Pharmacogenomics
Principles and relevance to oncology nursing

Crystal H. Dodson, PhD, RN, BC-ADM

BACKGROUND: Pharmacogenomics is the fastest growing field in precision medicine. Based on current use, oncology encompasses the largest share of the precision medicine market, necessitating that oncology nurses understand the principles of pharmacogenomics and how it affects clinical practice.

OBJECTIVES: This article will define precision medicine and pharmacogenomics and will provide examples of pharmacogenic tests, including those associated with tumor markers, and nursing implications.

METHODS: Educational and clinical resources are supplied for oncology nurses to expand their pharmacogenomics expertise.

FINDINGS: The knowledge surrounding precision medicine and pharmacogenomics will position oncology nurses to engage in current research, improve practice, and educate patients. As the focus of health care remains on reducing costs and improving morbidity and mortality, the reduction in adverse drug reactions will continue to be highlighted. Tailoring medications based on individual responses will not only help improve patient outcomes but also potentially affect the cost of health care as these genetic tests become a standard of care.

KEYWORDS
pharmacogenomics; precision medicine; oncology; nurses

DIGITAL OBJECT IDENTIFIER
10.1188/17.CJON.739-745

RELEVANCE TO NURSING PRACTICE
UpToDate® reported that an estimated 380,000–450,000 preventable adverse drug reactions (ADRs) occur annually in U.S. hospitals (Zhu &