



# Public Health Implications of Counterfeit Medications

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**ABSTRACT:** Counterfeit medications are broadly defined as drugs that can contain inadequate amounts of active ingredients, contain the wrong active ingredients, be contaminated with harmful substances, and/or be falsely labeled. These medications are a public health issue globally, and their presence in the United States is growing. Counterfeit medications are produced without regulatory oversight and are distributed illegally, often via online sources. Use of these medications can result in adverse effects or a lack of improvement in a person's health condition. Nurses can assess where individuals are obtaining their medications and provide education about the potentially serious risks posed by counterfeit medications and how to avoid them.

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**KEYWORDS:** counterfeit medications, online pharmacy, poor-quality medications, spurious medications, substandard and falsified

The growth in counterfeit medications is a significant public health issue. These products are produced and marketed as equivalents to the regulated versions of the medications they represent, but they can contain ingredients that are incorrect or of poor quality or can contain the wrong amount of an active pharmaceutical ingredient. They may also be mislabeled. This can cause an inadequate therapeutic response or contribute to mortality and morbidity among those who use these medications (Liu & Lundin, 2016). This column will provide an overview of counterfeit

medications, discuss the prevalence and significance of the problem, and present practice implications for nurses.

## Definition of Counterfeit Medications

In this article we use the term *counterfeit medications*, but there are varying definitions and terms used to describe this phenomenon. Although there is no universal consensus on terminology, the World Health Organization (WHO) has recently updated its language related to this issue. At the 70th World Health Assembly in May 2017, the WHO agreed to

## CLINICAL IMPLICATIONS

- Counterfeit medications are produced and marketed as equivalents to the regulated version of the medications they represent, but they can contain ingredients that are incorrect or of poor quality or can contain the wrong amount of active pharmaceutical ingredient.
- Counterfeit medications are a growing problem in the United States and worldwide.
- Antibiotics and antiparasitics are the classes of medications most commonly found to be counterfeit.
- Consumers trying to save money might unwittingly obtain counterfeit medications from online sources and/or countries where counterfeit medications are highly prevalent.
- Nurses can assess where individuals are obtaining their medications and provide education about how to avoid counterfeit products.

adopt the term *substandard and falsified* to refer to medical devices and products that fail to meet established quality standards or deliberately and/or fraudulently misrepresent their identity, ingredients, composition, or source or origin (WHO, 2017a). Counterfeit medications have also been referred to as *spurious medications* (Almuzaini, Choonara, & Sammons, 2013) and *poor-quality medications* (Johnston & Holt, 2014).

### Scope of the Problem

The distribution of counterfeit medications is increasing in the United States and around the world. It is difficult to assess the full extent of the problem because most reports of counterfeit medications are anecdotal, and some individuals may never suspect or realize that they are taking a product that could be falsified or contain altered ingredients. Antibiotics and antiparasitics are the classes of medications most commonly found to be counterfeit (Johnston & Holt, 2014). Up to 10% of all medications sold worldwide are estimated to be counterfeit (Blackstone, Fuhr, & Pociask, 2014), but specific countries appear to be more severely affected by this problem. In certain parts of Africa and Asia, it has been estimated that up to 70% of medications sold are counterfeit (Clark, 2015).

A large portion of counterfeit medications are sold through online pharmacies and websites. According to estimates from the WHO, about 50% of all medications sold online are counterfeit (Johnston & Holt, 2014). Researchers from the United Kingdom documented that 25% of general

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practitioners who were surveyed reported they had cared for individuals who had experienced adverse effects from medications ordered online. It is difficult, however, to produce an accurate estimate for the number of people who purchase medications online because many are reluctant to report it to health care providers (Clark, 2015).

### Potential Negative Health Outcomes

Counterfeit medications can negatively affect health in many ways. A decreased concentration or altogether absence of the active pharmaceutical ingredient of a drug can prevent an individual's condition from improving and potentially lead to death as a result. In the case of antibiotics, a less-than-therapeutic concentration of the active pharmaceutical ingredient can fail to resolve an infection and can contribute to antibiotic resistance. When a treatment appears to fail, a health care provider may then prescribe a different, more broad-spectrum antibiotic, which can further contribute to antibiotic resistance (Johnston & Holt, 2014).

The addition of harmful or incorrect ingredients to a medication can also cause significant health problems. Individuals may experience adverse reactions because of the ingestion of unsuspected ingredients or experience a negative interaction between these ingredients and other prescribed medications (Blackstone et al., 2014). Counterfeit medications may have been contaminated with substances

Although legitimate online pharmacies exist and require a valid prescription from a health care provider, there are many rogue, unlicensed pharmacies that illegally sell medications



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