



Original Contribution

Medication injection safety knowledge and practices among anesthesiologists: New York State, 2011 ☆, ☆☆☆, ★

Prabhu Gounder MD (EIS Officer)^{a,b,*},
Richard Beers MD (Professor of Anesthesiology)^{c,d},
Katherine Bornschlegel MPH (Research Scientist)^b,
Kinjia Hinterland MPH (Research Scientist)^e,
Sharon Balter MD (Medical Director)^b

^aScientific Educational and Professional Development Program Office, Centers for Disease Control and Prevention, Atlanta, GA 30333, USA

^bBureau of Communicable Disease, New York City Department of Health and Mental Hygiene, Queens, NY 11101, USA

^cDepartment of Anesthesiology, Veterans Administration Medical Center, Syracuse, NY 13210, USA

^dDepartment of Anesthesiology, State University of New York Upstate Medical University, Syracuse, NY 13210, USA

^eBureau of Epidemiology Services, New York City Department of Health and Mental Hygiene, Queens, NY 11101, USA

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Abstract

Study Objective: To survey anesthesiologists to assess medication injection safety knowledge and practices, and to improve infection control programs of the New York City Department of Health and Mental Hygiene and the New York State Society of Anesthesiologists (NYSSA).

Design: Survey instrument.

Setting: Scientific Educational and Professional Development Program Office, Centers for Disease Control and Prevention, Atlanta, GA, USA.

Measurements: A confidential, 23-question survey was emailed to a total of 2,310 NYSSA members. Data from the survey were culled from the responses of NYSSA members who practiced in New York State only.

Main Results: Of the 607 survey respondents, 595 met inclusion criteria (response rate 26%). Of these, 94% to 99% correctly answered 4 categories of questions about injection-contamination mechanisms. Respondents reported unacceptable practices (eg, not using a new needle and syringe for each new patient [3%]; not using a new needle and syringe to access medication vials [28%]; and combining vial content leftovers [11%]). Resident physicians reported these unacceptable practices more often than attending physicians. Use of medication vials for multiple patients (permitted for multi-dose vials but a potentially

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★ Note: The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

* Correspondence: Prabhu Gounder, MD, MPH, Arctic Investigations Program, Centers for Disease Control and Prevention, 4055 Tudor Centre Dr., Anchorage, AK 99508, USA.

E-mail address: iym4@cdc.gov (P. Gounder).

high-risk practice) was reported by 49% of respondents and was more common among those who worked in outpatient settings. Reported barriers to using a new medication vial for each new patient were medication shortages (44%), reduction of waste (44%), and cost (27%). Unacceptable or potentially high-risk practices were more common among respondents who reported \geq one barrier.

Conclusions: Although they were not necessarily representative of all anesthesiologists in New York State, unacceptable or high-risk injection practices were common among respondents despite widespread knowledge regarding injection-contamination mechanisms. System barriers contribute to the use of medication vials for multiple patients.

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1. Introduction

Over the last decade, unsafe medication injection practices have been implicated in numerous health care-associated infectious disease outbreaks, commonly bacterial and viral infections [1,2]. In particular, health care-associated transmission of hepatitis B virus (HBV) and hepatitis C virus (HCV) among nonhospital settings has been acknowledged as an important problem. Between 1998 and 2011, a total of 62 health care-associated transmission outbreaks in the United States, resulting in 676 acute HBV and HCV infections, were documented in settings outside the hospital [2,3]. These outbreaks have been associated with improper use of injectable medications (eg, reuse of syringes for $>$ one pt or for reaccessing medication vials intended for $>$ one pt) and are often related to anesthesia delivery occurring in outpatient settings. The number of health care-associated transmission events is likely underestimated because most persons with incident infections are asymptomatic, investigating each report is resource intensive, and establishing a clear association with a health care procedure is difficult. After a transmission event is confirmed, clinicians or health departments can notify other patients who were potentially exposed and advise them to be tested. During the past decade, more than 12,000 New York City residents have received such a notice in response to confirmation that nosocomial hepatitis transmission occurred at a New York City health care facility where they had undergone a medical procedure or anesthesia. Given the substantial number of patients potentially affected, these events are of significant public health concern.

Health care-associated transmission events may be preventable with adherence to established infection control guidelines. The One and Only Campaign, led by the Centers for Disease Control and Prevention (CDC) and the Safe Injection Practices Coalition (SIPC), is an example of a national effort to educate providers about safe medication injection practices [4]. Because anesthesiologists commonly administer injectable medications, reducing health care-associated transmission of infections is also a priority for the New York State Society of Anesthesiologists (NYSSA), a professional organization representing approximately 2,300 anesthesiologists, dedicated to improving the quality of patient care.

Despite educational efforts, a recent survey of health providers indicated that the prevalence of unsafe injection practices remains unacceptably high [5]. To more fully

understand why unsafe practices persist, the New York City Department of Health and Mental Hygiene (DOHMH) collaborated with NYSSA to survey NYSSA members. The survey results may be used to devise an expanded strategy to reduce health care-associated transmission of bloodborne pathogens (eg, improving infection control training).

2. Materials and methods

2.1. Participants

All 2,310 resident and active attending NYSSA members practicing in New York State were asked to participate in the survey; no incentives were offered for participation. This survey underwent review by the Human Subjects Protection Coordinator of the CDC's Scientific Education and Professional Development Program Office and was determined to be nonresearch.

2.2. Survey content

A 23-question survey was developed to determine anesthesiologists' knowledge and practices regarding their use of injectable medications during the previous 6 months. Survey questions were developed on the basis of a review of medication injection safety guidelines [6,7], a review of descriptions of previous bloodborne pathogen outbreaks [2,3], and input from resident and attending anesthesiologists. The survey included 4 categories of questions. The first category collected information regarding respondent characteristics, including the year of residency graduation (used to determine resident vs attending physician status), hours of direct patient care provided/week, years since completing an infection control course (required every 4 yrs by the New York State Department of Health to maintain a medical license), settings in which they provide anesthesia, and if they provided anesthesia for two common types of outpatient procedures (gastrointestinal [GI] and pain management). Procedures performed in an office-based surgical practice, freestanding ambulatory surgical center, or hospital-based ambulatory surgery center were classified as outpatient. Anesthesiologists who did not indicate that they performed any procedures in the outpatient setting were classified as having an exclusively inpatient practice.

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