

# Chapter 1

## Introduction to Pharmaceutical Care and Medication Adherence

### **ABSTRACT**

*Pharmaceutical care is a concept that involves identifying, solving and preventing drug-related problems, such as drug interactions, with regards to a patient's drug therapy. Cancer patients are at high risk of drug interactions due to the complex pharmacological profiles and narrow therapeutic indices of anticancer drugs. Furthermore, these patients tend to consume complementary and alternative medicines, thus predisposing them to a risk of herb-drug interactions. This can impact their adherence to anticancer therapies. Various factors are involved in medication non-adherence, such as the cost of medications and patients' beliefs about the value of their treatments. There is a need to understand the impact of non-adherence and optimize intervention strategies from a macro-, meso-, and micro-level. Chapter 1 introduces the concept of pharmaceutical care and the impact of oncology drug interactions and medication non-adherence in patients with cancer. The chapter will also provide an insight to the factors influencing medication adherence and the intervention strategies that have targeted non-adherence.*

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## **INTRODUCTION**

The provision of pharmaceutical care is a concept that involves identifying, solving, and preventing potential or actual drug-related problems (DRPs) with regards to a patient's drug therapy (American Society of Hospital Pharmacists, 1993). In general, DRPs can be categorized into problems and causes, and are related to factors such as drug choices, drug doses, drug interactions, adverse drug events due to drug administration, medical errors of omission, and patient-related factors (Anderson; Pharmaceutical Care Network Europe). As a system of healthcare delivery to patients, pharmaceutical care requires the coordinated efforts of all healthcare professionals, including physicians, pharmacists, nurses, and other health practitioners. In the clinical setting, various healthcare professionals work in tandem to provide pharmaceutical care to patients. Certain therapeutic decisions, such as dose adjustments, are made on the basis of experience and trial-and-error methods, which is subjective and time-consuming. Healthcare professionals are responsible for patient treatment outcomes that result from their actions, but it is not always possible to achieve desirable therapeutic outcomes in patients as a result of DRPs.

One of the DRPs that is common in patients with cancer is drug interactions. Many of them receive multiple medications to treat their co-morbid conditions and toxicities that are associated with anticancer treatments and cancer-related syndromes. A drug interaction is defined as a change in the way a drug acts in the body when taken with certain other drugs, herbs, foods, or when taken with certain medical conditions (U.S. National Institutes of Health). It may cause the drug to be more or less effective or cause a unique response that does not occur when either agent is given alone. Approximately 20-30% of all adverse drug reactions (ADRs) are due to drug interactions (Beijnen & Schellens, 2004; Kuhlmann & Muck, 2001). The potential for an interaction is about 6% when 2 drugs are prescribed together and the risk increases markedly to 84% when the number of concomitant medications is increased to 6 (Karas, 1981; Kuhlmann & Muck, 2001). At least one potential drug-drug interaction (DDI) occurs in 27% of patients with cancer, of which 13% involves an anticancer drug (ACD), and 86% are classified as being of moderate or major severity (Riechelmann et al., 2007). The complex pharmacological profiles of ACDs, their narrow therapeutic indices and steep dose-toxicity curves, predispose patients with cancer to high incidences of DDI-related adverse events. In addition, patient-related factors, such as age-related renal

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