Chapter 12
Use of Mobile Phone Applications and Software for Effective Public Health Management

Andriy Zimenkovsky
Danylo Halytsky Lviv National Medical University, Ukraine

Oleksandr Kurianovych
Danylo Halytsky Lviv National Medical University, Ukraine

Taras Gutor
Danylo Halytsky Lviv National Medical University, Ukraine

Natalia Zaremba
Danylo Halytsky Lviv National Medical University, Ukraine

Orest Sichkoriz
Danylo Halytsky Lviv National Medical University, Ukraine

Oksana Nepyivoda
Danylo Halytsky Lviv National Medical University, Ukraine

ABSTRACT

The purpose of this chapter is to highlight the opportunities for digitizing important processes in the healthcare system to improve the efficiency of population health management. The introduction of these digital processes will increase patient satisfaction with the healthcare system, as well as provide a holistic outlook of patient health through access to data and give patients more control over their own health. Healthcare managers will also be using the developed internet applications to conduct clinical audits and monitor health problems in the administrative district. It is proposed to develop and use free internet applications and computer programs, namely 1) drug compatibility test online application, which is designed primarily for students; 2) electronic individual antenatal drug passport for a promising way to predict, prevent, and reduce the risk of allergic reactions; and 3) medical intelligence app using the artificial intelligence technologies to develop an individual educational trajectory for doctors and pharmacists.

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INTRODUCTION

Functioning of the health care system at the current stage is characterized by the priority of electronic forms: both at the national level and at the level of health care institutions and patients. The development of information-communication technologies in health care promotes the improvement of the medical care quality, reduction of the number of medical errors and improvement of the administration process.

The purpose of this section is to highlight the information regarding Use of Mobile Phone Applications and Software for Effective Public Health Management.

BACKGROUND

The use of mobile applications (apps) in the pharmaceutical field is widespread, as they have a huge potential to influence the safety of medicines (Ianevski, Aittokallio & Tang, 2017; Nepyyvoda & Ryvak, 2018) and therefore improve patient safety (Pavithra & Shehnaz, 2021). Mobile applications should be considered as a form of pharmaceutical intervention (Kheshti, Aalipour & Namazi, 2016; Zimenkovsky et al., 2021), which will prevent the negative consequences of self-medication and help gain new knowledge about the safe use of the most common pharmacotherapeutical products (Fjeldsoe, Marshall & Miller, 2009; Zaremba & Zimenkovskyi, 2019).

In turn, mobile applications can provide significant support in making important clinical decisions. We are talking about applications aimed at changing the behavior of patients to improve their health (Iribarren et al., 2021) and the treatment of certain diseases, such as allergies (Bousquet et al, 2017; Matricardi et al., 2020; Tan et al., 2020; Zhou et al., 2018). Thus, modern information technologies are considered as an auxiliary tool for improving the quality of medical care. At the same time, despite their ease of use, effectiveness and advantages, attention should be paid to assessing the limitations and risks of such solutions for the treatment of diseases.

Another area of the use of mobile applications is the field of health care facility management based on the results of clinical audit (Gutor & Zimenkovsky, 2022), as one of the forms of receiving feedback (patient feedback) regarding the quality of medical care. Based on the results of the clinical audit, recommendations are being developed to improve the management of medical care at the health care institution.

The use of Artificial Intelligence in medicine is a prospective vector. According to the data of Balkanyi & Cornet, 2019, the number of scientific publications on the use of Artificial Intelligence in medicine has increased sixfold over the past 30 years. However, further research is needed regarding the practical implications of the development, selection and use of Artificial Intelligence to support clinical decisions, as well as the assessment of its safety and effectiveness (Magrabi et al., 2019). Another field of application of Artificial Intelligence is medical education (Masters, 2019; Pinto Dos Santos et al, 2019; Waldman et al, 2022), in particular Undergraduate (Mosch et al., 2022)

It is worth noting that according to Sichkoriz, et al., 2019, information technologies that contribute to learning deserve to be used in the professional training of medical professionals, ensuring the formation of their competence in the field of computer technologies.

In general, we can consider the use of information technologies as a component of precision medicine, a patient-oriented model.