

# Chapter 15

## Design of an Online Continuing Education Module: Herbal and Dietary Supplements Impact Warfarin Safety and Efficacy

**Jennifer L. Strohecker**  
*Intermountain Medical Center, USA*

**Wendy Athens**  
*University of Florida, USA*

### **EXECUTIVE SUMMARY**

*This chapter details the design of an online continuing education module (Quarterly Education Module, QEM) intended to educate more than one thousand clinicians in a large western U.S. healthcare system about Herbal and Dietary Supplement (HDS)-drug interactions and induce them to bridge the patient-physician communication gap. Despite the importance and relevance of the QEM and its successful pilot, this fully-developed QEM has a delayed launch due to the departure of its administrative champion.*

*The core instructional objective was a behavior change: Clinicians must ask patients about HDS use when taking a medical history and document this use in the medical record. HDS use is prevalent among Americans and sales are increasing. When taken in conjunction with prescription medications, HDS-drug interactions are common and may result in unexpected and serious patient harm. Patient's failure to report HDS use to their medical provider, and a provider's failure to ask specifically about HDS use, further complicate the picture.*

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## **ORGANIZATION BACKGROUND**

The healthcare system for this project was a large, nonprofit health system based in the Intermountain West. It was comprised of 23 hospitals, dozens of clinics, and an independent health insurance plan. The healthcare system utilized electronic medical charting in both the inpatient and outpatient settings, and had gone “paperless” in almost all other areas of healthcare delivery. Likewise, ongoing clinician education was a requirement of each employee, and was disseminated through an online system (as QEMs) into individual user accounts quarterly. Typically, a clinician must complete three or four QEMs per quarter to maintain their continuing education requirements. Failure to complete assigned QEMs results in disciplinary action and potential termination. Thus, clinicians are motivated to complete their assigned QEMs. The presence of an established and integrated healthcare system which utilized an electronic system for charting and education made the dissemination of the HDS-drug interaction QEM straightforward within this organization. It also provided a means to receive feedback and measure behavior changes through data capture in a central repository.

## **SETTING THE STAGE**

Patient safety was the impetus for clinician training within a large western U.S. healthcare organization. It was deemed crucial for a clinician to recognize that HDS use is common and underreported, and that this use may influence the efficacy and safety of drugs with a narrow safety window, such as warfarin. Warfarin (Coumadin®) is a gold standard anticoagulant for prevention of stroke and venous thromboembolism, yet many factors can influence warfarin safety and efficacy. Variations in diet, alcohol consumption, and drug or herbal supplement use may alter warfarin levels, leading to either bleeding complications or treatment failure (stroke). Warfarin accounts for more emergency room visits than any other drug (Budnitz, 2007), and in 2009, the Joint Commission made the appropriate use of warfarin a National Patient Safety Goal ([http://www.jointcommission.org/NR/rdonlyres/31666E86-E7F4-423E-9BE8-F05BD1CB0AA8/0/HAP\\_NPSG.pdf](http://www.jointcommission.org/NR/rdonlyres/31666E86-E7F4-423E-9BE8-F05BD1CB0AA8/0/HAP_NPSG.pdf)).

National surveys indicate that 50% of U.S. adults (>50 years) use Herbal and Dietary Supplements (HDS), and use may be greater in warfarin-treated patients (Strohecker, 2012). Of great concern is the lack of communication between patient and clinician about HDS use. Nearly two-thirds of Americans who use HDS, including warfarin-treated patients, fail to report use to their medical provider (Barnes, Bloom, & Nahin, 2008; Strohecker, 2012). This translates to the odds of 5.4 to 1, or 81% chance, that the patient is taking HDS and the clinician never asks about their

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