Chapter 1
Learning to Accept Uncertainty as a Quality of Care Dimension

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ABSTRACT

Uncertainty in clinical decision-making is integral to the pathways chosen while applying available knowledge to a patient's care process. This chapter explores the ways in which uncertainty can be incorporated into the understanding of better performance approaches, and is thus proposed as an enabling dimension of performance. Tracing the keystone definitions of uncertainty from Hippocrates to Osler, the discussion addresses the dimensions of decision - making appropriateness, its timeliness, the expected and actual value of the care services, and the role of systematic communication between providers of care as well as with patients. The crucial role of Health Information Technology is emphasized, and a unifying model is proposed where the inclusion of uncertainty as a dimension of performance promotes an encompassing evaluation of the quality of health care services.

INTRODUCTION

Historically, decision -making during the management of disease was the domain and responsibility of the physician. Observation placed within a body of knowledge, derived from experience or didactically taught, was the framework for clinical decision –making. The artful application of knowledge, scientifically sustainable or not, constituted the identity of a profession where its members were given the social license to be the keepers of the knowledge they applied, as well as the evaluators of their own performance.

In the process of applying knowledge, the physician came to realize about the uncertainty of how various segments of knowledge interact. The management of this uncertainty has been associated with the "art" of applying incomplete and often untested knowledge toward the well-being of a patient. Hippocrates's teaching, stated in Latin, summarizes the above reality of medicine as "Ars longa, vita brevis" (the task is

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huge, life is too short). Centuries later, Osler formulated the profession as "Medicine is a science of uncertainty and an art of probability"(Brainy Quotes, 2012). It seems that medicine kept its identity almost intact over 20 centuries when dealing with the challenge of uncertainty. Yet, experimentation, also stated by Socrates, has acquired increasing importance as it can lead to a better understanding of how the segments of knowledge interact. In its most successful form, such experimentation can lead to evidence, or Evidence-based Medicine (EBM) (Bates, 2003; Guyatt, 2004; Strauss, 2005).

As background, let us review the relevant Aphorism of Hippocrates (Wikipedia, 2012):

Ὁ βίος βραχύς,
ἡ δ έ τέχνη μακρή,
ὁ δ έ καιρ ό ς ὁ ξύς,
ἡ δ έ πεῖρα σφαλερή,
ἡ δ έ κρίσις χαλεπή.

The translation of this text into English is:

Life is short,
The art is long,
Opportunity fleeting,
Experiment fallible,
Judgment difficult.

The last statement uses the ancient Greek word Kairos (κρίσις), which means "opportune moment," addressing the context and timing for the appropriate application of the knowledge. Kairos is different from Chronos, which deals with chronological timing (quantitative) – it defines a moment when an important decision is made (qualitative). Thus, judgment should best be seen as the culmination of the decision making within the context of the opportune moment.

The purpose of this chapter is to revisit the roots of clinical decision –making with a special emphasis on the management of uncertainty using information technology as the enabler for both responding in time to the "fleeting opportunity" and maximizing the appropriateness of the judgment within the "opportune moment."

BACKGROUND

Techne, Episteme, and Technology

A system of knowledge is required to define science, as Osler defined medicine. Therefore, the term "techne," when applied to medicine, may better be translated as "craft" rather than art, and be equated more with "episteme" to delineate the scientific boundaries and limitations of medicine. However, and for the purposes of this chapter, "techne" has a special importance as it is the root of the term "technology" and brings us to consider how technology enables practitioners of a craft to apply a system of knowledge, artfully.

Technology in Health Care

The past decade has seen the realization by healthcare payors that the increased volume, complexity, and efficiency in the production of health care services requires the use of automation for better management of utilization, and information gathering and sharing technologies for evaluating the goodness of the services. Indeed, for payors (insurance companies, communities, and governments) having a better understanding of the utilization patterns and the justifiability of the services rendered has an immediate business dimension to it – paying for what is appropriate.

But historically, appropriateness has been determined by the keepers of the episteme, the system of knowledge about the craft. Unless a common set of parameters is used by the medical professionals and the payors (as defined above), an agreement about the goodness of the services cannot be established. More importantly, the medical profession would see the gathering of data about their performance, via information technologies,