

# Chapter 1

## Population Health Management and Cervical Cancer Screening Programs: Roadmap, Design, and Implementation of a Supporting IT System

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### ABSTRACT

*Population Health Management (PHM) aims to provide better health outcomes for preventing diseases, closing care gaps and providing more personalized care. Since the inception of the Pap test, cervical cancer (CxCa) decreased in countries applying screening programs, involving both prevention and treatment. In this chapter, we map a PHM roadmap to CxCa screening programs, examine the effect of supporting information technology systems, and propose a suitable architecture for implementation. Notwithstanding screening programs have a tight relation to PHM; the mapping reveals numerous interventions involving additional data sources, and timeless reconfiguration. Today, the use of open source platforms allows the implementation of IT systems supporting CxCa screening, when employed in a multitier web-based architecture.*

### INTRODUCTION

‘Public health’ connotes a relatively narrow field with activities carried out by agencies granted with official functions. ‘Population health’ a term with broader content, is related to a field relevant to the study of several important factors for health. As a result, it involves many terms, such as outcomes, disparities, determinants, and risk factors (Kindig, 2007)

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## ***Population Health Management and Cervical Cancer Screening Programs***

Notwithstanding the term ‘population health’ combines the concepts of both health and population, every term has an essential meaning of its own. The population is related to a group of persons being organized into numerous different units of analysis. Similarly, the term health was defined in a negative manner, i.e. the absence of disease. Nowadays, the modern understanding stresses the positive aspects as well, and health is considered to be related to all life issues. Summarizing, today it is debated whether population health and public health are different or identical. Nevertheless, population health is defined as health outcomes and their distribution in a population (Kindig, 2007).

Population health management (PHM) has been defined as ‘the technical field of endeavor which utilizes a variety of individual, organizational and cultural interventions to help improve the morbidity patterns (i.e., the illness and injury burden) and the health care use behavior of defined populations’ (Hillman, 2002). It is differentiated from disease management because it includes (Howe & Spence, 2004)

- More chronic conditions and diseases.
- Uses a single point of contact and coordination and predictive modeling across multiple clinical conditions.

Moreover, PHM is considered a broader term than disease management, as it includes (Coughlin, Pope, & Leedle(Jr), 2006):

- Intensive care management for individuals at the highest level of risk.
- Personal health management for those at lower levels of predicted health risk.

At the provider level, Care Continuum Alliance (2012) highlights three components:

- The leadership and the central care delivery role of the primary care physician.
- The critical importance of patient activation.
- The capacity expansion of care coordination.

In this context, to successfully achieve all of these requirements, an organization should provide proactive, preventive and chronic care services to all managed patients. Additionally, this should take place both during encounters of patients with the healthcare system and in between. Therefore, providers should maintain regular contact with their patients and support them in the management of their health. Additionally, providers must manage patients at high risk, to prevent the deterioration of their health and avoid the development of complications. Finally, evidence-based protocols for the diagnosis and treatment of patients, in a consistent and cost-effective manner, are also required if for a provider-based PHM approach is followed.

Moreover, the Federal Agency for Healthcare Research and Quality (AHRQ) developed the concept of “practice-based population health” (PBPH) and defined it as “an approach to care that uses information on a group of patients within a primary care practice or group of practices, to improve the care and clinical outcomes of patients within that practice” (Cusack, Knudson, Kronstadt, Singer, & Brown, 2010).

To assist healthcare organizations to navigate the path toward the implementation of effective population health management solutions, in 2014, Sanders suggested a roadmap of 12 steps (Sanders, 2014):

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