continuity of care, reduce hospitalizations (85), improve the detection of adverse effects for medical interventions and the utilization of prevention services (7).

Box 2.4 Acute care community nursing for early hospital discharge in Ireland

Caredoc – a regional initiative to improve community interventions and reduce unnecessary hospital admissions – has incorporated Community Intervention Teams to support early discharge of patients for care to be provided at home by re-profiled community nurses. With both public health services and acute care training, community intervention teams manage a registry of patients following referral from hospitals for those meeting standardized early-discharge criteria. Prior to discharge, a tailored plan of care is established between the individual patient, their in-hospital providers and the assigned community nurse to provide services beyond institutionalized care. Any information related to treatment needs that is not in the patient's file is discussed at this appointment, ensuring the individual's goals, unique needs and their carer's information are well understood and documented.

A multi-disciplinary approach to designing service transitions for an episode of care has been shown an effective means for improving partnerships for service provision (126,127,127). For example, in Ireland, an initiative to reduce unnecessary hospital admissions introduced new clinical algorithms to be applied for patients admitted into hospital in order to assess the potential for early, acute discharge for care then coordinated by acute community nurses in their home (Box 2.4). Standard discharge procedures have been structured to ensure an in-person appointment between hospital staff, the assigned community nurse and the patient with their primary caregiver to discuss treatment needs and design a tailored plan of care for the patient once they have returned home.

Experiences from Member States also highlight the role of care coordinators to 'bridge gaps' and provide the necessary information about the experiences, skills and preferences

of the individual to personalize care plans. The care coordinators often serve as the focal agent for overseeing an individual's care supporting transitions, ensuring appropriate management of and compliance with treatments, providing health education.

Organizing providers

The alignment of the health workforce to match selected services and their design with the distribution of professional roles and scopes of practice and the arrangements in which the health workforce works according to settings of care and practice modalities for the provision of services as envisaged, adapted from (47,49,63).

The organization of providers refers to the structure and arrangement of the 'hardware' of the system – the *who* and the *where* in the production of services – matching selected services and the design of care with the organization of the health workforce and arrangements in which they work for the provision of services as envisaged. The organization of providers is, thus, a key determining factor for ensuring the design of care is actualized (22).

With a focus on the importance of life course events and providing services across a broad continuum of care, an equally broad range of providers, care settings, organizations, institutions and so forth, have important contributions to make for the performance of services delivery (2,21,103). To treat an individual's health needs, numerous providers may be called upon in different settings and in different capacities (such as consultations for diagnosis, development of treatment plans, counselling, rehabilitation, etc.) (2).

Eliminating professional silos and fostering meaningful collaborations are important properties in organizing providers that requires viewing a broad continuum of health professionals and services, including also informal or voluntary care providers and social care groups (65,128,129) rather than looking to the level of care (e.g. primary care; secondary care).

While strengthening the organization of providers calls for actions across the macro, meso and micro levels of services delivery, given the appropriate regulatory framework, sub-national actors have a particularly important role in order to establish the conditions in a given region or for a sub-set of the population for the provision of services.

Table 2.7 Examples of measures for organizing providers

Measure	Example indicator
Multidisciplinary teams	Extent to which patient care is delivered by clinicians and staff who regularly work together in an integrated way to serve patients (130–132).
Coordination between health and social services	Number and value of formal community partnerships/collaborations (133,134).
Communication between in and outpatient settings/professionals	Frequency of in-patient physicians consulting out-patient physicians on managing cases after a hospital discharge.
Organization of GPs	Number of GPs per registered and weighted practice population.
Community-based services	Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into rehabilitation services.

Source: adapted from (69).

Role and scope of practice

What are the roles and scope of practice assigned to providers for the provision of services?

National laws and regulations define the minimum standards for the procedures, actions and interventions that the health workforce is expected to undertake (6), i.e. its role and scope of practice. Recognizing the health workforce as integral in all health actions, strategizing the role and scope of practice is key to respond to a number of performance challenges. For example, distributional imbalances in providers for

geographic, occupational or institutional factors weigh on skill-mix, which can negatively affect different properties of access (135). Stewards have the assignment to adapt and evolve the regulatory framework to ensure that the roles and scope of practice of the health workforce are optimally defined to respond to health needs.

Changes to professional roles may work through a number of approaches, including the extension of roles or skills for new or enhanced professional roles; substitution of practice, expanding the breadth of a job by working across professional divides; or by exchanging one type of worker for another; or the introduction of a new type of worker (135). This changes have been studied to varying degrees in the literature with known benefit to improving care processes (136).

Delivery settings

In which facilities, units, institutions, organizations or other places are health services provided?

Delivery settings describe the arrangement of providers in the various facilities, units or organizations where health services are delivered for a defined population. The way in which delivery settings are organized has been attributed to measures of performance including the accessibility of services, whereby shortfalls in relation to the distribution of human resources by settings of care pose barriers to adequately responding to local needs (11).

In the context of trends including demographic changes, hospital downsizing and shorter lengths of stay, across the Region a number of strategies to reorganize delivery settings have looked to introduce new sites for delivering care, including homes, community centres and small hospitals, acute care centres and pharmacies. Changes in settings of care have also been accelerated by advancements in technologies allowing previously more invasive procedures to be delivered in non-specialized facilities and with greater engagement of patients and their caregivers.

New medicines have also allowed more care to be provided in the home, introducing earlier or acute discharges from hospital. In Bulgaria, for instance, the introduction of home care centres has sought to improve the organization of interventions to ensure the elderly and co-morbid populations have optimal access to health and social services in the community (Box 2.5). Linking to the traditional role of 'home helpers', home care centres have proven an effective mechanism for delivering social care and disease management services.

Box 2.5 Developing Home Health Care Centres in Bulgaria for improved access to community-based care

Over the course of nine years, the Bulgarian Red Cross has set up 12 Home Health Care Centres to improve the provision of services for older adults and co-morbid patients with care closer to home. Employing nurses and home-helpers to support the delivery of primary care and social care services, Home Health Care Centres have organized providers to best support patients in managing their needs, found to increase a patient's potential for self-help and to motivate them to invest in efforts to achieve greater independence.

Other strategies applied in the Region to improve the organization of delivery settings have looked to co-locating services; shifting the site of services delivery to introduce a common setting of care (e.g. running a hospital clinic in a primary care facility). In Odessa, Ukraine, for example, triple pathology suites were introduced to bring HIV services, TB services and supports for injection drug users 'under one roof'. This organization of service has been

established at the regional oblast TB dispensary as three consecutive rooms, providing a range of services previously offered at separate facilities now on an outpatient basis.

Practice modalities

What is the structure of practices within which the health workforce is organized?

Practice modalities or the arrangements of practices refer to the environment within which the health workforce operates. This can be structured in a number of ways, from single-handed practices to those with few or many providers working together. Each arrangement differs by the extent to which providers are intertwined to share clinical goals, care planning, the delivery of care or performance assessments, for example.

Reconfiguring practice modalities to strengthen the relationship between health professionals has been attributed to improvements in the exchange of clinical information (62), with recorded gains in the coordination of services (137,138), patient satisfaction (139) and health outcomes (139). Practice modalities that facilitate regular cross-specialty exchanges have also been found to contribute to the consolidation of clinical competencies, while also developing more personal relationships and mutual respect for other professionals (140).

Moreover, improvements from multidisciplinary teams within and between levels of care is also well documented in a growing number of intervention studies (141). With lack of physician time a major contributor to shortfalls in the delivery of a broad range of services, the organization of primary care teams to include members such as physician assistants, nurse practitioners, dietitians, health educators and lay coaches have been proven an important means for addressing unmet needs (75,142). Multi-professional working arrangements have also been found particularly important to encourage a culture of teamwork, in contrast to more traditionally hierarchical professional structures and siloes in services delivery (103),(143).

Box 2.6 Mixing disciplines in the development of mental health services in Cyprus

In an effort to improve the provision of services and better coordinate psychiatric care within the broader health system, Cyprus has undergone a long-term reform to reorganize psychiatric services from largely institutionalized, highly specialized hospital settings, to primary care with improved linkages to general hospitals. Out-patient clinics are located in both urban and rural health clinics and linkages to newly established Community Centres and rehabilitation units have been defined across the country. Following reforms, providers are now distributed between institutional mental health care and community services, with the introduction of 'community mental health nursing' as a profession. Community Centres are staffed by a multidisciplinary team of providers, including: psychiatrists, occupational therapists, psychologists and community mental health nurses. Within these teams, 'liaison officers' are in place (typically the role of community mental nurses) who are responsible for facilitating the exchange of information across providers. Meetings convening the team of providers take place in hospitals or Community Centres, serving as a means to exchange information, communicate patient needs and promote interdisciplinary learning.

In countries across the Region, reorganizing practice structures has been widely implemented, including the use of multi-professional teams of health professionals such as family physicians, nurses, dietitians, social workers, pharmacists, physiotherapists and social care agencies among others (68). Multi-professional teams for rehabilitation services, for example, have been applied in Austria for geriatric patients and in the Netherlands for oncology patients, to expand the scope of services provided and as an effective strategy to reduce hospital re-admission rates. In Cyprus, in a similar effort

to extend the scope of services and support community-based care for mental health services, multidisciplinary teams of providers, including psychiatrists, occupational therapists, psychologists and community mental health nurses have been designed (Box 2.6). Decreasing hospitalizations for psychiatric patients overtime has supported further investment in community-based care and out-patient clinics.

Managing services

The process of planning and budgeting, aligning resources, overseeing implementation and monitoring of results to maintain a degree of consistency and order in the delivery of services and act upon observed deviations from plans, by problem-solving and troubleshooting as needed.

Managing services refers to the oversight of operations, to bring about order and consistency in their day-to-day delivery (144); the ability to do so being vital to cope with complexity and guide operations in the production process to secure optimal outcomes (145). These tasks include ensuring services are running smoothly, that the right people are in the right jobs, that people know what is expected of them, that resources are used efficiently and that all partners in the production of services are working together to achieve a common goal (2,48,63).

More specifically, core managerial tasks include planning and budgeting in order to ensure targets or goals are set and steps to achieving goals are defined, aligning resources needed to accomplish those plans, establishing institutional relationships that cross the boundaries of sectors, delegating responsibilities and establishing meaningful working relations for implementation, and controlling and problem-solving by adopting a results-oriented approach to observe deviations from plans, troubleshooting in response to findings.

The strength of this process weighs in part on the level of autonomy held by managers, dictating their decision-making authority related to planning and budgeting, resourcing, overseeing operations, problem-solving; a key predictor of the degree to which services and their arrangements are tailored to the community's needs.

The process of manager services, therefore, puts a strong focus on the roles and responsibilities of actors at the meso and micro level of services delivery. Experiences from countries demonstrate the challenge of executing managerial processes, related in particular to reasons of insufficient authority, unclear organizational structures and lacking resources including time, money and skills.

Table 2.8 Examples of measures for managing services

Measure	Example indicator
Planning services	Existence of annual review and planning process at facility, district and/or provincial levels (48).
Implementation of performance evaluation tool	Tracking and reporting a standard measure of in-person access to care.
Supervision	Health professionals at all levels use health information for management and periodic evaluation (48).

Source: adapted from (69).

Plans and budgets

How are services planned and budgeted for a defined patient population sub-nationally?

Planning and budgeting services describes the task of ensuring goals and targets are set, that steps to achieving those goals are defined and that resources to accomplish those plans are activated and aligned (144). Adopting the vision and strategic direction of those governing the system, managing services looks to translate those overarching goals and directions into clear, operational plans establishing detailed processes and operative instruments and guidelines, to ensure that changes to achieve the vision defined are met.

From country experiences, the clear mandate and authority to plan and budget care for a defined population has been shown a key predictor for the degree to which national plans are tailored to apply to a specific context. Managing planning processes sub-nationally has supported the strength of local partnerships, bringing unique and meaningful links across sectors for service provision. Despite the widespread recognition for its importance, managerial capacity for planning and budgeting services sub-nationally is found, in general, to be sub-optimal across countries.

Resourcing

Appropriate resource management aims to ensure that all resources – including the built infrastructure, non-clinical equipment, technologies and human resources – are allocated for the delivery of services (1). Worldwide, several important shifts in the resourcing of systems have had marked implications on the way in which services are delivered. This includes in particular, advancements in pharmaceuticals introducing new drug treatments, therapies and innovative technologies that have enabled new forms of information exchange, introduction of new points to access services and involvement of patients in the delivery of care.

How are resources, as the built infrastructure, non-clinical equipment and technologies and human resources needed for the delivery of services managed, including their initial investment, distribution and maintenance or upkeep?

The process of managing services in the context of health services delivery puts focus specifically to overseeing the introduction and use of resources in practice while the introduction of new resources are described further in section three with regards to the resourcing function of health systems.

Across the Region, the strategic use of technologies in services delivery, particularly in primary care, have shown to contribute to the provision of health promotion and prevention services (146),(147). Strengthening the use of technologies has been linked to improvements in planning and care coordination; linkages across health and social services are recorded in addition to improvements in planning and monitoring and the ability to identify high-risk patients for more targeted care (53,103,148).

Box 2.7 Aligning resources across the Eastern Lithuanian Region for improved cardiology services

In the early 2000s, unfavourable mortality rates in the eastern region of Lithuania, largely determined by a high percentage of deaths from cardiovascular diseases, sparked a regional initiative out of Vilnius University Hospital Santarisku Klinkikos to remodel cardiology services (149). Working across primary care, regional hospitals and the tertiary University Hospital in the capital of Vilnius, a core area of activity included an investment in resources including clinical tools, information technologies and training services for providers – improving the uniformity of services provided and enabling opportunities for more coordinated care. Supported by the Ministry of Health and European Union structural funds, a standard package of clinical equipment for diagnostics and treatment was defined by the initiative's management team according to clinical guidelines and allocated to all participating facilities, including modern cardiac ultrasounds, bicycles for stress testing and Holter's monitoring with event records. At the tertiary centre in Vilnius, novel technology was introduced for highly specialized cardiac testing and treatment. Approximately 5% of the initiative's budget was directed towards the computerization of working stations to connect across sites for the transfer of patient records, consultations with tertiary specialists through real-time diagnostics, and electronic appointment bookings through an online portal available to patients from home. Programme monitoring would ultimately report over time an increase by over 20% in cardiology services provided at the secondary level, paralleled by a 6% decrease in highly specialized in-patient services; a finding attributed in part to the heighted capacity of district and regional hospitals to respond to cardiac health needs (150).

Operations

Is the implementation of plans overseen in order to ensure health services delivery is carried accordingly?

Managing implementation puts focus to overseeing the roll-out of plans in practice. This includes executing necessary trainings or in-service workshops for staff, supervisory visits to facilities, and other mechanism to ensure requirements are carried out effectively. These processes share in their aim to facilitate productive interactions across all stakeholders, taking on the challenge to bridge diverse cultures, distribute responsibilities, delegate authority, facilitate open dialogue and reveal and challenge assumptions that limit implementation.

From country experiences, managing cross-sector interactions in the actual provision of services has made great progress in addressing the wider determinants of health and development (151)describing coverage and equity of primary health care as well as non-health sector actions. These 30 countries have scaled up selective primary health care (eg, immunisation, family planning. Across the Region there are a number of successful examples of initiatives to institutionalize services delivery across sectors, in countries including Finland (152), the UK, Switzerland, Israel, Italy and Austria (153) as well as across member countries of the South-Eastern European Health Network (154). The careful management of day-to-day operations has proven its importance for ensuring a tailored approach to addressing health needs is indeed, put into practice.

Measurement and problem-solving

Is the performance of health services delivery measured in accordance to previously set targets; are future actions to respond accordingly taken?

A results-orientation ensures the management of services purposefully promotes a high standard of care through the critical review of clinical and managerial processes. This task leans on accountability arrangements, ensuring public managers, as the 'translators' of policies into practice have the mandate, information and resources, both financial and non-financial, to hold actors accountable for their performance (155). From survey data and experiences of Member States, few health managers are found in practice to have the tools and authority (e.g. budget control or hiring-and-firing ability) to effectively take on the task of monitoring performance and problem-solving accordingly (156).

Box 2.8 Multi-health professional practices – shared group performance targets and goals in France

National reforms in France have favoured the regionalization of services, increasing regional and local agency in the planning and organization of services. At the practice level, shifting away from the traditional structure of doctors and nurses in individual practices, reforms have supported the reorganization of providers into group practices of multi-health professionals (in French, *maison de santé pluri-professional* [MSP]); bringing together primary and first contact providers to deliver coordinated services for shared patient registries. In 2014, approximately 300 practices have been established across the country, composed of 5 to 20 health care professionals, often including a mix of physicians, nurses, midwives, psychologists, dentists, physiotherapists and, in some instances, certain secondary specialists (157).

In 2010, co-financing of group practices was introduced, aimed to motivate improvements in the organization of services and further development of inter-professional cooperation (157). Contracts with group practices stipulate fixed-rate funding for expected quality improvements and efficiency of care, without obligations in the way allocated resources are distributed, encouraging self-managed efficiency in group practice structures and appropriate investment in technologies and medical supplies, necessary infrastructure, and personnel according to combined patient registries. Each site is responsible for choosing a minimum set of performance indicators from a national list, assessed as a composite 'quality of practice' measure for practice reporting.

In order to closely monitor results versus established plans and ensure that critical variables remain consistently within a tolerable range requires the availability of appropriate control mechanisms for taking action when deviations are detected (63). Facilitating open dialogue through discussion platforms and consensus building conferences as well as opportunities for experimentation including designing pilot projects and demonstration cases, are some of the ways countries have been effective in trouble-shooting where improvements in performance are called for.

Improving performance

The process of establishing feedback loops that enable a learning system for spontaneous testing and adopting adjustments towards a high standard of performance, made possible through cycles of continuous learning and the regular review of clinical processes, adapted from (48,49,63).

Processes for continuously improving performance refer to those systematic and recurrent efforts that aim to safeguard the performance of services delivery, creating a learning system by monitoring clinical processes, systematizing feedback loops and allowing opportunities to continuously improve upon services (117,158). Through this process, a spotlight is put to those institutional conditions that systematically undermine the potential for services delivery to uphold set standards. Continuous and iterative reflection processes are therefore in contrast to approaches that direct blame for medical errors and compromised patient safety onto individual providers and their performance (6,41,117).

Establishing continuous performance improvement in services delivery calls into focus in particular two broad categories of activities: establishing a learning system with a focus on continuing educational activities and self-learning and an assessment model with emphasis on improving clinical processes (159).

Creating a system of learning includes also promoting a culture of life-long learning and career development, ensuring that basic standards of care are maintained and that opportunities are available to complement previous learning with a practical focus (160–164). Effectively implementing continuous professional development relies principally on actors sub-nationally, primarily at the meso and micro level to closely engage with providers, cultivating practice-based learning and a common transformative culture (117).

Table 2.9 Examples of measures for improving performance

Measure	Example indicator
Audits	Number of times in the past 12 months hospital discharge audits were completed to determine if care was provided in the most appropriate setting.
Continuous professional development	Educational programmes or training subsidies are available for personnel at the first level of care. Number of hours GPs report to spend on professional reading per month.
Quality improvement	Proportion of facilities where quality improvement teams have been established.

Source: adapted from (48,68)

Learning mechanisms

Is a culture of continuous learning and innovation, developing new knowledge and competencies of the health workforce to meet changing service demands in place?

Creating a system of life-long learning aims to involve health professionals in continuing education, designed to keep providers abreast of developments in services delivery and clinical knowledge while providing a system of professional accountability, ensuring the basic standards of care do not fall below an accepted range. It ensures that the health workforce is continuously aware of the population's needs and circumstances; increasing practice skills to respond accordingly. Systems of life-long learning call attention to principles of collegiality and autonomy, fuelled by a sense of responsibility and peer pressure (117).

Continuing medical education and professional development is found the most widely used approach to effectively improve clinical practice and health outcomes (159). There is substantial evidence that investments in different types of clinical education lead to improvements in services delivery, the consolidation of taught knowledge and skills from initial education and ultimately, improved patient health outcomes (165),(166).

A number of flexible ways to promote continuous professional development are identified, varying from ad-hoc trainings, spanning from a few days to weeks or months and at varied intervals of repetition. Such trainings are found to frequently target the advancement of new clinical skill, competencies in communication and teamwork or the use of new equipment. Other common approaches for continuous professional development include in-service trainings or seminars, international exchanges, study abroad or study tours, conferences and temporary placements for observational learning (167).

Box 2.9 Remote learning for health professionals in Croatia

The establishment of the Central Health Information System (CHIS) by the Croatian Heath Insurance Fund in 2007 marked a change in professional culture, fostering an appreciation for the collection and dissemination of accurate and reliable data. Providers were required to undertake training through online tutorials, however this educational opportunity was insufficient to meet provider's need for increased communication. Ultimately, an application was added to the CHIS which would allow providers to consult each other, share professional experiences and open channels of communication between types of services across setting and facilities for services delivery. The information system is also a database for providers to share and search information needed for their practice. Professionals are virtually exposed to the different experiences of other providers in the region, promoting continuous learning and enhanced clinical confidence.

Clinical governance

Are processes for regularly reviewing services delivery in accordance with set standards and designs, with actions to address suboptimal performance while also responding to emerging needs in place?

Processes to assure that care is in accordance with defined standards, including feedback on findings, are essential for systematically examining services across the care pathway, mapping clinical processes to identify systematic gaps, causes of variation and to test improvements necessary (53). Adopting methods for clinical governance ensures the impact of new care models are assessed while also allowing for reflection on lessons learned to inform subsequent changes. This cycle of review and reflection adds to what has been described as a culture of innovation or learning (103,168).

Clinical audits, quality circles, operations meetings and reporting techniques on services such as patient satisfaction surveys and patient reported outcomes, have proven their effectiveness as approaches to review care processes (168). Reviews find, for example, audits and feedback on performance has an important impact on professional practice, ensuring the health workforce is equipped to modify their practice where evaluations show inconsistencies with a desired target (169). Improved quality of care has been recorded applying techniques including self-assessment (170), multi-source feedback (171,172) and patient reported outcome measures (173). By incorporating a standard approach for the measurement of quality across levels of care, improvements in the quality of clinical services have been found by resolving sub-optimal performance from across the service continuum and not simply moving them downstream (174).

Tools used for auditing clinical processes in countries have been found to frequently include, for example, interviews and case-based oral examinations, quality management

circles or groups, record reviews, peer-ratings, patient satisfaction questionnaires, internal audits mechanisms and observing patient encounters (box 2.10).

Box 2.10 Peer auditing of health services in Turkey

In 2010, following a series of citizen's complaints regarding unnecessary health interventions, the Turkish Social Security Institution (SSI) examined their reimbursement data, noticing trends towards increasing hospitalization rates and excessive diagnostic tests being run by select departments. Following discussions with the Ministry of Health and local NGO's, the SSI took it upon itself to design a national auditing programme, designed to reflect on the safety and quality of care being delivered. A pilot project auditing ICU admissions was quickly expanded to a national programme in 2013, following its initial success. A set of routine steps to conduct medical audits across institutions has since been implemented with a total of 15 audits having been completed or planned to date. This process begins by attracting a commission of experts from the Ministry of Health, local NGO's and universities, who gather to compare reimbursement data against national protocols, working to determine which services should be audited. A questionnaire and indicators for the audit are then designed and chosen by experts in the field. A series of randomly assigned institutions across the public, private and university owned facilities are asked to participate in the audit and are responsible for answering questions within an online database. Following the submission, the commission of experts evaluates the information and generates a series of results and recommendations for each institution. If the feedback is negative, it is up to the institution to work to improve services delivery, the Provincial Health Directorate continues to conduct annual follow up assessments to ensure progress on any recommendations given by the commission. This practice illustrates both an appreciation for the importance of data in establishing an understanding of the current status of services delivery, and acts as necessary step in improving and optimizing care through the feedback on current practices.

Section three

Enabling health system conditions for services delivery

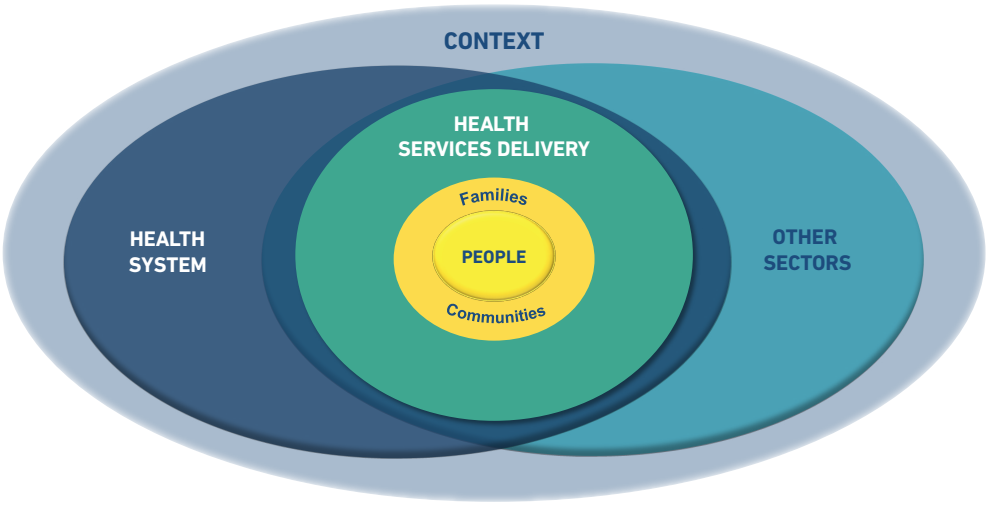
The processes of selecting services, designing care, organizing providers, managing services and improving performance define a boundary for thinking to the unique role of the health services delivery function. The utility of doing so is the ability to prioritize actions and hold the function accountable for the performance of processes directly under its control.

Nevertheless, the processes of services delivery are closely weaved into and heavily determined by factors beyond the scope of the function. The other health system functions of governing, financing and resourcing have a direct influence over the performance of the services delivery function (Figure 1.1). Causes of sub-optimal services delivery performance can also be inferred beyond the scope of the health system, such as a country's economic or development status, illustrated by the underpinning context.

Experiences from countries signal the important role of each health system function to ensure transformations are fully embedded and treated as *core business* in order to achieve scale. Without this full alignment, a significant degree of local leadership and commitment to maintain services delivery changes is often needed for the sustainability and widespread uptake of reforms (175).

The dynamics between the health system and health services delivery are illustrated in figure 3.1. The layers shown and their ordering are deliberate, informed by systems-thinking to reason the linkages, relationships and interactions of causes found to have particular influence on the performance of services delivery (2,12). At the core of this, is people – the individuals, families and communities – the delivery of services aims to serve. The figure has also accounted for the contribution of causes beyond the health system, specifically factors that can be attributed to other sectors or the underpinning country context.

Figure 3.1 Determinants of health services delivery



Source: adapted from (8)

To follow, these determinants of health services delivery are described. The relevance, organization, and contribution of each of these determinants are dictated by the specificities of a given context.

- People, their families and their communities. Better health is both the purpose and the primary goal of health systems (16). People, their needs and legitimate expectations, are then rightly at the centre of services delivery, dictating the way in which the processes identified take shape. While it may appear intuitive that the specificities of services delivery are directed by the needs of populations and individual, to uphold this perspective in practice is no easy task, requiring a shift in thinking which has previously oriented the planning and contents of services around considerations related primarily to inputs.

- Health services delivery. At the interface between the population and the health system is the function of health services delivery, with a unique role to decode health needs to inform the processes put in place for services to be optimally delivered. Ultimately, the ability of the function to do so is a key predictor of the extent to which the health system is able to respond to population and individual demands for care.

- Other health system functions. Working to improve the health of populations is dependent also on the other health system functions of governing, financing and resourcing (16). Underpinning the function of services delivery, as shown, the health system can be described by its unique, enabling role to support health services delivery in setting the conditions for optimal outcomes.

- Other sectors. Working across sectors is a key and necessary principle to address the wider determinants of health towards greatest health gains. Doing so is not a new concept: intersectoral action is at the core of a primary health approach (11) and early public health policy (176). At present, in the European health policy framework, Health 2020, whole-of-government and whole-of-society actions to mobilize partners and collective actions for health and development are weighted among the top priorities (177). Linking across sectors in practice may include collaborations with the private sector and civil society organizations such as community, non-government and faith-based organizations, as well as education, labour, housing, food, environment, water and sanitation and social protection sectors (11,63).

- The context. Underpinning the health system and other sectors is the broader country context, setting the epidemiological, cultural, socio-demographic, political and economic conditions within which all other determinants take shape. Important predictors of the context may also include historical considerations, as principles of path dependencies apply and serve to potentially limit feasible interventions at present.

Enabling health system conditions for services delivery

The dynamics of each health system function at the cross-section with health services delivery are described drawing from the evidence reviewed. The key considerations guiding the analysis of evidence have included: how do the processes of other health system functions influence health services delivery? And what are the inputs of other health system functions for services delivery?

In doing so, each health system function is framed according to its key processes as signalled in the evidence. The outputs of these processes, considered inputs for health

services delivery, predict the conditions within which the processes of health services are able to react and adjust. Accounting for these inputs and their interdependencies is needed for understanding how the health services delivery function is dependent on the health system and for aligning processes and functions.

Table 3.1 Other health system functions: processes and inputs for services delivery

Health system functions	What are its processes?	Example inputs for services delivery
Governing	Setting priorities Organizing action Measuring and feedback	Strategic direction Accountability Regulation Participation and intersectoral partnerships Organizational adequacy Transparency
Financing	Collecting revenue Pooling Purchasing	Affordability Allocation of resources Provider and user's payment
Resourcing		
Human resources for health	Planning and forecasting Educating Certifying and registering; re-certifying	Workforce availability Workforce competencies
Medicines	Selecting medicines Pricing and reimbursement Procuring and managing supply Innovating (R&D)	Standardization of rational use Access to essential medicines Product safety
Health technologies	Introducing new medical devices Adapting Innovating	Cost effective medical devices and other health technologies
Information systems	Defining information needs Building platforms Data management and analysis Knowledge translation and dissemination	Surveillance data Clinical information eHealth Performance management Action and implementation research

Governing

Do processes of setting priorities, organizing for action and measuring and feeding-back on performance optimally support the health services delivery function to perform?

Governing describes the indisputably difficult assignment of health system stewards to bring direction, alignment and improvements to the health system (2,4). In doing so, the function of governance acts as a catalyst for alignment across all health system functions, their respective processes and actors (2). To do so, as the *World Health Report 2000* (16) described, health system stewards are called on to define the 'rules or the game' – the formal and informal rules that determine the boundaries within which the system's actors operate. Through these boundaries the governance function can be described to set an institutional framework and make explicit the way in which actors are expected to interact and perform (4,178). This includes also the conditions for actions taken across sectors, with population health a product of dynamic networks beyond the domain of the health system itself and thus, relying on the set-up and oversight of meaningful relationships linking to the education, environment and transport sector, for example.

Governing processes

The work of previous reviews on the topic of governance in the health sector have described governance processes, calling attention to areas that as a minimum include: setting priorities for the system's direction, organizing for action across actors and sectors and measuring and feeding-back on performance (179–181).

- Setting priorities. Governance has the responsibility to set priorities and generate policies related to these priorities. Priorities are critical for assigning financial, human and political resources towards one rather than other health improvement area becoming a highly political process of advocacy and negotiation of competing areas and interest. From this, decisions for services delivery include, for instance, the definition of benefits package and entitlements.

- Organizing for action. Governing additionally implies that priorities and policies are translated into actions backed by the means (i.e. authority, resources, time) that ensures the capacity of actors to implement those policies. For services delivery, developing alignment and harmonizing standards across actors often includes legislating service guidelines and protocols, establishing patient charters and bills of rights, or accrediting service delivery institutions and licensing agencies. Moving from policy to implementation looks to the governance function to set structures of authority, assigns responsibility and other necessary resources to increase capacity across actors for action.

- Measuring and feedback. Governance plays a key role in generating and using information to inform, assess and improve policy and performance. In doing so, it ensures on-going adjustments of services for decision-making, troubleshooting, accountability and improvements in the long-term. For services delivery, it means defining key indicators and measures for performance, establishing mechanisms for monitoring and evaluating, encouraging the conditions for performance to be measured and reported on. Translating day-to-day information into the intelligence for decision-making is also a key predictor for accountability in services delivery.

Box 3.1 Establishing a legal framework for patient engagement in Slovenia

In 2005, with a growing burden of type 2 diabetes, the Slovenian Ministry of Health in collaboration with the National Institute for Public Health and National Patient Association for Diabetes set the development of a strategic diabetes plan as a national priority; emphasizing the need for early diagnosis, disease management and coordination of care across primary, secondary and tertiary levels. Recognizing the imperative of active participation from both providers and patients to reorient thinking and provide the necessary momentum to establish change, in 2010 the Patients' Rights Act was passed. The Act formally requires the engagement of patients in planning health activities as well as for providers to consult patients as active participants in all phases of disease management. Formalizing a legal framework for patient engagement has also included close engagement with providers, playing a key role in consultations on the National Plan, uniting all actors around a common goal and a common dialogue to move the strategy forward into practice.

Inputs for services delivery

The role of governance to formulate and formalize improvements across processes of health services delivery are well recorded (182–186). From the evidence reviewed, the product of governance processes, and subsequently, an input for health services delivery are differentiated by the following.

- **Strategic direction.** Sequencing activities strategically is the foresight and direction offered by health system governance. This may take form of strategic plans (187,188), policies, standard operational plans and procedures (189), and targets, goals or performance measures (187), which set clear priorities and actions for services delivery. In doing so, the governance function facilitates the timely achievement of goals, while also minimizing duplication, and can promote autonomy and ownership in the process among actors.

- **Accountability.** Accountability arrangements make explicit the ways in which actors are expected to perform by mandating clear roles and responsibilities (190). Well-defined accountability structures and mechanisms by way of setting out a framework and making explicit how actors are expected to perform and interact are a key input for ensuring the roles assigned to actors are sufficiently dynamic, well-resourced and tended to through regular supervision. For services delivery reforms, accountability has been found a key contributor to strengthening operations and the implementation of planned designs (191–194).

- **Regulation.** Formalizing a regulatory framework through clear and aligned policies for services delivery is a key predictor for the way in which decisions are taken and accurately enforced (182,183,185). Governance equips services delivery with these measures, as the formal procedures (4), standards, codes of conduct (48,178,180) that direct statutory bodies and other national actors.

- **Participation and intersectoral partnerships.** Governance processes involve building coalitions across government actors (189) and across sectors. Ensuring the public has a voice in decision-making for health, either directly or through legitimate intermediate institutions that represent their interests, is key to participation. Governance processes are also a key predictor for the way in which different interests are mediated to facilitate broad consensus, while articulating structures and processes that allow for continuous engagement. Increasingly dynamic networks spanning across sectors has necessitated new and formal interactions with varied actors (177), relying on the strategic use of mechanisms such as inter-ministerial, interdepartmental or ad-hoc committees (177), public-private task forces (195,196), or partnerships with civil society or NGOs to foster meaningful collaborations for intersectoral action (179).

- **Organizational adequacy.** The institutional and organizational arrangements of the health system predict the capacity for implementation, including managerial structures, decision-making processes, formal and informal codes of conduct and the different lines of accountability (197). Organizational adequacy, therefore, reflects the overall 'fit' between the architecture of the health system and policy objectives (4).

- **Transparency.** The processes of governance predict the way in which interested actors are provided with sufficient, usable, relevant and timely information, by setting the procedures, structures and processes for assessment and reporting on performance (197).

Financing

Health system financing is the responsible function for raising adequate funds for health while also ensuring people can access needed services protected from paying catastrophic or impoverishing fees (2). In this way, financing processes promote universal coverage of selected population and individual services, while also aiming to promote equitable funding and utilization, equity in utilization as well as rewarding quality and incentivizing efficiency (2,198).

Do processes of collecting revenue, pooling of funds and purchasing of services optimally support the optimal performance of the health services delivery function?

Financing processes

Financing health systems are generally described by three interrelated processes: collecting revenue; pooling of funds and purchasing of service (16,198).

- Collecting revenue. The process of prepayment and collection account for the way by which health systems receive money, for example, general taxation, mandated social health insurance or voluntary private health insurance (16). These processes of prepayment are intimately linked with decisions to be taken for the selection and management of services, predicting the available funds allocated to health.

- Pooling. Pooling processes are described as the accumulation and management of revenue to distribute the risk of having to pay for services by all members of the pool. In doing so, the financial risk associated with health interventions is shared and uncertainty of costs for individuals, reduced (16), increasingly the likelihood that patients will be able to afford needed services.

- Purchasing. Purchasing accounts for the process by which pooled funds are paid to providers for the delivery of health services. Decisions concerning contracting and payment have a role across services delivery process, matching the payment of providers for inter-professional services delivery or the use of financial incentives and performance related pay for comprehensive primary care or the management of chronic illness, for example. Strategic purchasing predicts which services are purchased, how and from whom (5).

Inputs for services delivery

There is little doubt that decisions taken in the financing processes described have important implications over the nature and quality of services (199). In particular, these choices come to condition the health services delivery by way of predicting the following.

- Affordability. The share of pre and co-payments influences the extent to which people access health services and determines the degree of financial protection they faced when accessing care.

- Allocation of resources. The volume of resources made available determines to large extent the overall level of health services that can be provided in each area of a given country, the distribution of recurrent expenditures and investment, the allocation to different types of care, services, settings and facilities. Through the allocation of funds, health services can receive dedicated lines for continuous learning opportunities, demonstration and improvement projects, specific disease programmes and determined groups of population.

- **Provider and user's payments.** Contracting and payment of providers is one of the key tools to align the provision of health services to the policy directions, particularly in those countries with a purchaser-provider split model and/or with various purchasers. Contract with health provider can be awarded to single providers (bi-lateral service contracts) or to a group of providers creating an overarching framework contract with all parties setting out governance arrangements, risk/reward and performance mechanisms. The way in which health providers are paid can be linked to the type, quality and quantity of services provided and to be used as incentives to reward performance. Payments to health providers can also create perverse incentives. For example, hospitals depending on reimbursement by per-diem charges may be interested to prolong a patient's length of stay or home care providers being reimbursed by fee-for-services based on time-logs may be hesitant to participate in unpaid coordination meetings with other stakeholders. This plays an important role in transforming health services by way of reinforcing desired processes and outcomes and removing financial barriers that perversely affect these goals (200) stimulating both immediate and long-term improvements. Incentive-based payment can take many forms of varying accountability and financial risk for providers. Frequent payment schemes include fee-for-services, bundle payments, pay-for-performance, pay for case management and diagnosis-related groups, among the most commonly reported and analysed in literature (201). The optimal payment model will vary by context; each having features by design and caveats to be considered in determining their applicability (table 3.2).

Patients can also be incentivized by means of personal health budgets, waivers/reductions of out-of-pocket contributions for specific services, flat-rate or lump-sum cash-benefits and vouchers, for instance to promote compliance with treatment plans and medication. Such incentives usually are supported by non-financial incentives concerning preventive and health promoting measures such as discounts for gym membership, privileged access to physicians outside normal hours or general measures to improve health literacy (202). Incentives for patients improve empowerment and purchasing power of users who elicit their preferences. However, they overburden users and their carers in identifying and coordinating the appropriate care, specially, if the benefits do not allow for full coverage of their health care needs.

Table 3.2 Paying providers: incentives for health services delivery

Scheme	Evidence and caveats
Fee-for-service	Fee-for-service to reimburse practitioners or specialists is likely to incentivize over- rather than more appropriate treatment. Fee-for-service contracts tend to prevent from teamwork or multi-professional cooperation (203); administrative reporting tasks are overburdening; make difficulty to 'personalize' individual contributions to overall performance. Fee-for-service arrangements generally do not allow for reimbursement of resources dedicated to coordination or joint training activities.
Pay-for-performance	Incentivize providers to focus time and attention on types of care being measured, to the detriment of non-measured areas of potentially equal or greater importance. Existing evidence does not conclusively establish the degree of impact of pay-for-performance on outcomes with regards to efficiency and quality (204).
Bundle payments	Nudge providers to engage in partnerships for agreed procedures and interventions. Potential unintended consequences include a shift of services beyond a post-acute period to increase reimbursement. Adjustments for case mix severity can lead to up-coding whereby patients are registered as having more severe conditions in order to increase the reimbursed amount. Providers may also try to increase the number of discrete bundles to maintain their income (205).
Diagnosis-related groups	Potential reductions in hospital costs have been recorded, yet possibly detrimental for services (e.g. out-patient services, long-term care). Contributed to transparency by creating opportunities to compare performance between providers. Challenges include increased administrative efforts, reduced quality of care, mixed evidence on efficiency gains ('gaming') and problems with risk-adjustment (206).

Box 3.2 Piloting primary care fund holding for coordination of services in Hungary

In Hungary, a pilot project was introduced in 1999 in an effort to address the lack of integration between levels of care and put an emphasis on secondary services. The experiment introduced new roles for physicians and institutions to act as virtual fund holders and care coordinators, who would be paid by the national insurance fund to manage patient care. Physicians were thought to have the most information about the correct provision of services and were deemed the best individuals to manage patient care. To reinforce correct use of services, a blended model of incentives was implemented to ensure quality, improve cost-effectiveness and reduce the risk of cream-skimming or under-treatment within the system and the decision making of the care coordinators. These incentives included adjusted capitation for general practitioners, a combination of fee-for-services and DRGs for hospital and secondary care, and the introduction of bonuses for the provision of preventative services.

Resourcing

Are human resources, medicines, medical devices and information technologies in place for the optimal performance of the health services delivery function?

Equipping the system with the optimal resources, including the human resources, information and communication technologies, medicines and medical devices, is central to ensuring the supportive environments, infrastructures, settings, pathways and channels is essential to the provision of services. For health services delivery, the resourcing function includes continuous reflection on the optimal mix of up-to-date inputs that allows services delivery to perform as well as to generate research for a continuously evolving and expanding evidence-base.

The resourcing function is also a vital source for the systematization and introduction of innovations, inputting new services, processes, or procedures into services delivery aimed at improving the performance and outcomes of quality, access, and efficiency (207). In doing so, innovations fill gaps in knowledge, skills and processes between what is available and what is needed in order to respond to health demands.

Services delivery relies on the resourcing function of health systems to support the meaningful introduction of innovations following technological advancements making available new medicines, health devices and information platforms, as well as health professionals, advancing the knowledge and skills of the future health workforce. The role of resources in the context of services delivery is described to follow, considering the core processes of innovating human resources, medicines, medical devices and information technologies, as well as their unique contribution to the provision of care.

Human resources for health

Do processes for planning and forecasting, educating, certifying, registering and re-certifying the health workforce support the optimal performance of the health services delivery function?

The health workforce can be characterized as the front-line health professionals working directly for patients and populations, such as but not limited to, service managers and executives, doctors, nurses, midwives, pharmacists, lay heath workers, community health workers and allied health professionals (208)(6,167). Human resources for health, as a component of the resourcing function of the health system, describes those varied strategies for preparing the health workforce as well as its enhancement and exit management towards the optimal availability, competence, responsiveness and productivity of the workforce (6).

Processes for resourcing a health workforce

While health services delivery has a role in the continuous investment and enhancement of the workforce overtime, its starting point is predicted by the contribution of the health system through the resourcing function. Key processes carried out for the preparation and enhancement of the workforce can be said to include the following.

- Planning and forecasting. The workforce planning is vital for developing the human resource capacity needed both for services delivery at present and in anticipation of the population's future health needs. Adequate preparations from the health system perspective consist on a thorough understanding of the changing burden of disease and factors that shape the demands put to health services in order to respond accordingly (167).

- Educating. The health system prepares the future health workforce to perform according to set standards. Educating health professionals relies of the continuous mobilization of new evidence into the curriculum (161,167). The process of education itself has been described as three sequential steps: initial acquisition of knowledge (informative education); socializing students around the values of their work or profession (formative education); and the final stage preparing students to be leaders and mobilize their knowledge through group, problem-based and community-based learning (transformative education) (161,167).

- Certifying, registering and re-certifying. The certification and registration of health professionals is a standardized process in the initial development of the health workforce, marking the successful completion of trainings and assessments to be recognized as a professional. In some instances, certification is followed by registration with regulatory bodies that represent the interests of the public or a professional network. Re-certification processes at regular intervals are also a relatively standard practice, in order for the system to safeguard the maintenance and continued sophistication of competencies set during initial training. These mechanisms seek to ensure health providers are up to a pre-determined standard. They can be used to rewards those individuals or institutions with exemplary performance (167).

Inputs for services delivery

The health workforce is a vital resource for health services delivery. The sustainability and scale of health services delivery transformations relies on the development of relevant knowledge and skills of professionals to fill the (re)defined roles and scopes of practice expected of them (183,186,209). Through the processes described, the resourcing function has a key role to input, for example, an available and competent workforce for services delivery.

- Workforce availability. Ensuring a workforce in sufficient numbers is a necessary condition for services delivery, where availability of the workforce refers to the distribution of professionals (6). While there is no set standard for assessing sufficiency, as a minimum it can be measured according to essential health needs. The correlation between the availability of health workers and coverage of health interventions finds outcomes are compromised when the health workforce is scarce (6).

- Workforce competencies. Competencies describe the essential, complex knowledge-based acts that combine and mobilize knowledge, skills and attitudes

with existing and reliable resources to ensure quality outcomes for patients and populations (167). A competent health workforce is one in which the skills to deliver the selected population interventions and individual services have been cultivated for their effective provision in line with set standards.

Box 3.3 New specialization in palliative care in Serbia

Introducing palliative care services in Serbia has included extensive planning to provide trainings across disciplines and levels of care on new models and guidelines. New specializations in palliative medicine became available across all Serbian medical schools in addition to the creation of a new programme in palliative social work. Formal education has served to expand the scope of practice of providers, however additional trainings were also provided to professionals focusing on patient-provider communication. The new profiles of health professionals have been defined according to these formal trainings and system guidelines. Equipping providers with formal designations has ensured the sustainability of this profession.

Medicines

Medicines are a crucial commodity for health services delivery to effectively treat and manage health needs (16,21). New medicines have dramatically changes the means by which illness is prevented and pain is alleviated. Innovative drug treatments and therapies have also served to improve the management of illness in the community and at-home. The rapidly evolving field of medicines has made treatments more focused, affordable and effective, with a continued investment in research committed to the discovery, development and adoption of value-added treatment options.

Do processes of selecting medicines, pricing and reimbursement, procuring and supply management and research and development support the optimal performance of the health services delivery function?

Necessary processes for resourcing medicines

Health services delivery is dependent on the resourcing function of health systems to undertake processes that select cost-effective medicines for use, while also ensuring their adequate supply and protecting against the use of counterfeit or substandard products. Key processes typically described in this process include the following.

- Selecting medicines. Health services delivery relies on the resourcing function to select essential medicines where these are considered the necessary products to satisfy the health needs of the majority of the population. For the optimal provision of services, ensuring these medicines are available in adequate amounts, in appropriate dosages and at an affordable price is vital in order to respond to local priorities.

- Pricing and reimbursement. The process of promoting affordable and fair prices for medicines is central to universal health coverage, where affordable and fair prices are considered those that are reasonably funded by patients and health budgets (146,210). Prices for medicines are not static. Rather, they are a function of changing markets overtime and services delivery relies on the resourcing function to strategically purchase off-patent medicines as they become available and continuously measure, monitor and manage changing prices.

- Procuring and managing supply. Health systems must strategize the national purchasing and management of supply chains. This process is a guarantor for ensuring the availability of quality medicines and at a reasonable price.

- Innovating - research and development. Research and development are essential in order to facilitate the testing and use of new products, tools, standards, policies and guidelines. This process includes both innovation as well as the transfer of technology and intellectual property for use of new medicines in the delivery of services.

Inputs for services delivery

Through the described processes, the health system equips the services delivery with the following key inputs.

- Access to essential medicines. Services delivery is dependent on the resourcing function to control medicines prices through reference pricing, limiting what government insurance programmes pay, or directly enforcing retail price controls. Countries with a large private medicine supply system can face challenges with ensuring access and affordability of essential medicines, this posing a system bottleneck for the optimal provision of services.

- Rational use. Just as the services delivery function specifies the optimal design of services, the resourcing function through national policies, standards, guidelines and regulations, determines how medicines are to be prescribed, dispensed and sold. In doing so, clinical practice guidelines on the rational use of medicines direct optimal prescribing practices, minimizing the overuse, underuse or misuse of medicines otherwise contributing to wastage and health hazards, such as antibiotic resistance. Putting these standards into practice relies on processes of the health services delivery function such as, the personalization of drug regimes in designing care for alignment with other services and a patient's individual needs.

- Product safety. Through national laboratories conducting quality testing and developing public anti-counterfeit campaigns and market controls as well as reporting on side effects, services delivery assumes the safety of products for their use in services delivery.

Health technologies

Do processes to introduce, adapt and continuously innovate medical devices and technologies support the optimal performance of the health services delivery function?

Health technologies describe the instruments, apparatus or machines used in the provision of services as well as equipment used for a specific purpose during diagnosis and treatment. Medical devices and health technologies are essential for the provision of services. From simple wooden tongue depressors and assistive devices to the most sophisticated implants, medical imaging systems, medical and surgical procedures, medical devices are crucial in the prevention, diagnosis and treatment of illness and disease across life stages (210).

The importance of medical devices and health technologies has accelerated in recent years with the advancement in technologies and biomedical engineering allowing the manufacturing and sales of instruments and appliances that enable patients to better monitor their own health. This includes, for example, self-monitoring tools for diet and exercise and blood pressure devices for hypertensive patients to record measures from home. Other important technological developments include non-invasive diagnostic techniques that can help prevent hospitalizations.

Processes for resourcing health technologies

- Introducing new technologies and devices. The resourcing function undertakes the process of systematically evaluating the properties, effects and impacts of health technologies. The direct, intended consequences of technologies as well as their indirect, unintended consequences are made known, in order to inform technology-related policy-making in health services.

- Adapting. Health services delivery relies on the health system to systematically establish access to health technologies and medical devices that are compatible with existing resources for their consistent and coordinated use. Doing so often requires close collaboration between stakeholders across sectors working to update and synergize new devices for their use across sites and levels of care. Rolling-out new technologies relies on health services delivery to provide trainings such as in-service workshops for their consistent use in practice (211).

- Innovating. The process of continuously innovating and researching ensures the optimization of medical devices for health and quality of life in a continuously evolving field. The process of innovation should encourage interaction among ministries of health, procurement officers, donors, technology developments, manufacturers, clinicians, academics and the general public.

Input for health services delivery

- Cost-effective medical technology. Innovative technologies enable the system as a whole to focus on the various ways in which it can better manage patient and population risk (25,30). Health services delivery relies on the resourcing function to ensure the introduction of new technologies that optimally support acute, primary and community care providers and patients to access more accurate and detailed clinical information to inform clinical decision making for example, medication and/or blood pressure changes over time (27,28,32,33,35).

Resource innovation has introduced the use of new medical technologies, such as the use of robotics in rehabilitation services (212), non-invasive procedures for diagnostics, such as the use of videoscopes to investigate tumours with 3-D images.

Information systems

Are processes in place to develop information and the necessary infrastructure for its collection, management, and systematized use in order to optimally enable the performance of the health services delivery function?

The delivery of health services is information intensive. Data is needed in many forms: health surveillance data to report on the status and changes of health needs; clinical data to inform provider and patient decision making, to optimally respond to an individual's needs in a given episode of care and overtime; facility-based data on the supply and quality of resources for health managers; outcome data to inform policy and planning efforts for evidence-based decision-making; performance data for monitoring the provision of services and performance of health providers for payment accordingly; or research and development for the continuous improvement of tools and service standards.

Health services delivery relies on the health system to oversee the processes of defining, generating, analyzing, and applying evidence for the strategic use of information, intelligence and research accessible at the macro, meso or micro level of the health system (2). Many of these processes can be improved upon with computerized information systems that enhance communication capacity and the flow of information

(103). Over the past decade, these resources have expanded and evolved to include, for example, the introduction of electronic health records for the improved management of relevant information as well as the digitalization of procedures, helping to overcome physical distances between patients and providers (213).

Processes for health information systems

Well-functioning health information systems ensure the definition of measures with the alignment of platforms for the management, analysis, dissemination and use of reliable and timely health information.

- Defining information needs. Generating information relies on types and measures of data being clearly defined. This requires an established set of core measures with proxy indicators and metrics and targets to track performance and inform planning and reporting cycles in a standardized approach.

- Building platforms. Embedding information and communication technology (ICT) for health relies on affordable, durable and high-speed Internet connections and the basic ICT infrastructure for linking data across the health system. Health services delivery relies on the health system to resource information systems in order to ensure the necessary investments in ICT infrastructure for the design, development and deployment of user-friendly, synergistic ICT platforms are realized.

- Data management and analysis. Health services delivery relies on information systems to oversee the collection of timely, complete and reliable data. Process of data collection should be continuous in order to monitor and assess the performance of the health system overtime. The strength of information systems weighs on the capacity of services delivery to carryout each of its processes, for example, predicting the extent to which the management of services is capable of detecting, investigating, communicating and containing events that threaten public health security.

- Knowledge translation and dissemination. The capacity to synthesize information and promote the availability and application of this knowledge is integral to innovation in health systems. Generating information is necessary yet not sufficient to ensure the effective transfer and application of data to inform the delivery of services. The exchange of information needs to be clearly defined and managed in order to optimally apply results for improvements in practice.

Input for health services delivery

Health information systems equip health services delivery with the necessary data and means for its collection in a standardized approach, at-scale. The resultant of its processes can be described as the following.

- Surveillance data. Key health trends change overtime and health services delivery must continuously adapt and evolve to respond to this. The ability of the function to do so at the macro and meso level uptakes population health data to inform decision-making, such as the selection of services to prioritize and target the population based on known needs and risk factors. The other health system functions also rely on surveillance data, for example, measuring and reporting on medicines or the re-certification of providers.

- **Clinical information.** At the micro, clinical-level, the use of reliable and timely information on health status and an individual's health needs ensures that changes overtime are closely monitored and appropriately responded to and that all relevant information is taken into consideration in decision-making and care planning.

- **eHealth.** Establishing the built physical infrastructure in a country (e.g. Internet hosts; telephone lines; mobile phones; broadband) is a minimum condition services delivery relies on the resourcing function for in order to introduce the system-wide use of eHealth. This includes minimizing potential security threats damaging trust that can undermine services by inputting the protection mechanisms against any catastrophic security issues compromising confidentiality.

  Through information technology for health, innovative communication platforms including electronic personal health records for the secure record keeping of patient data and clinician health records for the exchange of health information across trusted sources relating to an individual patient in a secured and easily accessible way (207).

  Patients have also benefited from new information technology for health, including websites such as WebMD that have become a source of information for patients to explore through searching tools that have made medical material more accessible than ever before. New technologies to assist homebound patients manage chronic care needs, such as simplified computer software designed to help older adults and other patients to monitor and manage their conditions from home by connecting to devices including scales, blood pressure monitors and glucose readers, recording information that can be shared with health providers over the Internet (214) (box 3.4).

Box 3.4 Tackling late-stage cancer diagnosis and treatment in Montenegro with mHealth

Following the recommendations of the National Cancer Control Plan in 2008, the Ministry of Health in Montenegro designed a screening programme to minimize the late diagnosis of colorectal cancer. At the primary level, this programme has partnered with national telecommunications providers, delivering an SMS screening reminder to all individuals between the ages of 59-75. While the use of cell phones and technology within this initiative is innovative, the strength of the programme lies in the improved provider network and ease for patients to both enter and move through the system. Patients are electronically referred to secondary services should, following screenings and laboratory exams, patients tests continue to return positive results. Further, using an integrated ICT system, enables all physicians participating in the patients care to be actively involved and up to date with recent results.

- **Performance management.** Monitoring and evaluation is integral for the continuous improvement of health services delivery performance. Information generated, for example, provides the necessary evidence to award financial incentives for providers according to selected measures. Performance measurement is also vital for quality management and is integrated to any services delivery transformation to monitor and report on results.

- **Action and implementation research.** One of the biggest challenges for health services delivery transformations is the lack of sufficient evidence and research on what works, how integrated care measures influence outcomes and which tools are most appropriate to implement in which circumstance. The processes of health information systems should equip health services delivery with the means to undertake research and develop innovative projects for evidence-informed transformations.

Final remarks

In the context of changing health needs, transforming health services delivery plays a key role in accelerating improvements for better health outcomes. This document has attempted to consolidate and align the evidence and thinking on health services delivery, as a prerequisite for the application of concepts to support reforms in countries.

Recalling the key questions posed, review of evidence finds the following.

1. **What are the outcomes of health services delivery?** The contribution of health services delivery to health system outcomes can be measured by the comprehensiveness, coordination, person-centredness and effectiveness of services. Measured as outcomes of services delivery, the contribution of these to health outcomes and their related causes beyond health services delivery can be reasoned through a causal chain of an adapted input-process-output-outcome sequence.

2. **How can the health services delivery function be defined?** The health services delivery function can be described by its processes: selecting services; designing care; organizing providers; managing services; and improving performance. The characteristics of each are recognized to span all layers from the *macro* health system level, *meso* organizational level to the *micro* clinical level with roles for varied actors dictating their degree of influence.

3. **How do other health system functions enable the conditions for health services delivery?** The unique contribution of each of the other health system functions of governing, financing and resourcing to the performance of health services delivery is explored. Those determining factors for transforming the delivery of services at-scale and fully embedded within the health system are made known.

The interdependencies of health services delivery processes, spanning across levels of the health system and within each level engaging different actors, in varied settings, undertaking varied activities demands an equally dynamic approach for reasoning improvements. Taking these findings forward in reforms to strengthen health services delivery has underscored one key design principle: the integration of health services. Integrated health services delivery translates the interdependencies of health services delivery processes and the underpinning health system conditions set by other system functions that need to be accounted for in order to promote aligned actions that tackle the root-causes of shortfalls.

Integrated health services delivery can therefore, be described as a vehicle for improving the alignment of the health system's functions to optimally deliver comprehensive, coordinated, person-centred and effective services. In doing so, health systems can be said to adopt a person-facing orientation, by way of supporting services delivery to take direction from the populations and an individual's needs in order to optimally select, design, organize, manage and improve services.

Integrated health services delivery is a vehicle for improving the alignment of the health systems such that core health systems functions, setting the conditions for the processes of health services delivery to optimally manage the health needs of the populations and individuals it aims to serve.

Annex 1
Frameworks, tools and strategies reviewed

Frameworks

#	Title	Reference
1	Rapid diagnostic tool with performance measures for services delivery	(48)
2	Control knobs framework	(90)(90)
3	Systems-thinking for systems strengthening	(215)
4	WHO health system building blocks	(2)
5	The Bellagio Model	(216)
6	Chronic Care Model	(52)
7	Commonwealth fund framework for a high performance system	(217)
8	Framework for assessing behavioural health care	(218)
9	International Health Partners Framework	(219)
10	WHO health system performance framework	(16)
11	Integrated health services delivery networks	(63)
12	Patient-centred home care model	(220)

Tools

#	Title	Reference
1	Health Services Assessment	(46)
2	Health system strengthening assessment tool	(49)
3	Performance measurement in OECD health systems	(221)
4	OECD health care quality indicators	(208)
5	Surveying health systems	(47)
6	Integrated district health system assessment tool	(222)
7	Primary Care Assessment Tool (PCAT)	(51)
8	Primary Care Evaluation Tool (PCET)	(41)
9	Primary Care Monitor	(68)
10	Health systems strengthening for better NCD outcomes	(223)(222) (223)
11	Performance Assessment Tool for Quality Improvement in Hospitals	(88)
12	Service Availability and Readiness Assessment (SARA)	(44)
13	STEPwise approach to Surveillance	(224)
14	Package of Essential Noncommunicable (PEN) Disease Interventions for PHC	(100)

Current WHO Global and European strategies

#	Title	Reference
1	The Mental Health Action Plan 2013-2020	(225)
2	The European Mental Health Action Plan	(226)
3	Global Action Plan for the Prevention and Control of NCDs 2013-2020	(227)
4	The European Strategy for the Prevention and Control of NCDs 2012-2016	(17)
5	The Global Plan to Stop TB 2011-2015	(56)
6	Plan to Stop TB in 18 high-priority countries in the WHO European Region 2007-2015	(18)
7	Global health sector strategy on HIV/AIDS 2011-2015	(57)
8	The European Action Plan for HIV/AIDS 2012-2015	(19)
9	The Global Vaccine Action Plan 2011-2020	(54)
10	The European Vaccine Action Plan 2015-2020	(55)
11	Global Strategy for Women's and Children's Health	(20)
12	Strategy and action plan for healthy ageing in Europe 2012-2020	(10)
13	WHO global strategy on people-centred and integrated health services [interim report]	(8)

Glossary of key terms

Comprehensive. Selected population and individual health services extend across a broad care continuum and across life stages, to include services from health protection, health promotion and disease prevention to diagnosis, management, treatment, long-term care, rehabilitation and palliative care, for services that are whole-person facing, adapted from (8,41,50,51).

Coordination. The resultant of the selection, design, organization, management and improvement of services in a specific episode of care and in the provision of services at intervals overtime and across the life span to promote the best results.

Designing care. The development of service paths that standardize a course for services according to best-available evidence, mapping transitions between types and levels of care, while also accounting for the personalization of pathways to match an individual's unique needs, adapted from (86).

Effectiveness. The extent to which services are delivered, in line with the current evidence-base, for the optimal delivery of services for desired outcomes, adapted from (88).

Improving performance. The process of establishing feedback loops that enable a learning system for spontaneous testing and adopting adjustments towards a high standard of performance, made possible through cycles of continuous learning and the regular review of clinical processes, adapted from (48,49,63).

Integrated health services delivery. A vehicle for improving the alignment of the health systems such that core health systems functions, setting the conditions for the processes of health services delivery to optimally manage the health needs of the populations and individuals it aims to serve.

Managing services. The process of planning and budgeting, aligning resources, overseeing implementation and monitoring of results to maintain a degree of consistency and order in the delivery of services and act upon observed deviations from plans, problem-solving and troubleshooting as needed.

Organizing providers. The alignment of the health workforce to match selected services and their design with the distribution of professional roles and scopes of practice and the arrangements in which the health workforce works according to settings of care and practice modalities for the provision of services as envisaged, adapted from (47,49,63).

People-centredness. The extent to which the delivery of services adopts a person-facing perspective, including selecting services according to an individual's needs and known risks, designing care to engage patient's in decision-making, organizing providers to realize their delivery, with management and improvement mechanisms in place towards optimal health outcomes.

People-centred health systems. The arrangement of core system functions of resourcing, financing and steering that reflects a prioritization of individuals, their families and communities in all decisions, creating the conditions for the provision of services that are aligned with the health needs, broader determinants of health and legitimate expectations of populations, facilitating the achievement of desired health goals.

Selecting services. The prioritization of health services for a clearly defined population in order to equitably promote, preserve and restore health throughout the life course, ensuring a broad continuum, from health protection, health promotion, disease prevention, diagnosis, treatment, long-term care, rehabilitation to palliative care can be provided according to an individual's needs, adapted from (48,63).

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