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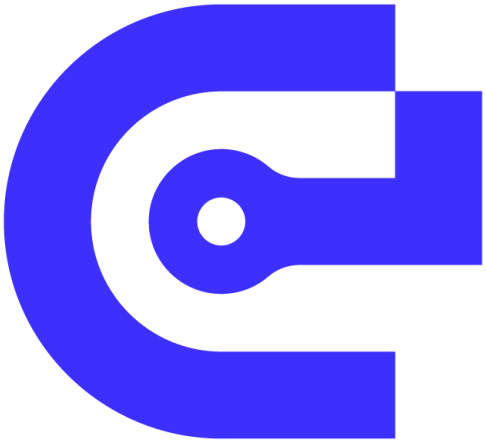

Cooperation and training on innovation and entrepreneurship in the eHealth community (CONNECT)

2020-1-RO01-KA203-080244

IO1 - eHealth Interdisciplinary Curriculum: Human Resources in Health and e-Professionalism

Co-funded by the
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Partner: Babes-Bolyai University

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eHealth Interdisciplinary Curriculum Template – Purpose of this tool

Babeș-Bolyai University has developed this tool as a guide and generic template for creating the eHealth Interdisciplinary Curriculum. We have tried to make it user-friendly by providing explanations and examples under each heading.

The eHealth Interdisciplinary Curriculum will be developed under *"Objective 1: Develop an innovative multidisciplinary curriculum for students from the computer and information, healthcare and social professional background, with the main focus on cooperation between sectors for improving the existing knowledge, skills, and accessibility to new opportunities"*. The indicators of these objectives are represented by 1 curriculum developed in the first 10 months of the project, with at least 1 member of each partner institution involved in the curricula development.

The eHealth Interdisciplinary Curriculum is centered around theoretical and practical subjects within the eHealth domain. It will have the form of an online book, adapted as an interactive online resource, and uploaded on the online platform for managing eHealth eLearning. It will be addressed to health sciences and IT students, from participant countries and disseminated to students from other European universities. This Curriculum will focus on undergraduate students, but other beneficiaries can be included. Although there is a requirement that readers and learners need to have a background in health care/ medicine/ information technology, information systems or business.

The eHealth Interdisciplinary Curriculum will include foundational knowledge (formal), key perspectives in eHealth (examples of new technologies, applications, instruments – non-formal), application abilities (increasing qualifications, competencies, and critical thinking – non-formal) to provide eHealth remedial education. Consultation of formal and informal educational providers will be necessary in developing the curriculum.

The eHealth Interdisciplinary Curriculum is organised to emphasise relationships between different fields (health, IT, management). It will be structured on the recommendations of the International Medical Informatics Association (IMIA).

The primary learning goals of the curriculum will be integrated to create a coherent methodology: (a) foundational knowledge (concepts, principles, facts, terms), (b) key perspectives in eHealth, that will be the starting base of practical abilities, (c) application abilities - to have a standard of working competencies for the future workplace, (d) to engage students to increase interest and have access to information.

The eHealth Interdisciplinary Curriculum will be developed by an international, inter-professional teaching team (members) with different expertise in the eHealth domain, from partner institutions. Two educational providers, from each partner institution, will be involved in the process. For each chapter, at least two external contributors will be invited to co-author the chapters and give feedback on the developed intellectual output.

The eHealth Interdisciplinary Curriculum will be purposefully designed (flexible, modular format, user guidance) so that they can be easily used and transferred in academic activities and within the university curriculum. The eHealth Interdisciplinary Curriculum is comprised of 8 individual modules. The number of pages of the entire Curriculum will be between 200-300, A4 format– around 30-40 pages/module. The course material for the entire Curriculum requires 40 hours of the hands-on, active reading experience. For each module a maximum of 5 lessons plans of 1 hour each are recommended (5 hours/module). Extra 20 hours must be added (for necessary time to access references and areas of inquiries) for the entire Curriculum, meaning 30 minutes for each lesson plan (2.5 hours for each module).

The following steps will be taken for the development of the eHealth Interdisciplinary Curriculum:

1. Desk Research
2. First draft developed by each institution for their module
3. Expert review and input
4. Second draft developed by each institution for their module based on the expert input
5. BBU complies final version of the curriculum
6. Experts validate the final curriculum

The research team from Babeș-Bolyai University is available to support any efforts to compile each curriculum component (module) and is responsible for overseeing the compilation of the final eHealth Interdisciplinary Curriculum. The contact info for the coordination team for this task is provided here: madalina.coman@publichealth.ro and alina.forray@publichealth.ro. Please name the final document using the following strategy "CONNECT Project_IO1_Curriculum_Module name_Institution Acronym" (e.g. CONNECT Project_IO1_Curriculum_mHealth_BBU)

Some tips for developing the Curriculum for the assigned modules:

- Review the Desk Research documents available for all the modules and extract the appropriate information to be used for the development of the module;
- A total of 5 hours for the lesson plans and 2.5 hours for individual work are assigned to each module
- Plan for maximum 5 lesson plans, each with the duration of 1 hour + 30 additional minutes for further references and inquires that will be done individually by students;
- Describe in detail each lesson plan following the suggested headings from section *3. Lesson plans;*
- Consult the key expert points from the Expert Network Centralizer in the development of the curriculum for the assigned module.

Contents

1. Learning objectives of the Human Resources in Health and e-Professionalism

[The objective of this section is to describe the module's brief statements that describe what students will be expected to learn by the end of the module. The learning objectives can reflect the educational standards used by your institution (if the case) or they can be drawn from international Common Core Standards. The learning objectives need to be closely connected with the lesson plans. Some examples of developing learning objectives can be found here]

[This part should not exceed a page]

Students will examine the strategic role of human resource management in response to changes in the health care industry. In addition, issues such as recruitment, retention, performance management, organisational development, monitoring and evaluation will be examined.

At the end of the module, students will be able to:

1. Explain the concept of Human Resources and e-Professionalism in the health sector.
2. Understand how to prepare, attract, maintain, and enable HRH.
3. Explore the interaction of key elements of the health system and health outcomes.
4. Discern different strategies to assure equitable distribution of sufficient and qualified staff.
5. Understand HRH needs and explore how to respond to them adequately.
6. Explore how the private sector may mitigate existing issues in the health sector.
7. Understand and value the strategic role of human resources in a health care organisation and in effectively managing organisational transformation.
8. Understand the role, importance, and technologies for monitoring HRH.

2. Foundational knowledge of the Human Resources in Health and e-Professionalism module

[The objective of this section is to briefly describe the foundational knowledge of the module. It refers to main concepts, theories, models, terminology, principles, and methods being currently used related to the module that are going to be further studied in the lesson plans]

[This part should ideally not exceed two pages. However, if needed, it can go up to four pages]

Human Resources in Health (HRH) refers to planning, development, performance, management, retention, information, and research on human resources for the health care sector. The official definition from World Health Organization for human resources in health is "all people engaged in actions whose primary intent is to enhance health" (WHO, 2006). Health workforce is another phrasing used to refer to HRH. Human Resources in health include the clinical and non-clinical staff whose intent is to enhance health and the healthcare system performance. This includes physicians, allied health professionals, health services managers, medical records, and health information technicians, but also management and support staff (managers, ambulance drivers and accountants etc) who are not directly involved in delivering medical services, but are essential to the performance of health systems. Private-sector workers and owners of pharmacies who may provide access to health services are also considered the health workforce.

e-Professionalism refers to the attitudes and behaviours seen in traditional professionals showcased in digital media. It represents the electronic professional identity of an individual.

Key components of Human Resources in Health and e-Professionalism:

- Recruitment;
- Induction;
- Working Environment;
- Staff Relations;
- Staff Development;
- Professional identity.

3. Lesson plans for the Human Resources in Health and e-Professionalism module

[The objective of this section is to provide the foundational knowledge for each concept studied in a lesson plan and offer real-life, practical examples of all the concepts studied in the module. This will be done with the help of lessons plans, during which each concept is explained and exemplified with analogies of real-life examples. Lesson plans will include examples, analogies, application of the concepts, and areas for further enquiries for participants. Each lesson plan should have the format from below. There are 10 weeks of intensive study program with a total of 40 hours for the entire curriculum, so a maximum of 5 lesson plans, each with the duration of one hour should, be developed for every module since we have 5 hours allocated for every module]

[This part should ideally not exceed 30 pages]

Lesson plan 1: Human Resources in Health and e-Professionalism: Core Concepts

Foundational knowledge

[For each lesson plan please include a detailed explanation of the concepts, theories, models, terminology, principles, and methods being currently used related to the concept explained in this lesson plan. In doing so please create synergies withing the two domains (IT and health and social science) to create mutual understanding among students]

Health workers drive health systems. They are agents of positive change in their communities. Without health professionals, health care services cannot be delivered. A health system, a health care system or a healthcare system, is defined as the "organisation of people, institutions, and resources that deliver health care services to meet the health needs of target populations" (WHO, 2007a). These services are essential for assuring the health of the entire population.

In the past, the health workforce was considered to be an expensive part of the health system. In many low- and lower-middle-income countries, governments had been warned not to scale up their investments in civil servants, including public sector health workers, out of a concern that they would be costly to support in the long term (WHO, 2016b).

Building on years of contrary evidence, the Global Health Workforce Strategy (Workforce 2030) recognises HRH investments as having the potential for a triple return on investment (ROI):

- **Improved health outcomes**: Health workers drive health systems to deliver health care services;
- **Global health security:** The reintegration of health staff in post-conflict settings can be linked to strengthened governance; skilled health workers improve health systems resilience and responsiveness;
- **Economic growth**: A community's productivity is more significant when it is healthy (WHO, 2016b).

Strategic HRH investments are considered a "proven return on investment" and may contribute to the achievement of additional Sustainable Developmental Goals (SDGs), including:

#1 no poverty;

#2 zero hunger;

#3 health and well-being;

#4 quality education;

#5 gender equality;

#8 decent work and economic growth;

#10 reduced inequalities;

#11 sustainable cities and communities;

#17 partnerships for the goals (WHO, 2016b).

More details on each SDG can be observed in Figure 1.

Figure 1 – Sustainable Developmental Goals developed by WHO (WHO, 2016b)

The sole existence of human resources is not sufficient to achieve the SDGs, as they need to be equitably distributed and accessible by the population, competent, and adequately supported by the health system. Human resources management (HRM) can facilitate the SDGs mentioned above by entailing activities such as:

- Design and analysis of job descriptions;
- Personnel planning;
- Recruitment, selection and personnel orientation;
- Consultancy offered to personnel for the future of personal career;
- Performance evaluation;

- Compensations and advantages specific to their workplace;
- Health and insurance;
- Workplace relationships;
- Discipline, control and evaluation of personnel functions etc.

This list is not exhaustive, and it only includes most of the essential actions of the HRM (United Nations, 2013).

HRM has three important characteristics:

1. **HRM is action-oriented**. It is not focused on filing, description or rules. HRM emphasises and searches for solutions to the employees' problems to help achieve the organisational goals and facilitate individual growth and satisfaction.
2. **HRM is individual-oriented**. As often as possible, HRM treats each employee as a distinct individual and offers services and programs meant to satisfy his/her individual needs.
3. **HRM is future-oriented**. It focuses on the objectives of the organisation and assists their future achievement by "offering" competent, highly motivated employees (United Nations, 2013).

The objectives of HRM in the attempt to increase the organisation's effectiveness are the following (United Nations, 2013):

1. To help the organisation achieve its goals;
2. To efficiently use the abilities and skills of their workforce;
3. To offer the organisation well prepared and motivated employees;
4. To increase the level of satisfaction of the employee at the workplace;
5. To develop and maintain a certain quality of the working environment that can transform the employee status within the organisation into a personal and socially satisfying situation;
6. To communicate personnel policies to all employees;
7. To help maintain professional ethics;
8. To help introduce changes favourable to individuals, groups, organisations and the public.

It is important to make the most of the existing workforce by considering its performance. HRM need to consider practices, approaches and interventions that can optimise health worker's performance, quality, and impact based on where currently practising health workers are located.

Some of these practices include (United Nations, 2013):

1. Identify health needs and service coverage;
2. Address HRH productivity and performance;
3. Implement supportive supervision;
4. Extend services through task sharing and/or differentiated care;
5. Harness appropriate technologies.

1. Identify health needs and service coverage: Understanding where health needs are greatest and where related services should be available can help determine the most appropriate HRH investments. HRM needs to determine where gaps between desired and actual health outcomes are the greatest and allocate the necessary HRH. If, for example, a region from a specific country has more disease cases, more resources need to be assigned to the particular country (United Nations, 2013).

2. Address HRH productivity and performance: In order to address productivity and performance, proper recruitment, selection and productivity criteria are needed. These criteria include HR planning, recruitment methods, selection methods, productivity analysis (United Nations, 2013).

HR Planning (RWBT, 2021; United Nations, 2013)*:*

1. Need requirement and job analysis.

• Determining whether a vacancy exists: when an employee leaves, there may be alternative ways of filling the gap (reorganisation, reassignment of tasks or automation);

• Analysis of the particular job: observation of the person doing the job, getting job-holders to record their activities, interviewing the job-holder;

2. Job descriptions and person specifications

• Job description outlines tasks and duties: title, location, main purpose, responsibilities, working conditions, key result areas;

• Person specifications identify the personal attributes (competencies) required of the job-holder: skills, knowledge, personality attributes, qualifications and experience. These can be divided into "essential" and "desirable (RWBT, 2021);

3. Competency frameworks

• Refers to the work-related personal attributes, knowledge, experience, skills and values that a person draws on to perform their job well;

• Such competencies include communication, results orientation, planning and organising, problem-solving and teamwork;

Recruitment methods (United Nations, 2013)*:*

Internal sources

➢ Intranet

➢ Team meetings

➢ Noticeboards

External sources➢ Vacancies information (own website)

➢ Recruitment agencies

➢ Advertisements (newspaper, specialist website, radio, TV)

➢ Employee referral schemes

➢ Links with schools/ universities

➢ Apprenticeships, internships

Selection methods (United Nations, 2013)

The classic trio:

1. Application form
2. Interview
3. References

Apart from the selection methods exposed above, a paid probation period is recommended to assess the working compatibility of the employee and to assess if the employee meets the employer's required standard (Venter, 2017).

Productivity analysis

Reaching service delivery goals depends on health workers who are supported to be as productive as possible and perform up to standard. There are several toolkits to assess and improve productivity, among which: Health Workforce Productivity Analysis and Improvement Toolkit. This tool is used to

increase the overall productivity of the organisation in which was implemented and the satisfaction of the employees. A good example of using the tool is provided by the Christian Health Association of Malawi, which used the toolkit to identify solutions to improve staff attitudes, facility infrastructure, and lodging and institutionalise quality assurance methods to meet health needs (Jaskiewicz & Deussom, 2015).

3. Implement supportive supervision

Supportive supervision is a continuous process to support health workers and promote quality at all health system levels.

Examples:

1. Strengthening relationships within the system, including supervisors, peers, and communities. Supervision effectiveness depends on having supervisors who are non-judgmental, with good communication skills and clinical knowledge (Manzi et al., 2014).

2. Focusing on problem-solving approaches. When supervisors encourage working in a facilitative manner to solve problems, it can improve health workers job satisfaction, motivation, confidence, and morale. It also helps improve health system efficiency, systems, and processes (Suh et al., 2007).

3. Helping to optimise resource allocation and improve efficiency. A shared understanding of processes can help resolve service delivery bottlenecks to achieve more results (Frimpong et al., 2011).

4. Promoting clinical quality and performance, including high standards, teamwork, and better two-way communication for ongoing performance management (Manzi et al., 2014)

5. Ensuring an enabling environment for good performance. Key performance support factors for providers include:

- Clear performance expectations;
- Feedback on performance;
- Equipment and supplies;
- Skills and knowledge (training);
- Motivation, including recognition for good performance (USAID, 2012).

4. Extend services through task sharing and/or differentiated care

Task sharing (task shifting) is the systematic delegation of tasks, where appropriate and allowed by health policy, to health workers with shorter training and fewer qualifications (WHO, 2008). Task

sharing is a fundamental approach to promoting efficiencies and overcoming health workforce shortages or maldistribution, as less specialised workers are less costly and can be trained in less time. Task sharing implementation requires consideration of health worker's existing scope of practice and the ability to train and support them in their enhanced scope. HRH planners should also consider "the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives" (WHO, 2012c).

The following are examples of how sharing selected tasks could improve health service access:

- For family planning, sharing tasks such as IUD, implant, and injectable administration among doctors, nurses and midwives expands access to modern contraception (WHO, 2017).
- For maternal and neonatal health, sharing tasks such as delivering basic emergency obstetric and newborn care with midwives expand access to safe and skilled deliveries (Deller et al., 2015).
- For HIV/AIDS, sharing tasks such as initiating and managing antiretrovirals among doctors and specially trained nurses can expand access to life-saving treatment (WHO, 2008).
- Sharing administrative tasks such as reporting or record-keeping with non-clinical staff can free clinical staff to see more patients (WHO, 2008).

More recently, taking into account the COVID-19 crisis, a new framework was developed for task sharing/shifting called the COATS framework (Orkin et al., 2021) that can be observed in Figure 2. The framework offers a simple and adaptable solution for task sharing/shifting.

Figure 2 (Orkin et al., 2021)

Differentiated service delivery models of care, or differentiated care, are innovative ways health workers can meet client needs by reducing the workload of more highly specialised workers. Differentiated care is considered a client-centred approach that changes the frequency and/or location of client contact and the type of service delivery providers. Differentiated care may include task shifting from more specialised health workers to less specialised staff, or the frequency of consultations with clinical staff may decrease (WHO, 2008).

For example, HIV-positive clients taking antiretroviral treatment (ART) who are known to be stable, adhere to their medication and do not require frequent clinical consultations could be eligible for differentiated care. Differentiated care models for HIV services can be categorised into four types:

- Health care worker-managed groups: Clients receive ART refills in a group setting, managed by either a clinician or lay worker, in or outside the facility setting.
- Client-managed groups: Clients receive ART refills in a group setting, managed by clients themselves, usually outside the facility.
- Facility-based individual models: Clients receive ART refills without a clinical consultation.
- Out-of-facility individual models: ART refills and clinical consultations are provided outside the facility.

Like task sharing, differentiated care optimises the existing health workforce that emphasises community-based health workers.

Example for differentiated care in Figure 3 – Box 3 (WHO, 2007b):

Box 3

Putting theory into practice: task shifting in Uganda

In Uganda, task shifting is already the basis for providing antiretroviral therapy. With only one doctor for every 22 000 patients and an overall health worker deficit of up to 80%, Uganda is making a virtue of necessity.

Uganda's nurses are now undertaking a range of tasks that were formerly the responsibility of doctors. These include: managing people living with HIV who have opportunistic infections such as herpes zoster, oral thrush and diarrhoea; diagnosing tuberculosis sputum positive; prescribing medicine to prevent other infections; determining the clinical stage of people living with HIV; deciding whether people living with HIV have medical eligibility for antiretroviral therapy; and managing people on antiretroviral therapy who have minor side effects such as nausea.

In turn, tasks that were formerly the responsibility of nurses have been shifted to community health workers, who have training but not professional qualifications. These tasks include: HIV testing; counselling and education on antiretroviral therapy; monitoring and supporting adherence to antiretroviral therapy; filling in registers; triage; clinical follow-up; taking weight and vital signs; and explaining how to store antiretroviral drugs.

As part of the approach, Uganda has expanded its human resources for delivering HIV and AIDS services by creating a range of non-professional types of health care workers. These people receive specific training for the tasks they are asked to perform.

The following examples provide a snapshot of what the task-shifting approach really involves.

Field officers are recruited from among social workers who have a university degree and are given brief training. They can take over care from the clinical team about two months after antiretroviral therapy is initiated and are made responsible for home delivery of antiretroviral therapy. Field officers use standardized tools for following up and evaluating people receiving antiretroviral therapy and refer to clinicians when faced with a challenging situation.

Community antiretroviral therapy supporters are community members with no health professional background. They receive training and refresher training. Under the guidance of a community supervisor, they are charged with education on HIV prevention, treatment and adherence to medication. They are also involved in determining the readiness of a client for antiretroviral therapy and contribute to the ongoing support and monitoring of adherence for people receiving antiretroviral therapy and tuberculosis medication.

Antiretroviral therapy aides are trained during a 12-day course focusing on preparing them to offer support to nurses at health centres. In particular, they offer support in triage, adherence support, group education, counselling before and after HIV testing and ongoing support counselling.

Community health workers include people living with HIV with no prior medical background. They follow a 12-week course involving 6 weeks of classroom teaching and 6 weeks of clinical clerkship covering a comprehensive range of theoretical and practical clinical skills.

Expert patients are people living with HIV who undertake three days of training to prepare them to offer support in triage, education and counselling as well as training of health workers.

5. Harness appropriate technologies

When used appropriately, advances in technology and telecommunications can transform health systems by supporting health workers at their jobs and helping their supervisors understand performance. Mobile health tools and interventions, known as mHealth, have been documented to improve HRH performance, including in the following ways:

- Data collection and reporting: providing timely information on services the health worker delivered;
- Electronic decision support: providing easily accessible job aids or use clinical algorithms to support health workers to provide care according to defined standards;

- Provider-provider communication: allowing health service providers to exchange knowledge, solve problems, give advice, and other support;
- Provider work planning and scheduling – for example, to automate and/or communicate health worker shifts which may be linked to client flows or other service needs;
- Provider training and education: video or blended learning modules, SMS prompts, or interactive voice response (IVR) systems can reduce classroom time and keep health workers at their posts;
- Human resource management: mHealth tools to populate, update, or review HRH information systems (HRHIS);
- Supply chain management: systems to quantify and communicate anticipated drug needs to keep health workers well equipped;
- Financial transactions and incentives: online/mobile banking to streamline payroll processes (Agarwal et al., 2017).

An array of examples of how technology is being used to improve training, monitoring and communication for healthcare workers can be found in the articles from (Long et al., 2018) and (Lapão & Dussault, 2017).

Professionalism and e-professionalism

Professionalism is the competence or skill expected from a professional. Medical professionalism or professionalism in the healthcare sector is defined as "a belief system about how best to organise and deliver health care, which calls on group members to jointly declare what the public and individual patients can expect regarding shared competency standards and ethical values and to implement trustworthy means to ensure that all medical professionals live up to these promises" (Wynia et al., 2014).

However, with the emergence of the internet and social media, a new form of professionalism, called "e-professionalism," has developed (Cain, 2008). E-Professionalism is defined as "the attitudes and behaviours reflecting traditional professionalism paradigms but manifested through digital media" (Cain & Romanelli, 2009).

E-professionalism includes an online persona; therefore, e-professionalism is an essential and increasingly important element of professional identity formation in medical education. Moreover, e-professionalism encompasses behaviours involving social media and, therefore, is necessary to

develop professional values, actions, and aspirations in medical education (Kaczmarczyk et al., 2013). There are generational differences in the use, perception, and acceptance of social media and digital information sharing. Younger generations born in a time where access to the internet is widely open have been utilising social media for personal purposes before establishing a professional life. Therefore, they may not see social media as a possible problem related to their professional identity. Research shows that a lack of recognition of the role of social media in one's professional identity leads to violations of online professionalism (Greysen et al., 2012). These actions had noticed a surge in the latest pandemic of COVID-19 when surveys reported medical professionals sharing fake news or misinforming their followers through social media posts (Law et al., 2021).

There are three main classifications of organisations concerns related to social media in health care (Cain, 2011):

- Reputation: An organisation's reputation depends on the attitudes, behaviour, and work ethic of its members, who may include students as well. Patients and other clients may judge an organisation's quality based on conventional and digital interactions with representatives (of any kind) of the organisation.
- Privacy: Privacy concerns arise because social media do not meet the technical criteria for secure communication of patient information.
- Productivity: In health care settings, social media distractions can result in lost productivity and medical errors (Cain, 2011).

Sharing information behaviours on social media can result in violations of medical professionalism. These professionalism violations involve "lapses in integrity or honesty, morality and ethics, self-regulation, responsibility to society, and responsibility to the profession" (Steinert et al., 2005).

The large number of people mixing their personal and professional lives due to social media forced healthcare institutions to formulate and implement policies on social media (Kaczmarczyk et al., 2013). The American Medical Association developed a comprehensive policy on e-professionalism (AMA, n.d.). Many companies publish "personal" guidelines for their employees and procedures for the public's use of their social media sites (Cain & Romanelli, 2009). At the Mayo Clinic, policies stating that "employees should not engage in use during work hours, the work e-mail address should not be provided for social media credentials, and posted opinions or comments should not be attributed in any way to the institutions" are in place (Mayo Clinic, n.d.). Moreover, universities such

as Vanderbilt University have an extensive Social Media Handbook that covers unlawful use, specifically outlining rules related to online harassment and copyright infringement. The handbook describes institutional rules and appropriate student conduct. It also includes a how-to guide for departments and individuals for establishing online networking pages (Vanderbilt University, 2010).

Examples and analogies

[For each lesson plan please provide examples and analogies that show how the concept can be applied in real life, focusing on standards for quality and qualification within the two domains (IT and health and social science)]

- Examples are inserted throughout the text.

Application and integration

[For each lesson plan please provide exercises and practical activities that will help students apply what they have learned about this concept. For this section non-formal activities are strongly advised to be used]

For e-professionalism

Practical activity: Please review all your social media profiles. Do you consider them to be professional enough based on the example of AMA's e-professionalism policy (AMA, n.d.) and Social Media Handbook provided by the Vanderbilt University (Vanderbilt University, 2010)? What would you change in order to make your social media appearance more professional?

References for further information and areas on inquiries

[For each lesson plan please provide references and connected areas for students to further inquir and read more about. There are 20hrs of individual work for the entire curriculum, which means 2.5 hours for each module, so 30 minutes for each lesson plan (if you decide to have 5 lesson plans). Books, scientific publications, and other activities connected with the topic of the modules can be offered as references in this section]

https://www.capacityplus.org/files/resources/Legacy%20Brief%204_09-25.pdf

https://www.globalhealthlearning.org/sites/default/files/page-files/Workforce-Brief_FINAL_corrected-for-reprinting.pdf

https://apps.who.int/iris/bitstream/handle/10665/250368/?sequence=1

https://www.who.int/healthsystems/strategy/everybodys_business.pdf

https://www.who.int/whr/2006/whr06_en.pdf

Baer, W and Schwartz, A C. 2011. Teaching professionalism in the digital age on the psychiatric consultation-liaison service. Psychosomatics, 52: 303–9.

Long, L.-A., Pariyo, G., & Kallander, K. (2018). Digital Technologies for Health Workforce Development in Low- and Middle-Income Countries: A Scoping Review. *Global Health: Science and Practice*, *6*(Supplement 1), S41–S48. https://doi.org/10.9745/GHSP-D-18-00167

Lapão, L., & Dussault, G. (2017). The contribution of eHealth and mHealth to improving the performance of the health workforce: a review. *Public Health Panorama*, *3*, 463–471.

Lesson plan 2: Human Resources in Health: current and future needs

Foundational knowledge

[For each lesson plan please include a detailed explanation of the concepts, theories, models, terminology, principles, and methods being currently used related to the concept explained in this lesson plan. In doing so please create synergies within the two domains (IT and health and social science) to create mutual understanding among students]

Human Resources in Health should reduce health inequities by assessing and designing interventions to solve current and future needs mentioned below (WHO, 2016b, 2018b).

Current needs

Improve health workforce distribution

Improve health worker retention

Develop workforce deployment and retention strategies

Provide decent working conditions

Provide continuing professional development

Promote interprofessional teams to deliver patient-centred care

Engage communities

Future needs

Understand health labour market dynamics

Focus on youth

Transform health workforce education

Promote health workforce resilience

Improve health workforce distribution

While HRH density is one indicator to assess the availability of health workers, another important consideration is the distribution of health workers within a country. More than half the world's population lives in rural areas, but fewer than one-quarter of doctors work there. In many cases, health workers leave jobs in locations perceived as less desirable, accessible, or safe for more desirable ones (WHO, 2018b). This results in high concentrations of health workers in some parts of the world and other areas with deficient concentrations of health workers. People living in rural,

remote, and underserved areas have a harder time accessing health care delivered by skilled workers. Health workforce maldistribution results in geographic inequities in health (WHO, 2012c).

Improve health worker retention

Research has shown that poor working conditions lead to low job satisfaction, which leads, in turn, to high rates of turnover. Keeping a labour-market focus will help policymakers adjust employment incentives as needed in locations where posts are hard to fill, as well as seek ways for the private sector to respond to immediate workforce needs. World Health Organization developed key recommendations on strategies to address HRH maldistribution by improving health workers' attraction, recruitment, and retention to rural, remote, and underserved areas (WHO, 2010).

They are summarised under four types of interventions:

- Education
- Regulation
- Financial incentives
- Professional and personal support (WHO, 2010).

While they focus on improving rural retention, the recommendations and lessons could apply to any area with health worker shortages.

Intervention Type	Examples
Education	• Recruit students from rural backgrounds • Locate health professional schools outside of major cities • Conduct clinical rotations in rural areas during studies • Develop/revise curricula to reflect rural health issues • Promote continuous professional development for rural health workers
Regulation	• Enhance rural health workers' scope of practice to empower and satisfy them at their jobs • Scale up the training of different (less specialized) health workers • Introduce compulsory service schemes to work in underserved areas • Subsidized education for return of service in underserved areas • Ensure job security
Financial incentives	• Provide appropriate financial incentives, such as hardship allowances, housing grants, or transport to outweigh perceived opportunity costs associated with rural posts
Professional and personal support	• Provide better living conditions, including sanitation, electricity, telecommunications, and schools for children and family • Ensure a safe and supportive working environment, including avoidance of workplace violence, especially for women; adequate equipment and supplies; supportive supervision and mentoring; and a manageable workload and hours • Give rural workers outreach support to facilitate cooperation and collaboration • Provide career development programs and continuing professional development so rural health workers can advance professionally without leaving • Encourage rural health professional networks to reduce professional isolation, including associations and journals • Recognize rural health workers publicly to boost morale and motivation

(WHO, 2010)

Develop workforce deployment and retention strategies

Building on the WHO's global recommendations (WHO, 2010), health policymakers need to consider which combination of interventions can be most appropriate and attractive to health workers. Job preferences vary depending on health worker type, gender, age, marital status, and location.

Different toolkits are available that can aid the mapping of workforce motivation, deployment and retention strategies based on specific characteristics of the workforce. A couple of these toolkits are presented below.

The Rapid Retention Survey Toolkit provides a step-by-step approach to assess health workers' motivational preferences and design appropriate financial and non-financial incentives for evidence-based job packages to increase job uptake and retention, based on labour market needs and where there are vacancies, high turnover rates, or an under-representation of health workers.

The open-source software iHRIS Retain can help develop job incentive packages over time to consider their feasibility and affordability. In many cases, the cost of losing health workers and having to recruit new ones is more costly than providing additional incentives to existing workers.
A case study from Namibia shows how evidence-based job packages using iHRIS Retain were developed to help the Ministry of Health to achieve a 0% vacancy rate over five years (Bailey et al., 2015).

Provide decent working conditions

When health workers feel safe, supported, and well-equipped, they are more likely to be motivated and perform successfully at their jobs. The health system's work environment can be improved by (WHO, 2012b):

- Providing proper equipment, materials, medicines, and supplies so health workers can deliver high-quality care. This results in not only a stronger health system but more satisfied health workers.
- Addressing occupational safety and health: Reduce the biological, chemical, physical, and psychosocial hazards through Positive Practice Environments. This is shown to keep HRH in the workforce longer.
- Ensuring a workplace free of discrimination and gender-based violence.

Provide continuing professional development

Low job satisfaction and turnover are often driven by a perception of job stagnation and a lack of opportunities for professional development, especially in remote areas. Health workers should continue to learn and update their skills to respond to existing health system needs through continuing professional development, which will promote the value of life-long learning, motivate health workers, and improve service delivery quality and coverage (WHO, 2018b).

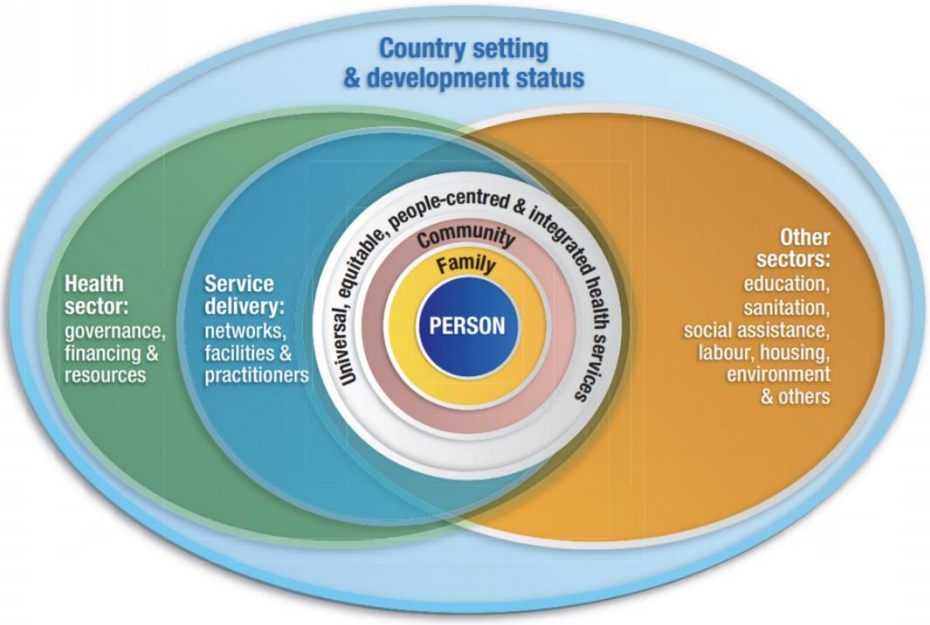
Continuing professional development can include in-service training, clinical mentoring, and other relevant, practical activities that promote capacity building. Professional development opportunities can improve the quality of care that health workers deliver when there are new standards or models of care (WHO, 2018b).

An example of an innovative capacity-building approach showing promising results is low-dose, high-frequency learning (Jhpiego, 2016). This approach seeks to promote maximal retention of clinical knowledge, skills, and attitudes through short, targeted in-service simulation-based learning activities, which are spaced over time and reinforced with structured, ongoing practice sessions on the job site. Low-dose, high-frequency learning principles include:

- Competency-focused sessions that are practical, hands-on, take place in the work setting, promote relevant problem-solving, and deliver immediate feedback.
- Simulation and case-based learning that ensures content delivery is brief, allowing more time for hands-on learning and interactive exercises.
- Appropriately spaced (brief) periods of content delivery, delivered in a single day or over several days so that new skills can be practised and honed.
- Team-focused and facility-based training improves teamwork and encourages staff to address facility-specific challenges together.
- Ongoing skills practice and post-training content exposure ensure skills are reinforced and practised. Practice sessions do not need to be more than 15 minutes.
- Facility-based peer staff to conduct practice drills.
- Measure results in terms of clinical outcomes and consider quality improvement approaches to address issues (Jhpiego, 2016).

Promote interprofessional teams to deliver patient-centred care

A single health worker would likely struggle to deliver integrated, comprehensive, patient-centred care for all people. Instead, interprofessional, collaborative healthcare teams (including primary care providers, nurse managers, community-based workers, laboratory, radiology and pharmacy technicians, and specialists) are best skilled to deliver integrated, people-centred care, which the WHO envisions as essential for ensuring health for all. Patient-centred care is aligned with and responsive to client and population health needs, and can be delivered by an interprofessional team through the following approaches, also shown in the figure below (WHO, 2015):



- Providing collaborative, coordinated, and accessible care;
- Focusing care on physical comfort and emotional well-being;
- Considering preferences, values, traditions, and socioeconomic conditions;
- Encouraging family involvement;
- Providing timely and transparent information for shared decision-making;
- Aligning leadership and management to patient-centred goals.

Patient-centred care may be most effectively achieved in marginalised and underserved communities through a health workforce representing and coming from the community. Health workers can provide more acceptable care when they demonstrate linguistic, cultural, and gender

competence. This reinforces the WHO recommendations for education: to recruit health professional students from rural backgrounds and locate schools in these settings (WHO, 2015).

Engage communities

Community engagement is an approach to strengthening health care delivery and establishing or reinforcing trust between patients and health care providers. Having trusted health workers on the front lines can dramatically improve health system responsiveness in the threat of disease outbreaks (WHO, 2018b). In communities with strong provider-community relationships, community members and health workers work as a team, improving demand generation, transportation, medication adherence, and health reporting. Communities can also play a critical social support role for providers, including housing, food, and a social network (WHO, 2018b).

Community-based stakeholders in health, peer educators, local health management committees, and health volunteers play critical roles in connecting communities to health care. Community engagement is an important strategy to optimise health worker performance, as it can promote health service utilisation (WHO, 2018b).

Example of Sierra Leone: community engagement by strengthening community-based facility management committees was a key strategy to promote constructive feedback mechanisms, develop local solutions, improve service utilisation and support health workers at their jobs: https://www.advancingpartners.org/sites/default/files/sites/default/files/resources/tagged_mohs_fmc-guidelines_sept2017.pdf

Example of Ghana: community engagement intervention demonstrated health worker motivation to provide quality care, and led to reduced frequency of illness: https://www.econstor.eu/handle/10419/177707

Understand health labour market dynamics

Building the future workforce requires an understanding of the production of health workers, the availability of jobs, and the factors that drive health workers and potential health workers to contribute to the health sector. Elements that are highlighted in the case of medical deserts, where either health workers, medical jobs or access to healthcare do not exist or are not available in a timely manner (V & G, 2018).

In many contexts, the private health sector presents promising opportunities to address health worker shortages or gaps (WHO, 2018b). Through innovative employment strategies—such as short-term contracting, local hires, task sharing, hiring outside the prime age group, or offering unique fringe benefits—the private sector may have greater flexibility than the public sector to respond to specific and changing market needs. For example, in South Africa, the private sector hired workers seasonally to provide circumcision services because of a surge in demand in the winter months (WHO, 2018b).

Part of the health labour market dynamics is the circular migration of the health workforce, which refers to the professional migration of HRH back and forth between countries (Kroezen, 2016). This has been advocated as a triple win as it brings benefits to the source country – economic gain and skills gain of the returned workers, the destination country -solving part of the need of HRH - and the worker itself, in terms of revenues (International Labour Organization, 2014).

Below are some highlight questions that HRH stakeholders may wish to ask themselves about the underlying HRH factors within the health labour market framework (Sousa et al., 2013):

Education Sector Considerations

- Who and how many health worker graduates are there?
- How are contributions of private-sector education institutions being considered?
- How do policies facilitate or hinder the number and type of health worker graduates?
- What is the quality and relevance of the program and graduates' skills for the job market?
- What is the formal connection between the education sector and the health sector? Is the education sector responsive to the changing needs of the country and health sector?

Labour Market Considerations

- What are the primary inputs and outputs from the pool of health care workers?
- What is the relationship between open posts and the financial ability to hire?
- Of the "pool" of qualified health workers looking for jobs, how many can find employment?
- Where are the jobs: in rural or urban settings? At the primary, secondary or tertiary levels? In the public or private sector?

- What are the combinations of financial and non-financial incentives that these jobs offer? Which jobs are the most desirable ones? How do they compare to jobs outside of the country?
- Do financial and non-financial incentives align with HRH distribution needs to the extent they are effective? Are rural and remote posts being filled?
- Once health workers are employed, are there reliable means to track productivity, performance, retention, and distribution? How are the data used, if at all?
- How do health worker jobs ultimately help respond to national population health needs?
- What is the payoff for financial investments in HRH?

Focus on youth

Youth are an immediate and long-term priority for health workforce development. The WHO Global HRH Strategy: Workforce 2030 estimates that 40 million new health jobs will be created by 2030. Indeed, the future health workforce depends on engaging youth and understanding their pivotal role in making health workforce development a long-term priority. Filling these jobs will depend on youth-centred recruitment efforts and understanding youth decision-making about careers. Engaging youth to pursue meaningful careers in health has the potential to support achieving health for all substantively (WHO, 2016b).

The Positive Youth Development Framework can be useful to consider when designing, implementing, and monitoring health workforce development programs to promote a vision of healthy, productive, and engaged youth.

Transform health workforce education

In response to outdated curricula, skills mismatches, and other HRH production challenges, health professional education must lead the way forward to produce competent, responsive, interprofessional, and connected healthcare teams to achieve high-quality, patient-centred health care for all. In many low- and middle-income countries, health education is run by the Ministry of Education, while health services are governed and provided by the Ministry of Health. There is often a surprising lack of communication between the two ministries. This often leads to over-or under-production of cadres. Fostering close and responsive relationships between the education system and the health system is a critical first step, which usually requires buy-in at the highest level of government (WHO, 2016b, 2018b).

Two main outcomes can help support a new generation of health professionals for a new century (Frenk et al., 2010):

1. Transformative learning, achieved by:
    - Building upon global knowledge and best practices for improving health systems while adapting to specific needs or local context
    - Developing leadership abilities with inter-professional and analytical skills to promote team collaboration and reduce hierarchies
2. Interdependent health and education systems, achieved by:
    - Bringing together students, faculty, and health professionals to promote health workforce learning
    - Harmonising procedures for planning, monitoring and evaluation, and ensuring social accountability
    - Linking academic support or continuous learning opportunities to all levels of the health system, especially for primary health workers

Promote resilience

Health system resilience is "the capacity of health actors, institutions, and populations to prepare for and effectively respond to crises, maintain core functions when a crisis hits, and reorganise if conditions require it" (Kruk et al., 2015). Health workers, managers, and policymakers are all key health actors who must cultivate resilience.

Example: An up-to-date mapping of health workers—how many, where they are, and what their skills are—allows for more rapid response, effective communication, and surveillance. For example, during the Ebola crisis, mHero mobile technologies helped health authorities and frontline workers connect to plan, respond, communicate, and act.

Examples and analogies

[For each lesson plan please provide examples and analogies that show how the concept can be applied in real life, focusing on standards for quality and qualification within the two domains (IT and health and social science)]

- Examples are inserted throughout the text.

Application and integration

[For each lesson plan please provide exercises and practical activities that will help students apply what they have learned about this concept. For this section non-formal activities are strongly advised to be used]

For Human Resources in Health:

You are working together with the Ministry of Health to solve the medical personnel crisis existent in your country. The country is facing a considerable healthcare personnel deficit due to the migration of medical personnel to other countries. The lack of such personnel is visible, especially in remote rural areas where no primary care doctors are available. Develop an idea that uses technological resources to improve the allocation of healthcare personnel in vulnerable areas. How would this solution look?

References for further information and areas on inquiries

[For each lesson plan please provide references and connected areas for students to further inquire and read more about. There are 20hrs of individual work for the entire curriculum, which means 2.5 hours for each module, so 30 minutes for each lesson plan (if you decide to have 5 lesson plans). Books, scientific publications, and other activities connected with the topic of the modules can be offered as references in this section]

Global Health Workforce Alliance: a health worker for everyone, everywhere – video
https://apps.who.int/iris/bitstream/handle/10665/44369/9789241564014_eng.pdf?sequence=1&isAllowed=y
https://www.capacityplus.org/files/resources/rapid_retention_survey_toolkit.pdf
https://www.ihris.org/ihris-retain
https://peoplethatdeliver.org/sites/default/files/country-partnership-files/Namibia%20Synthesis%20Report_FINAL_0.pdf
https://hms.jhpiego.org/wp-content/uploads/2016/08/LDHF_briefer.pdf
https://www.who.int/workforcealliance/about/initiatives/ppe/en/
https://interprofessional.global/wp-content/uploads/2019/11/WHO-2015-Global-strategy-on-integrated-people-centred-health-services-2016-2026.pdf
https://www.youthpower.org/positive-youth-development-pyd-framework
https://www.mhero.org/

Lesson plan 3: Human Resources in Health institutional capacity, policy, and leadership

Foundational knowledge

[For each lesson plan please include a detailed explanation of the concepts, theories, models, terminology, principles, and methods being currently used related to the concept explained in this lesson plan. In doing so please create synergies within the two domains (IT and health and social science) to create mutual understanding among students]

Many countries have fragmented HRH leadership and policies. The following approaches can build the capacity of multisectoral stakeholders to strengthen health workforce leadership and governance:

- Build capacity for workforce planning;
- Facilitate national-level HRH stakeholder leadership groups;
- Conduct participatory HRH strategic planning;
- Use HRH research and evidence to inform interventions;
- Engage the private sector (WHO, 2018a).

Build capacity for workforce planning

The ability to assign the right health worker to the right place with the right skills and motivation depends on the ability to state current needs and forecast future needs based on reliable data. Health workforce planning needs to be addressed on the current Health Sector Plan for each country and the country's mid-and longer-term health strategy. The minimum components of a helpful workforce plan are:

- Current and planned health outcomes disaggregated geographically;
- Current and planned service delivery at primary health, secondary and tertiary levels;
- Estimated HRH needed to deliver services by location;
- Current and forecasted inputs to the stock of HRH, including education, re-hiring, and immigration of health workers;
- Current and projected HRH leaving the system, including retirement, death, and voluntary quits to work in other sectors or other countries;

- Projected costs of adding sufficient workers to meet service delivery needs (Health Workforce Advocacy Initiative, 2009; Kinsella & Kiersey, 2016).

A thorough and valuable plan will also forecast future national labour market capacity to recruit, deploy, pay, and retain enough health workers, including the public and private sectors. That is, the plan should provide a "reality check," comparing needs and costs with the country's ability to act, financially and practically (Health Workforce Advocacy Initiative, 2009).

Facilitate national-level HRH stakeholder leadership groups

Policies and interventions to strengthen the health workforce at the national level require multisectoral engagement. When effective, HRH stakeholder leadership groups can (Gormley & Mccaffery, 2011):

- Increase the likelihood of successfully implementing new HRH initiatives;
- Facilitate knowledge sharing across disciplines;
- Leverages resources and expands capabilities to "do more with less";
- Advocate for HRH issues and accelerate momentum to mobilise funding and resources;
- Redefines relationships among HRH stakeholders (Gormley & Mccaffery, 2011).

Conduct participatory HRH strategic planning

National HRH strategic plans provide a roadmap for health workforce strengthening and development in the context of broader national population health and health systems strategies. There may be greater uptake and success in implementing a broad stakeholder group engaged in HRH strategic planning (Health Workforce Advocacy Initiative, 2009).

In addition to improving trust in the health system and the quality of its services, community engagement can result in more relevant and effective HRH strategic planning implementation at the local levels (Health Workforce Advocacy Initiative, 2009).

In Sierra Leone, local facility management committees helped alert district health management teams about staffing problems—such as interpersonal conflicts or insufficient housing—and participated in resolving them:
https://www.advancingpartners.org/sites/default/files/sites/default/files/resources/sierraleone_fmc_tagged.pdf

Use HRH research and evidence to inform interventions

National HRH observatories hold and monitor health workforce data to inform national HRH policies, strategies, plans, and implementation. Generally composed of a secretariat of HRH stakeholders—both individuals and institutions—the Observatory may also support research (WHO, 2012a).

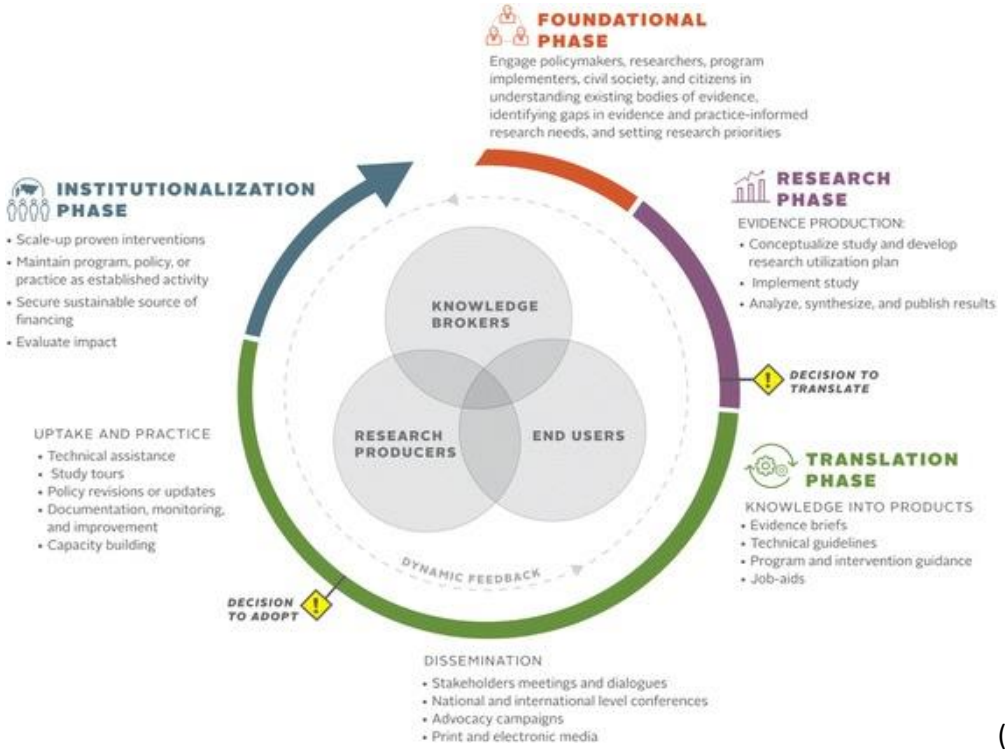
HRH Observatory leaders may benefit from considering the Research Utilization Framework and its phases (Kim et al., 2018):

Foundational Phase: Engage HRH research producers, knowledge brokers, and end-users to identify evidence gaps to inform research priorities;

Research Phase: Produce HRH evidence (and determine if it should be translated in subsequent phases);

Translational Phase: Develop knowledge into products, disseminate (and decide whether or not to adopt results), promote uptake and practice;

Institutionalisation Phase: Scale-up, maintain, sustain, finance, and evaluate proven interventions.



(Kim et al., 2018)

Engage the private sector

Non-profit, for-profit, or faith-based, private-sector institutions are important entities to own and address health workforce strengthening. They play a crucial role in delivering health care and enhancing service delivery (WHO, 2016b).

For example, in the Democratic Republic of the Congo, Uganda, and Tanzania, about half of all health facilities are managed by faith-based organisations (FBOs): https://www.capacityplus.org/technical-brief-16/index.html

In India, private hospitals provide 80% of outpatient care, and 60% of inpatient care: https://www.commonwealthfund.org/international-health-policy-center/countries/india

HRH stakeholders can benefit from considering the private sector's potential to meet health workforce shortages and include them in national registries and planning processes (WHO, 2016b).

For example, in South Africa, private-sector providers are leveraged to meet population health needs for HIV services: https://www.devex.com/news/opinion-enlisting-the-private-sector-in-the-fight-against-hiv-aids-95515

In addition, when the private sector health workforce is included in regulatory oversight, it can help ensure service quality. It may be essential to support private sector actors—including educational institutions, service providers, and employers—understand how their engagement can help them reach their financial or non-financial goals to ensure their motivation and participation: https://www.tatatrusts.org/article/inside/tata-trusts-ge-healthcare-partnership

Examples and analogies

[For each lesson plan please provide examples and analogies that show how the concept can be applied in real life, focusing on standards for quality and qualification within the two domains (IT and health and social science)]

- Examples are inserted throughout the text

The HRH visualiser is a useful tool that shows how governance, policy decisions, and the country context affect a health workforce and how a health workforce affects health system outcomes. The tool can support the evidence-to-policy process by presenting research in a visually appealing and accessible way and helping researchers communicate with policymakers and practitioners. The tool is also useful to build consensus on existing and missing evidence on human resources for health,

bridging the gap between evidence, policy, and practice. Moreover, the visualiser can serve as an educational tool for students to understand policy pathways and explore the literature on human resources for health (Sonderegger et al., 2021).

Application and integration

[For each lesson plan please provide exercises and practical activities that will help students apply what they have learned about this concept. For this section non-formal activities are strongly advised to be used]

Lesson Plan 3 and Lesson Plan 4 will have a common practical activity explained in Lesson plan 4.

References for further information and areas on inquiries

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https://www.capacityplus.org/files/resources/Guidelines_HRH_SLG.pdf

https://www.who.int/hrh/resources/observer10.pdf

https://hrhvisualizer.org/explore

Sonderegger, S., Bennett, S., Sriram, V. et al. Visualising the drivers of an effective health workforce: a detailed, interactive logic model. Hum Resour Health 19, 32 (2021). https://doi.org/10.1186/s12960-021-00570-7

Lesson plan 4: Human Resources in Health data, monitoring and accountability

Foundational knowledge

[For each lesson plan please include a detailed explanation of the concepts, theories, models, terminology, principles, and methods being currently used related to the concept explained in this lesson plan. In doing so please create synergies within the two domains (IT and health and social science) to create mutual understanding among students]

HRH stakeholders—from policymakers to facility managers—need data to understand how to improve HRH intervention implementation and drive performance. Accurate and timely HRH data are required to connect HRH inputs with health outcomes and calculate the relative success of HRH programs. The following systems and approaches are recommended for health workforce data collection, management, accountability, and use in decision-making:

- Monitor HRH availability and accessibility;
- Implement National Health Workforce Accounts (NHWA);
- Harness appropriate technologies at site and district levels;
- Monitor HRH financial investments (Fort et al., 2017; Riley et al., 2012).

Monitor HRH availability and accessibility

The availability of HRH data in many countries could be improved upon in terms of interoperability, robustness, accuracy, and frequency of updates (Riley et al., 2012). Harmonisation of existing HRH data is critical; with the automation of more in-country governance data and records, rich sources of HRH data may already exist. Private-sector HRH should be included in national harmonised data. Payroll records, education institution records, civil service databases, and professional association rolls are examples of how HRH data may already be available. Systems to capture these data and make them interoperable may be the shortest route to having a complete HRH data picture (Fort et al., 2017; Riley et al., 2012).

The following resources and tools can help access monitor HRH availability and accessibility at various health system levels:

- Global Health Workforce Statistics - Latest national data available, disaggregated by occupation, gender, and age whenever possible. It is also useful to track health workers

according to the International Standard Classification of Occupations (ISCO), which provides a comprehensive list of health professionals: https://apps.who.int/gho/data/node.main.HWFGRP?lang=en

- Within a country, the HRH Indicator Compendium and the Handbook on Monitoring and Evaluation of Human Resources for Health provides a comprehensive list of health workforce measures, with accompanying guidelines for developing HRH monitoring and evaluation plans.
- Human resources for health information systems (HRHIS) seek to capture health workforce stock and flows. iHRIS, an open-source software, has helped many country stakeholders develop their HRHIS. The WHO recommends a minimum data set for a health workforce registry: address (physical, electronic), country, date, disciplinary action, education, occupational employment category, employment status, employment title, facility type and ownership, full name, GPS coordinates, identification number, language, license, registration and certification, photograph, postal code, sex at birth, and telephone number.

Implement National Health Workforce Accounts (NHWA)

Consistent with recommendations to "undertake robust research and analysis of health labour markets, using harmonised metrics to strengthen the evidence, accountability, and action" (WHO, 2016c), the National Health Workforce Accounts (NHWA) build on existing HRH information systems (HRHIS), and consider data on population health, as well as data in the education sector and labour market. The NHWA is composed of a set of core indicators organised into modules that can be tracked over time to:

- Generate reliable HRH information for better-informed decision-making;
- Support HRH policy and planning;
- Improve the comparability of the health workforce both nationally and globally;
- Enable research to inform trends and needs for the health workforce and health systems resilience.

The indicators in the NHWA help countries around the globe create evidence-informed policymaking and planning by having comparable standardised information in one place.

Harness appropriate data technologies at site and district levels

Just as technology can help improve HRH performance, mobile health (mHealth) technologies can also help improve the frequency, accuracy, interoperability, and robustness of health workforce information at decentralised levels of a health system (WHO, 2016a). Systematic data-driven approaches can also help district management health teams understand their HRH availability and reinforce health worker accountability, especially for community-based cadres and health workers in rural, remote, and hard-to-reach areas (WHO, 2016a). Moreover, technology can help to improve the digital literacy of medical personnel, which ultimately will lead to better care offered to patients and advances in the medical field (Konttila et al., 2019; Meskó et al., 2017; Pfob et al., 2021; Pol et al., 2020)

A good example of harnessing the appropriate technologies, in Sierra Leone, mobile phones were used to track and hold community health workers accountable for being present on the job without any diminished perception of supervision. mHealth can be a human resources management tool to track community health worker (CHW) activity—such as recording the GIS coordinates of each household visit form completed to ensure that the CHW is following up on the cases she reports (Vallières et al., 2016).

For example, a project conducted in Germany showed that IT and health care specialists showed excellent literacy in their respective disciplines, only a few individuals combined both digital and health care literacy. Multidisciplinary teams and transdisciplinary curricula are crucial to bridge skill gaps between disciplines and drive digital health initiatives (Pfob et al., 2021).

Monitor HRH financial investments

HRH financial investment data could be monitored at the donor, national, decentralised, or community levels through the National Health Workforce Accounts (NHWA) tool.

At the national or decentralised level, the HRH Effort Index survey can be administered among relevant stakeholders to assess and inform strategic health workforce investments. Across seven HRH dimensions (Leadership and Advocacy; Policy and Governance; Finance; Education and Training; Recruitment, Distribution, and Retention; Human Resources Management; and Monitoring, Evaluation, and Information Systems), stakeholders can rank the relative strength of each dimension. Results can provide valuable qualitative information to assist HRH investment prioritisation (Fort et al., 2017).

Examples and analogies

[For each lesson plan please provide examples and analogies that show how the concept can be applied in real life, focusing on standards for quality and qualification within the two domains (IT and health and social science)]

- Examples are inserted throughout the text.

Application and integration

[For each lesson plan please provide exercises and practical activities that will help students apply what they have learned about this concept. For this section non-formal activities are strongly advised to be used]

The growing non-communicable disease burden in Romania, including cardiovascular diseases, hypertension, diabetes, and cancer—requires the health system and workforce to be resilient.

From a health workforce perspective, the following issues challenge Romania's health sector:

- The health workforce is concentrated in the major urban centres (maldistribution).
- There is high attrition from the health sector: from public to the private health sector and migration out of the country.
- While HR takes up 45% of the total budget of the MOH, the Ministry lacks data about workloads and staffing needs to argue for required increases.
- HRH managers at the central and regional levels have insufficient training in HR management.
- There is a shortage of primary health care staff compared to specialised facilities.
- There is no evaluation system for continuing education requirements for health professionals.
- There are some existent active methods of gathering client feedback on facility/provider performance. Still, they are not systematically being done across the country, and there is no evaluation and evidence of their use.

Please see the questions below:

1. If you were a Romania HRH stakeholder leadership group member, how would you use this information?
2. What kinds of recommendations would you make to help Romania's health workforce achieve health for all?
3. What else would you like to know about the situation?
4. What would you propose as possible approaches or solutions?

References for further information and areas on inquiries

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http://apps.who.int/iris/bitstream/handle/10665/250047/9789241511308-eng.pdf

4. Appendices

[In the appendix, it can be useful to share your sources and list the documents used as in a bibliography. Please cite any information sources using the APA citation style]

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