

Working while sick may demonstrate an admirable sense of responsibility to patients and colleagues, but clinicians also need to worry about the real danger of infecting vulnerable patients as well as colleagues and staff.

Deborah Grady, MD, MPH

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RESEARCH LETTER

The Epidemiology of Drug Recalls in the United States

On January 31, 2012, Pfizer recalled nearly 1 million packs of birth control pills because of concerns that inert and active pills were miscounted and incorrectly ordered in their blister packs.¹ This and other recent recalls highlight concerns about the potential clinical impact of defective and otherwise compromised drug products. However, little is known about the public health burden of drug recalls and whether health care providers are properly notified about clinically important recalls. We sought to quantify the frequency, cause, and extent of distribution of drug recalls in the United States and to evaluate the processes by which the US Food and Drug Administration (FDA) communicates clinically important recall information to health care providers.

Methods. We obtained data for all drug recalls in the United States between 2004 and 2011 from the publicly accessible FDA Enforcement Reports, which contain information on actions taken in relation to regulatory activities.² For all Class I recalls—those with the greatest likelihood of causing patient harm³—we extracted the number of recalled lots and affected units, the geographic distribution of recalled units, the reason for the recall, and the presence of adverse events associated with the recall. To assess communication of clinically important recall information to health care providers, we cross-referenced Class I recalls with the FDA Archive for Recalls, Market Withdrawals & Safety Alerts (“Recall Alert System”), which the FDA uses to publish and notify subscribers of manufacturer-issued press releases about recalls of drugs and other FDA-regulated products.⁴ We also evaluated Class I recall communication through a second source—the FDA MedWatch Safety Alerts database (“MedWatch”)—which is sometimes used to communicate drug recall information.⁵

Results. Between 2004 and 2011, there were 1734 drug recall entries in the FDA Enforcement Reports; 91 were Class I (5%). The most common reasons for the recalls were contamination (n=36; 40%) and wrong dose or release mechanism (n=23; 25%) (**Table**). Most recalls affected multiple lots (n=56; 62%) and more than 1000 units (n=64; 70%), and 73 recalls involved units distributed na-

Table. Characteristics of FDA Class I Drug Recalls, 2004-2011

Characteristic	No. (%)
Total	91 (100)
Lots recalled, No.	
1	30 (33)
2-25	33 (36)
>25 or all	23 (25)
Data not available	5 (5)
Units recalled, No. ^a	
1-1000	24 (26)
1001-100 000	33 (36)
>100 000	31 (34)
Data not available	3 (3)
Extent of distribution	
Several states	18 (20)
Nationwide and Puerto Rico	58 (64)
Beyond the United States and Puerto Rico	15 (16)
Reason for recall	
Contamination	36 (40)
Wrong dose or wrong release mechanism	23 (25)
Product mix-up	15 (16)
Mislabeling	14 (15)
Other	3 (3)
Recalls with adverse events mentioned in FDA Enforcement Reports	5 (5)
Means of FDA communication	
Both recall alert system announcement and MedWatch notification	53 (58)
MedWatch notification only	18 (20)
Recall alert system announcement only	2 (2)
Neither recall alert system announcement nor MedWatch notification	18 (20)

Abbreviation: FDA, US Food and Drug Administration.

^aUnits include bottles, vials, cartons, bags, or other vessels specified in the FDA Enforcement Reports.

tionwide or beyond (80%). Five recalls were initiated in response to adverse events (5%), ranging from lip swelling to death (eTable; <http://www.archinternmed.com>).

During this same period, the FDA issued 2912 Recall Alert System announcements, of which 166 were major human drug recall announcements for 126 unique products. Only 55 of these 126 were Class I recalls (47%). The FDA did not issue a Recall Alert System notice for 36 Class I recalls (40%); however, half (n = 18) were communicated through MedWatch, including all 5 recalls initiated in response to adverse events. Eighteen of 91 Class I recalls were not communicated through either system (20%).

Comment. Clinically important drug recalls occur nearly once per month in the United States and usually involve thousands of affected units distributed nationwide or beyond. Despite recent efforts by the FDA to address the drug recall burden,⁶ health care providers may be inadequately informed about clinically important recalls that threaten patient safety. The FDA did not issue any notifications through the Recall Alert System or MedWatch for one-fifth of Class I recalls. As the main mechanism of communicating recall information, the Recall Alert System should notify health care providers of all clinically important human medical product recalls.

Equally problematic, the Class I recalls that are communicated through the Recall Alert System become buried in a system that is also used for recalls that have little or no bearing on patient care (eg, veterinary drug recalls). It may be difficult for providers who subscribe to and rely on these alerting systems to identify those recalls that are of particular importance.

In addition to improving communication of drug recall information, a system is needed to track the distribution of affected products throughout the supply chain to the patient level. Electronic tagging systems, such as radiofrequency identification technology, would enable pharmacies to quickly identify and notify affected individuals as soon as a recall is initiated, helping minimize exposure to potentially harmful products.⁷

Our analysis has several limitations. Only 5% of Enforcement Report entries for Class I recalls noted adverse events, which likely underestimates the frequency with which recalled products cause harm. The entry describing the 2008 heparin contamination did not mention adverse events; however, an FDA analysis found an excess of adverse events, including deaths, associated with contaminated heparin.⁸ Also, we did not evaluate other mechanisms by which health care professionals might receive drug recall information, such as “Dear Doctor” letters from manufacturers.

In conclusion, drug recalls in the United States are common and often involve serious defects that pose health risks to patients. Given the large number of affected units per recall and the widespread distribution of these units, solutions are needed to minimize patient harm when recalls occur. A comprehensive strategy would ensure that health care providers are properly notified about all clinically important drug recalls.

Bo Wang, PharmD
Joshua J. Gagne, PharmD, ScD
Nitesh K. Choudhry, MD, PhD

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Author Affiliations: Division of Pharmacoepidemiology and Pharmacoeconomics, Department of Medicine, Brigham and Women’s Hospital and Harvard Medical School, Boston, Massachusetts.

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Correspondence: Dr Gagne, Division of Pharmacoepidemiology and Pharmacoeconomics, Department of Medicine, Brigham and Women’s Hospital and Harvard Medical School, 1620 Tremont St, Ste 3030, Boston, MA 02120 (jgagne1@partners.org).

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COMMENTS AND OPINIONS

A Different Perspective Regarding Prostate-Specific Antigen Testing

I wish to provide a different perspective regarding prostate-specific antigen (PSA) testing and prostate cancer to the one reported by Dr Bennet.¹ I was diagnosed as having prostate cancer at a similar age to Dr Bennet (57 years) some 6 years ago. I had routinely checked my PSA on a yearly basis, and it was typically around 2.0 ng/mL (to convert to micrograms per liter, multiply by 1). When retested it went up to 3.3 ng/mL, an unusual increase compared with my previous values but still within what was considered the “normal range.” Despite that, I was concerned about the sudden increase. I had symptoms of benign prostatic hyperplasia, and my father had prostate cancer in his mid 70s. I decided to consult a urologist colleague. On examination, my prostate was slightly asymmetric but without nodules. My urologist told me it was very unlikely to have prostate cancer but recommended a biopsy because of my family history. One of 10 biopsy specimens was reported positive for prostate cancer, with a Gleason score of 6 (3 + 3).

Deciding on options was difficult and gave me a greater appreciation for the difficulty that our patients face when confronted with these decisions. I opted for a total prostatectomy with a surgeon highly experienced in robotic surgery. I left the hospital the day after my surgery. The pathologic examination results showed the margins were clean, but the Gleason score was revised to 7 (3 + 4) and cancer was found in another lobe of the prostate. I had no complications from the surgery, my sexual function is excellent, and I do not have to use any pads for bladder leakage. I believe I made the correct decision to have