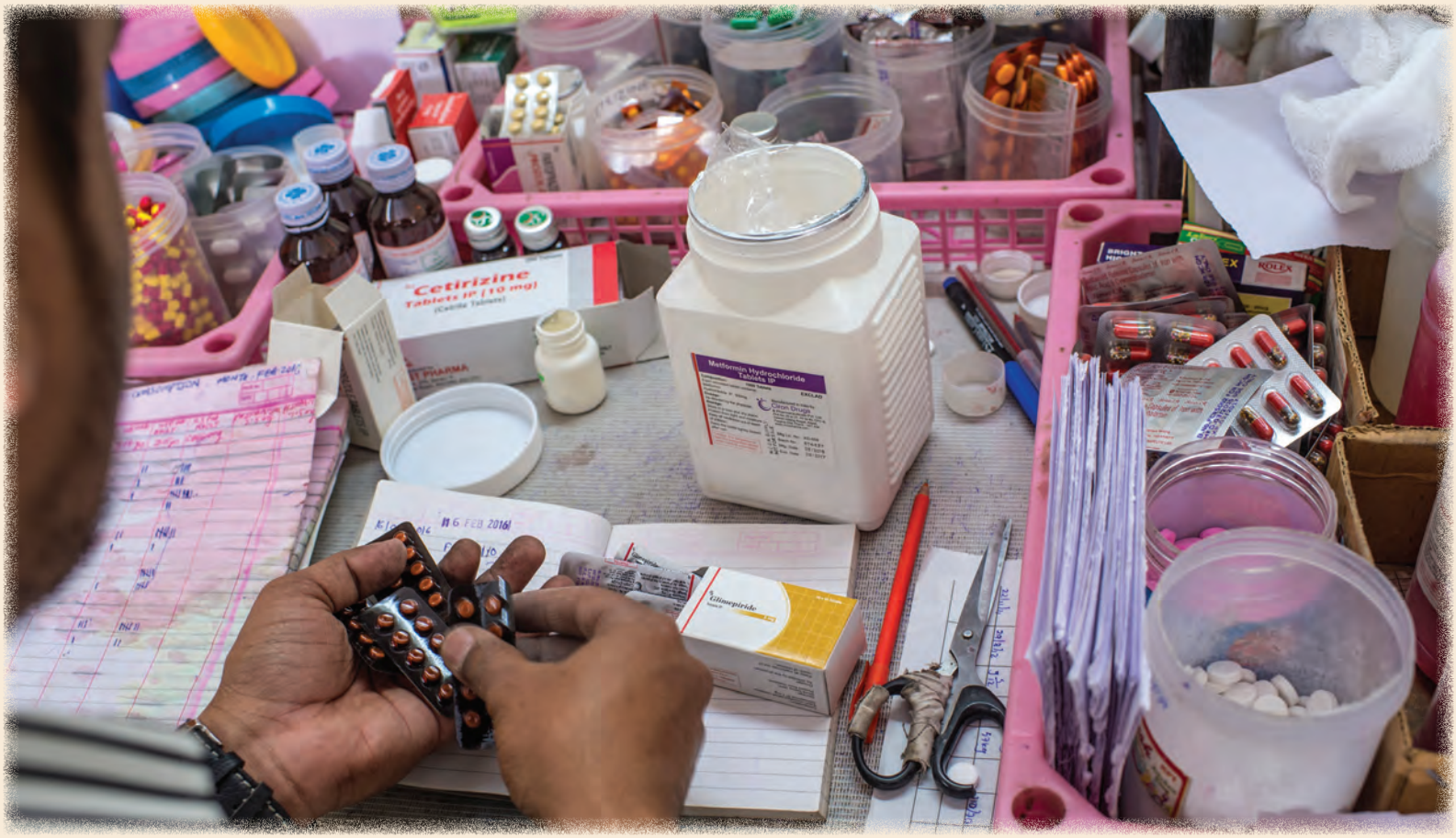
Medication Errors



Technical Series on Safer Primary Care

World Health Organization

Medication Errors: Technical Series on Safer Primary Care
ISBN 978-92-4-151164-3

Suggested citation. Medication Errors: 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

Medications are offered by health services throughout the world. However, with substantial and increasing medication use comes a growing risk of harm *(1).*This is compounded by the need to prescribe for an ageing population with increasingly complex medical needs and the introduction of many new medications. These issues are particularly relevant in primary care. In many cases, prescribing is initiated in primary care and those initiated in the hospital may also be continued in primary care.

A substantial amount of literature about medication errors is based in the hospital setting, but there are differences in the type of clinical problems encountered, classes of medications used and the organization of services in primary care. This means that the risks posed in primary care and the solutions required may differ from those in hospital settings.

This monograph aims to raise awareness among the World Health Organization (WHO) Member States about ways to reduce medication errors in primary care. After outlining the approach taken to compile information, the monograph describes the importance of investigating medication errors and their potential causes, including strategies to reduce them.

1.2 Approach

To compile information for this monograph, 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.

International experts in delivering safe primary care provided feedback, examples of strategies that have worked well around the world and practical suggestions about potential priorities for countries for improving the safety of primary care services.

1.3 Defining medication errors

There is no consensus about the definition of a medication error. A systematic literature review found 26 different terminologies employed for a medication error *(2).*

The United States National Coordinating Council for Medication Error Reporting and Prevention defines a medication error as:

> *"any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labelling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use" (3).*

This definition is broad and suggests that errors are preventable at different levels. Medication error has also been defined as a reduction in the probability of treatment being timely and effective, or an increase in the risk of harm relating to medicines and prescribing compared with generally accepted practice *(4).*

There are a number of different approaches to classifying medication errors (5). One approach is to base the classification on the stage in the sequence of medication use process, such as prescribing, transcribing, dispensing, administration or monitoring. Another approach is to consider the types of errors occurring, such as wrong medication, dose, frequency, administration route or patient. A further approach classifies errors according to whether they occur from mistakes made when planning actions (knowledge-based or rule-based mistakes) or errors in the execution of appropriately planned actions (action-based errors, known as "slips", or memory-based errors, known as "lapses").

Errors may also be classified according to their level of severity. These approaches are not mutually exclusive and there is no strong evidence to support particular methods of defining or classifying errors specifically in primary care. The approach taken will depend on the setting and the purpose of the classification.

2 Medication errors

Many studies have described medication error rates in hospital settings, but data for primary care is relatively scarce. This is particularly true of low- and middle-income countries, despite the increasing use of medications *(6).*

Estimating the prevalence of medication errors is difficult due to the varying definitions and classification systems employed. Rates can vary depending on the denominator used (e.g., patient, prescription or a specific medication). The challenge is compounded by variations in health care system organization and the availability and use of incident reporting systems *(7).*

These issues are reflected in the widely varying error prevalence rates reported in different parts of the world *(8).* For example, a United Kingdom study found that 12% of all primary care patients may be affected by a prescribing or monitoring error over the course of a year, increasing to 38% in those 75 years and older and 30% in patients receiving five or more drugs during a 12-month period. Overall, 5% of prescriptions had prescribing errors *(9).* A Swedish study found a medication error rate of 42%. However, two-thirds were related to a failure to state the purpose of the treatment on prescriptions and only 1% of errors resulted in an incorrect dose *(10).* A study from Saudi Arabia reported that just under one-fifth of primary care prescriptions contained errors, but only a small minority were considered serious *(11).* Another study in Mexico observed that 58% of prescriptions contained errors, with dosage regimen accounting for most cases (27.6%) *(12).* These examples are provided to show that medication errors are a global issue.

One systematic review employed an alternative approach to assessing error rates based on classifying medication usage processes. The review found error rates of 3% at the dispensing stage and failure to review repeat medications at least once at every sixth request in 72% of cases. Problems were also noted at the interface between primary and secondary care. Outpatient recommendations to general practitioners were associated with a 77% error rate and discrepancies in discharge medication following hospitalization affected 43% to 60% of items *(13)* indicating