# Adoption of ICT in Implementing Primary Health Care:
## Achievements of the Twenty-First Century

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## ABSTRACT

For a new technology to be put into use, a decision must be made to adopt it or at least some aspects of it. This article discusses the introduction and use of information and communication technologies in primary healthcare and investigates reasons for adoption, or non-adoption, or these technologies. In particular, the article looks at use of ICT by medical general practitioners, eHealth and the Virtual Doctor Program. The context is adoption of healthcare technologies in the Australian environment, and Information Translation is used as a lens to investigate this.

## KEYWORDS

## INTRODUCTION

The 1978 Alma Ata declaration was a boost to the global effort on universal healthcare for the population. To cover the need of the whole community is a challenge though, be it in a small or a large country. Many countries took initiatives to strengthen primary healthcare (PHC) to ensure quality health to their citizens, but these adoptions of these systems were different. Many countries included GPs (Medical General Practitioners) in health care while they run isolated solo practices and but in some PHC delivery models GPs are in the central role of a closely integrated team (Atun, 2004; Macinko et al. 2003). This required reorganisation of doctors' general practice.

Success of this effort depends on three important factors – management of data collected from client services, optimum number of human resources (including doctors) to provide service at the door step of clients and service quality.

In the urban areas of some countries the role of GPs tends to be narrower and focused on the care of chronic health problems, the treatment of acute non-life-threatening diseases, the early detection and referral to specialized care of patients with serious diseases, and preventive care including health education and immunisation. In rural areas of those countries and in most developed countries a GP may be routinely involved in pre-hospital emergency care, the delivery of babies, community hospital care and performing low-complexity surgical procedures.

## GENERAL PRACTICE AROUND THE WORLD

Today in Australia a GP has to manage the following activities to effectively fulfil his or her role in the health care team (RACGP, 2014):

1. Client management through history taking, examining, investigating, and providing treatment
2. Using appropriate equipment by understanding the availability of 'state of the art' items in the profession, procuring and maintaining it
3. Ensuring physical and mental fitness
4. Record keeping with efficient and quick retrieval system, maintaining privacy and confidentiality
5. Time management by visiting clients in an allocated time
6. Referring clients to other services with updated knowledge about services and adopting easy and quick referring procedures
7. Knowledge gathering and updating – by attending training, seminars and reading references
8. Empowering clients by disseminating knowledge (e.g. handbill, video)
9. Conflict management – to avoid conflict between ethics, profession and business interests

The key role of general practice in the UK, and that of family practice in the USA in the primary care-led National Health Services, initiated around 1995 (Onion and Berrington, 1999). The benefit of that initiative is reflected in a survey that shows citizens of countries with organised primary health care systems enjoy better health and fewer health inequalities (Starfield, Shi, Macinko, 2005). The individual country efforts are enhanced by international bodies like the World Organisation of National Colleges, Academics and Academic Associations of General Practitioners and Family Physicians (WONCA). In 2014 WONCA had 126 member organisations in 102 countries with a membership of around 300,000 family doctors (WONCA 2014), through communication with GP societies and government officials in the health sectors of the respective countries.

In countries with regulated primary healthcare, general practitioners became the gate keepers of the public health system. Entry to the secondary or tertiary level hospitals is regulated by referral from a GP or through emergency. A primary care provider may be called a GP or Family Practitioner (FP) with the task of guiding individuals, and also their family, on a variety of health care and wellness issues.

In developed countries Primary Health Care has transformed the focus of general practitioners' work patterns and remuneration towards integration with multidisciplinary teams (nurses allied health workers and other groups who have an increasingly expanded role in primary care) and the wider system (Martin and Sturnberg 2005). This takes away some of the decision making role of GPs, as PHC decision making is the role of specialists or a team.

Increased focus on PHC, particularly in former developed socialist countries, helped formalising or regulating the role of GPs and also upgrading the profession to a specialising category. To be a GP a medical graduate now needs to complete a fellowship and or other specialised course. Today the role of the GP can vary between (or even within) countries.

## USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES

Management of a disease process requires effective coordination in the chain of services that includes initial assessment, investigation to establish diagnosis, selecting the proper mode of treatment, arranging the right medication or intervention and follow-up. Quality management depends on error-free or risk minimisation processes. The specialisations of modern medical service into doctors, pharmacists, nursing and other support staff has error proneness unless managed effectively. Even with the most experienced professional services, treatment error is inevitable if the doctor's prescription is not legible to the pharmacist and the patient's ID gets distorted along the process. Studies show that the effectiveness of patient identification would increase in electronic prescriptions compared to handwritten ones (Albarrak et.al, 2014). An Australian survey in 2006 suggested that up to 10% of clients in GP care experienced an adverse drug event (Miller, Britt and Valenti, 2006). Information and Communication Technologies (ICT) would improve the speed of communication between GP and pharmacist as well as reducing the error of medication delivery to clients, that is, the correct

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