

## Chapter 102

# Skilled Human Resources in the Health Sectors and Impacts of New Health Technologies on Health Workforce in Developing Economies

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### ABSTRACT

*This chapter focuses on the importance of human health resources in relation to current and future trends in health. It is based on a synthesis of reports, publications, and economic development processes related to the increasing needs for skilled human resources in health systems that are under both high demand and also under the requirements of new health technologies. A special emphasis is placed on developing countries where a series of constraints could lead to limits in providing access to health care and a shortage of skilled labor. The human resources related risks at both levels of developed and developing economies are also discussed even though emergent and developed countries have generated new instruments to limit the negative effects of these constraints. Finally, if the expansion of access to new health technologies could be achieved within the world global health system framework, requirements of increasingly needed human resources and skills are shown.*

### INTRODUCTION

Nowadays, the world is experiencing a demographic boom that is accompanied by the expansion of population needs (UN, 2010). This is more accentuated in developing countries where more efforts are necessary to sustain the induced

growing demands (Bloom et al., 2001). Health is among the major needs to be satisfied. Advanced technologies are means that are increasingly accompanying new offers for on-going and future health systems. In this context, health systems include all the processes from health diagnosis to treatment and monitoring. They also account

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for medical equipment, pharmaceuticals, biotechnologies and nanotechnologies among others. Nutrition and environment are among the elements included in the enlarged integrated health systems as they can prevent health degradation and health problems. All these trends necessitate a quantitative size of the human resources needed but also a qualitative side that relates to the mobilization and use of increasingly sophisticated technologies and knowledge.

This chapter recognizes that advanced technologies have current and promising impacts on both populations of developed and developing economies. But, in developing countries, health technologies are subject to different hurdles that limit their impacts and reduce their accessibility. These constraints lead to different sources of failures including risks and uncertainty, anti-commons, the state of the on-going research and development (*R&D*) gaps. In addition, the need for highly qualified medical human resources is pressured by emigration and mobility that accentuate shortages in quantity and in up to date knowledge (Heller, 1998; Gutam et al., 2010 and WHO, 2000). It is recognized also that human resources are major players in this domain. Local health addresses the issues of *local specific health problems* (neglected diseases) and diseases that are not generally addressed by the global health system (Ghadar and Hardy, 2006). Qualified human resources are increasingly becoming crucial given these constraints, the advancement of technologies and their potential positive impacts on health. This is aggravated by the emigration of medical staff from developing to developed economies (Driouchi and Kadiri, 2010; Rutten, 2007). The latter limitation is related to the risks and uncertainties faced by the overall chain of applying new technologies and new discoveries to human health with human resources playing an important role. There are different types of risks and uncertainties faced by the populations with limitations in the area of safety and anticipation of sources of new hazards. In this area, developed

economies can engage quicker than developing economies in identifying new sources of risks, safety nets with the required means to engage in further compensatory mechanisms. The recent cases of some pharmaceuticals with lethal side effects provide examples about the level of responses in both types of economies. Again, in all these stages, qualified human resources are essential.

The first part of this chapter looks at global trends taking place in world human resources in health systems. The second part focuses on the major factors affecting the health workforce while the last part is devoted to analyzing the constraints to health and impacts on its human resources.

## **I. GLOBAL TRENDS IN WORLD HUMAN RESOURCES AND HEALTH SYSTEMS**

The economic and social issues related to medical doctors and health workforce in general are important for every economy and context. There are consequently series of questions that could be of relevance to the issue of human resources and mainly to medical doctors. These issues are expressed through the existence of relatively universal shortage in both numbers and quality. These latter vary with different specialties and with the extent of the introduction of advanced technologies. Continuous new needs for medication are also putting further pressure on health institutions and medical doctors. The acquisition of new technologies both general and specific to health besides the continuous adjustments in medical education and research, the procedures for hiring and assessing medical workforce besides the efficiency, professionalism and the freedom of medical services are major means for retention and adjustments on the supply side.

The global trends taking place in the health system worldwide and that are focused on larger demands for health care and advanced technolo-

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