Human Factors

Technical Series on Safer Primary Care

World Health Organization

Human Factors: Technical Series on Safer Primary Care
ISBN 978-92-4-151161-2

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Suggested citation. Human Factors: Technical Series on Safer Primary Care. Geneva: World Health Organization; 2016. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

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Preface

Safer Primary Care

Health services throughout the world strive to provide care to people when they are unwell and assist them to stay well. Primary care services are increasingly at the heart of integrated people-centred health care in many countries. They provide an entry point into the health system, ongoing care coordination and a person-focused approach for people and their families. Accessible and safe primary care is essential to achieving universal health coverage and to supporting the United Nations Sustainable Development Goals, which prioritize healthy lives and promote well-being for all.

Health services work hard to provide safe and high quality care, but sometimes people are inadvertently harmed. Unsafe health care has been recognized as a global challenge and much has been done to understand the causes, consequences and potential solutions to this problem. However, the majority of this work up to now has focused on hospital care and there is, as a result, far less understanding about what can be done to improve safety in primary care.

Provision of safe primary care is a priority. Understanding the magnitude and nature of harm in primary care is important because most health care is now offered in this setting. Every day, millions of people across the world use primary care services. Therefore, the potential and necessity to reduce harm is very considerable. Good primary care may lead to fewer avoidable hospitalizations, but unsafe primary care can cause avoidable illness and injury, leading to unnecessary hospitalizations, and in some cases, disability and even death.

Implementing system changes and practices are crucial to improve safety at all levels of health care. Recognizing the paucity of accessible information on primary care, World Health Organization (WHO) set up a Safer Primary Care Expert Working Group. The Working Group reviewed the literature, prioritized areas in need of further research and compiled a set of nine monographs which cover selected priority technical topics. WHO is publishing this technical series to make the work of these distinguished experts available to everyone with an interest in *Safer Primary Care.*

The aim of this technical series is to provide a compendium of information on key issues that can impact safety in the provision of primary health care. It does not propose a "one-size-fits-all" approach, as primary care is organized in different ways across countries and also often in different ways within a given country. There can be a mix of larger primary care or group services with shared resources and small services with few staff and resources. Some countries have primary care services operating within strong national support systems, while in other countries it consists mainly of independent private practices that are not linked

or well-coordinated. The approach to improving safety in primary care, therefore, needs to consider applicability in each country and care setting.

This technical series covers the following topics:

Patients

- Patient engagement

Health workforce

- Education and training
- Human factors

Care processes

- Administrative errors
- Diagnostic errors
- Medication errors
- Multimorbidity
- Transitions of care

Tools and technology

- Electronic tools

WHO is committed to tackling the challenges of patient safety in primary care, and is looking at practical ways to address them. It is our hope that this technical series of monographs will make a valuable and timely contribution to the planning and delivery of safer primary care services in all WHO Member States.

1 Introduction

1.1 Scope

This monograph describes what "human factors" are and what relevance this approach has for improving safety in primary care. This section defines human factors. The next sections outline some of the key human factors' issues in primary care and the final sections explore potential practical solutions for safer primary care.

1.2 Approach

To compile information for this monograph, the World Health Organization (WHO) sought the advice of experts in the field recommended by the Safer Primary Care Expert Working Group and reviewed the relevant research and published literature. A librarian searched multiple databases and abstracts were reviewed. A grey literature search was conducted via the internet and international experts in delivering safe primary care, in particular from low- and middle-income countries were contacted to source additional input. For brevity, the citations of all references have not been included.

International experts provided feedback, shared examples of strategies that have worked well around the world, and gave practical suggestions about potential priorities for the WHO Member States to improve the safety of primary care services.

1.3 Defining human factors

Human factors and ergonomics are scientific disciplines concerned with:

> *"the understanding of the interactions among humans and other elements of a system, and the profession that applies theoretical principles, data and methods to design in order to optimize human well-being and overall system performance" (1).*

Human factors consider three domains of system design: physical, cognitive and organizational. The physical domain focuses on how the human body and physical activity interacts with work design, for example, the layout of computer desks. The cognitive domain focuses on how mental processes interact with other elements of systems. This includes memory, information processing and decision making. The organizational domain focuses on how individuals and teams interact with tools and technologies.

Examples of different elements of the systems in primary care include:

Physical elements

- Layout of the health care facility and examination room area to promote team communication and situational awareness whilst reducing distractions;
- Location of a computer in the patient examination room in relation to the health care provider and patient;
- Size of the computer screen and character font;
- Handle design of hand tools.

Cognitive elements

- Design and implementation of electronic health records;
- Clinical decision support tools.

Organizational elements

- Clarity of health care provider roles and job design;
- Communication and sharing of information between primary care service and hospitals;
- Designing high-performance teams.

A key principle of human factors approaches is that elements operate within systems. A system is a set of interdependent elements that work together to achieve a goal. To understand how systems perform, it is important to examine the individual system elements and the interactions between those elements.

The Systems Engineering Initiative for Patient Safety (SEIPS) model of patient safety divides systems into five elements: people; tools and technology; tasks; environment (physical and external) and organization. This model has been extended to include the external environment, patient processes of care within and outside health care, and the process of system adaptation.

A principle of systems is that a change to one element affects other elements and alters the system's behaviour. Thus, merely focusing on one element of the system, such as implementing an electronic health record without considering other system elements and interactions between the elements, will not improve patient safety overall *(2)*.

2 Human factors

Human factors approaches gained popularity in health care in the 1950s, but most work has focused on hospital settings. Primary care would benefit from using human factors approaches due to the complexity of primary care, the multiple elements in the system and the coordinating role that primary care plays.

Human factors approaches can be used to design systems that support health care providers to deliver safe patient care at the same time as reducing work injuries and improving the quality of people's working life *(3).* In other words, it is important to consider positive outcomes for both patients and the health care providers offering services. Changes that initially improve patient safety at the expense of outcomes for providers (e.g., clinician burnout and injury) are not sustainable.

Taking a human factors approach means that when safety incidents occur, it is important to have a non-punitive culture. Instead of blaming individuals for events, the systems approach focuses on:

- building systems to reduce potential risks and prevent future errors;
- building system defences to reduce the likelihood of errors resulting in patient harm.

The overall human factors philosophy is that the system should be designed to support the work of people, rather than designing systems to which people must adapt.

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