Diagnostic Errors

Technical Series on Safer Primary Care

World Health Organization

Diagnostic Errors: Technical Series on Safer Primary Care

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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

Diagnosis is one of the most important tasks performed by primary care providers. Diagnostic errors can lead to patient harm from wrong or delayed testing or treatment. They have emerged as a global priority in patient safety.

This monograph raises awareness among the World Health Organization (WHO) Member States about strategies that could be implemented to reduce diagnostic errors in primary care. After outlining the approach taken to compile information, the monograph describes the importance of examining diagnostic errors, the most common types of diagnostic errors in primary care, and potential solutions.

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 relevant research and published literature.

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

1.3 Defining diagnostic errors

Correct and timely diagnosis relies on many factors, including the knowledge, experience and skill of primary care providers and the resources available to them. Diagnosis is a high-risk area for errors in primary care. Primary care providers typically see high numbers of people and their conditions are often difficult to diagnose due to potentially difficult clinical presentations *(1).* Primary care providers may have limited experience with uncommon diseases and varying access to diagnostic tests. The term "provider" is used throughout this monograph to refer to the primary care workforce.

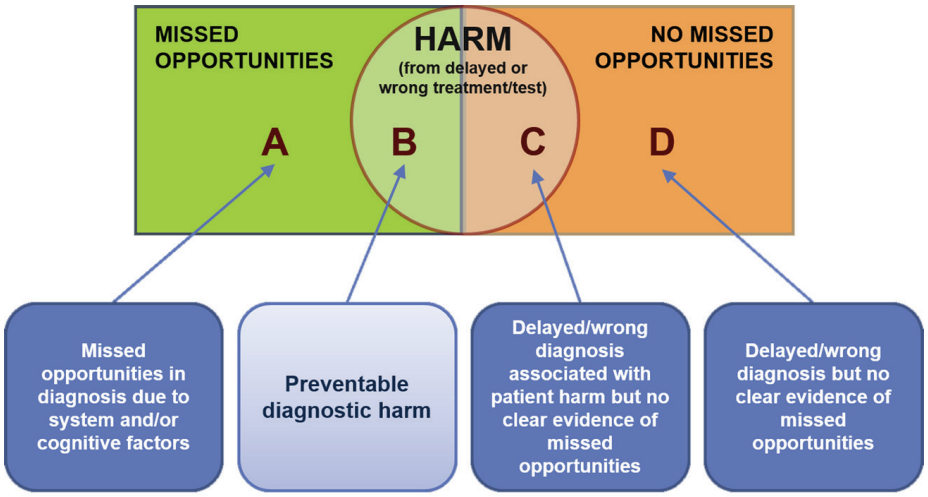
A diagnostic error emerges when a diagnosis is missed, inappropriately delayed or is wrong *(2).* Diagnoses can be completely missed (cancer missed despite symptoms), wrong (patients told they have one diagnosis when there is evidence of another) or delayed (abnormal test result suggestive of cancer, but no one has told the patient). There may be overlaps in these classifications.

Diagnoses often occur over time, rather than at one point in time, including initial assessment, performing and interpreting diagnostic tests, follow-up and tracking

of diagnostic information, referral-related communication and coordination, and patient behaviour, adherence and engagement. Diagnostic errors can occur at each of these points *(3)*.

Diagnostic errors are a failure to provide an accurate and timely explanation of the patient's health problems or communicate that explanation to the patient *(4)*. They are considered as missed opportunities to make a correct or timely diagnosis based on available evidence. The missed opportunity may result from cognitive or system factors or both. To reduce hindsight bias, there should be evidence of omission (failure to do the right thing) or commission (doing something wrong) at the point in time at which the error occurred *(5,6)*. Figure 1 depicts the relationship between diagnostic errors, missed opportunities and patient harm. Opportunities could be missed by providers, care teams, systems or the patient. A preventable error or delay in diagnosis may occur due to factors outside a provider's immediate control and have little to do with the provider's actions *(7)*.

Figure 1. Conceptual model of missed opportunities in diagnosis *(5,6)*



Rather than target all delays in diagnosis, health care organizations could hone their detection strategies by focusing on clear areas of needed improvement (for example, Area B) and choose at least one diagnostic error detection strategy.

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2 Burden of diagnostic errors

Errors in hospitals have been found to be significant, but this monograph suggests that it is also important to be aware of diagnostic errors in primary care. Diagnostic errors are relatively common in primary care *(8)* and most people will likely experience a diagnostic error in their lifetime *(4)*.

A study conducted in a high-income country found that approximately 5% of adults experienced diagnostic errors in outpatient settings each year. Over half of these errors had the potential for severe harm. The researchers suggested that this was likely to be an underestimate *(4)* and the rate of diagnostic errors in low-income countries may be much higher.

The extent of diagnostic errors related to children is unknown. However, a survey of children's doctors in a high-income country found that more than one-half reported making a diagnostic error at least once or twice per month and recognized that they made harmful errors at least once or twice a year *(7)*.

In low- and middle-income countries, there may be even greater challenges due to limited access to diagnostic testing resources, a paucity of qualified primary care professionals or specialists and limited record-keeping systems. These factors may contribute to a higher rate of diagnostic errors in primary care *(6)*.

Delays in diagnosing cancer are common. About 7% of abnormal test results are not communicated to patients, which can lead to a delay in diagnosis *(8)*. Breakdowns in the referral process can also lead to diagnostic errors and delays *(9)*.