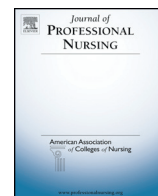




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Nurse practitioner malpractice data: Informing nursing education<sup>☆</sup>Casey Fryer Sweeney<sup>a,\*</sup>, Anna LeMahieu<sup>a</sup>, George E. Fryer<sup>b</sup><sup>a</sup> MGH Institute of Health Professions, 36 1st Avenue, Boston, MA 02129, United States<sup>b</sup> University of Arkansas for Medical Sciences, Little Rock, AR, United States

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## ABSTRACT

**Background:** Nurse practitioners (NPs) are often identified in medical malpractice claims. However, the use of malpractice data to inform the development of nursing curriculum is limited. The purpose of this study is to examine medical errors committed by NPs.

**Methods:** Using National Practitioner Data Bank public use data, years 1990 to 2014, NP malpractice claims were classified by event type, patient outcome, setting, and number of practitioners involved.

**Results:** The greatest proportion of malpractice claims involving nurse practitioners were diagnosis related (41.46%) and treatment related (30.79%). Severe patient outcomes most often occurred in the outpatient setting. Nurse practitioners were independently responsible for the event in the majority of the analyzed claims.

**Conclusion:** Moving forward, nurse practitioner malpractice data should be continuously analyzed and used to inform the development of nurse practitioner education standards and graduate program curriculum to address areas of clinical weakness and improve quality of care and patient safety.

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## Introduction

In recent years, a major paradox has existed within the United States health care system. The United States spends over \$8895 per capita on health care annually – more than any other country – and yet its chronic disease and mortality rates exceed those of comparable high-income nations (Woolf & Aron, 2013; World Health Organization, Global Health Observatory, 2012). Furthermore, a substantial proportion of these illnesses and deaths are preventable. Medical error, defined as “the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim”, accounts for approximately 400,000 deaths per year, making it the third most common cause of death in the United States (Makary & Daniel, 2016; James, 2013; Institute of Medicine, IOM, 2000). Identifying major sources of medical error can help reduce the number of preventable deaths and health care costs, and lead to better patient outcomes.

In 2014, 30 million individuals gained health care coverage under the Patient Protection and Affordable Care Act (PPACA), placing an increased demand on the healthcare professions workforce (Yee, Boukus, Cross, & Samuel, 2013; Glied & Ma, 2015). This increase in demand has led to the growth of nurse practitioners (NPs) in the clinical

workforce, particularly in the primary care setting – a trend that is projected to continue through 2025 (Auerbach, 2012). While there is an abundance of literature available on medical error involving physicians, there is less literature on medical error involving NPs.

A review of the literature indicates that nurse practitioner malpractice studies most frequently focus on tabulating and comparing rates and types of claims by provider type, specifically nurse practitioners, physician assistants and physicians (Brock, Nicholson, & Hooker, 2016; Miller, 2013; Miller, 2012; Miller, 2011; Hooker, Nicholson & Le, 2009; Carson-Smith & Klein, 2003; Birkholz, 1995). Studies consistently identify diagnosis related causes as the most frequent allegation across provider types (Miller, 2013; Miller, 2012; Miller, 2011; Hooker, Nicholson, & Le, 2009; Carson-Smith & Klein, 2003). Physicians are found to have higher rates of malpractice claims when compared to both physician assistants and nurse practitioners (Brock et al., 2016; Leigh & Flynn, 2013; U.S. Department of Health and Human Services, 2012; Hooker et al., 2009). Some studies examine payout amounts and clinician disciplinary actions in nurse practitioner malpractice (Brock et al., 2016; Leigh & Flynn, 2013; Balestra, 2013; Hooker et al., 2009). Many authors make recommendations to protect nurse practitioners from the filing of malpractice claims against them as well as the consequences of filed claims. Such recommendations most often include obtaining sufficient malpractice insurance and employment contracts (Brown & Dolan, 2016; Balestra, 2013; Leigh & Flynn, 2013; Gerchufsky, 2002; Coakly, 2011), improving patient medical record documentation and informed consent (Dolan & Farmer, 2016; Leigh & Flynn, 2013; Balestra, 2013), and being particularly diligent with high mortality and high morbidity diseases (Leigh & Flynn, 2013). However, there is little indicating that

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NP malpractice data is being used to inform the development of nursing education curriculum.

To address this limitation, we analyzed public-use data from the National Practitioner Data Bank between 1990 and 2014 to characterize the most serious medical errors committed by NPs (NPDB, 2014). Since 1990, the National Practitioner Data Bank (NPDB) has served as a federal repository for reports of malpractice payments involving health care providers. We propose to better target nursing education to meet the needs of NPs by:

- Identifying the most common types of medical error involving NPs.
- Formulating and revising nursing education curriculum to specifically address error-prone clinical processes and situations.
- Providing this data to regulatory and accrediting agencies responsible for developing NP educational standards.

Utilizing NP malpractice data in this manner can help reduce preventable medical error and subsequently improve the quality and safety of the health care delivery system. The specific research questions were as follows:

1. What was the total number of nurse practitioner paid malpractice claims and their frequency over time during the study period?
2. What were the most common allegation groups for nurse practitioner paid malpractice claims during the study period?
3. What was the most common health care setting for nurse practitioner paid malpractice claims during the study period?
4. What were the most common patient outcomes for nurse practitioner paid malpractice claims during the study period?
5. How often were nurse practitioners cited as the sole clinician responsible in nurse practitioner paid malpractice claims during the study period?
6. How can these research findings inform nurse practitioner curriculum?

## Methods

A retrospective analysis of the National Practitioner Data Bank (NPDB) Public Use Data file was performed for the years 1990–(November) 2014, on cases of nurse practitioner events leading to malpractice payments (judgment or settlement). The NPDB contains details of medical malpractice payment reports paid behalf of any licensed health care practitioner and made available by the Department of Health and Human Services' Health Resources and Services Administration. The Healthcare Quality and Improvement Act of 1986 stipulates mandatory reporting of all payment events (U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis, 2014; Bishop, Ryan, & Casalino, 2011; Chandra, Nundy, & Seabury, 2004), in an effort to compile a complete record of these events. The NPDB public use file contains information regarding professional and geographic details of the practitioner, the claim nature, and the outcome.

Claim densities were tabulated and described by year and type (see below, Fig. 1 and Table 1). Analyses were restricted to just records for clinicians licensed as NPs. The primary outcome of interest was the proportion of paid malpractice claims for NPs for each year (1990–2014) as well as the classification of event type (i.e. diagnostic, surgical, obstetric, treatment, monitoring, anesthesia, or other). Descriptive data was tabulated for each outcome of interest: total frequency and proportion, Malpractice Allegation Group and then more specifically for each Specific Malpractice Act or Omission Code. Confidence intervals (95%) are calculated for contrasts in allegation groups, patient outcomes and number of providers included in the claim.

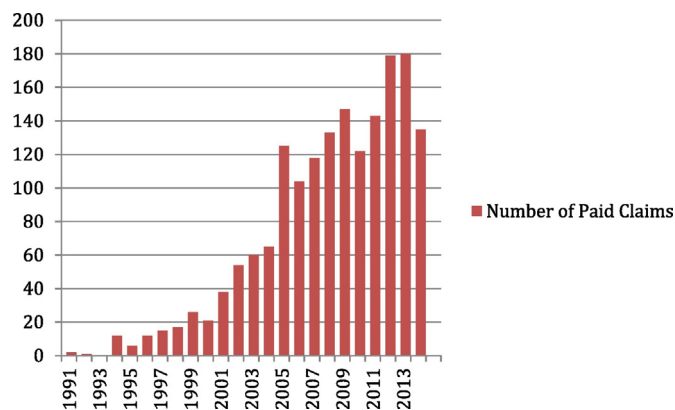


Fig. 1. NP paid malpractice claims by year (1990–2014). Number of paid nurse practitioner malpractice claims for years 1990–2014.

All analyses were performed using Stata statistical software V.13.0 (StataCorp, 2013).

## Results

During the study period, there were 1715 paid NP malpractice claims, with increasing frequency over time (Fig. 1). Year indicates the original year the record was processed in the data bank, which is mandated to be within thirty days of payment for Judgment or Settlement and represents the most recently available data: September 1990 through September 2014.

Table 1 details the nature of allegation for paid NP malpractice claims. The majority of claims were diagnosis related (41.46%, 95% CI [0.39, 0.43]). Within the diagnosis related allegation group, failure to diagnose (26.59%) and delay to diagnosis (11.31%) were predominant, while misdiagnosis accounted for only 3.15% of all paid malpractice claims. Delay in treatment was the most frequent treatment related error (2.97%, 95% CI [0.28, 0.33]). Medication related allegations accounted for 12.77% (95% CI [0.11, 0.14]) of all paid claims, with the specific error of ordering the wrong medication in 2.51% of the total.

Beginning in 2004, patient type by care setting is reported in the data: Inpatient, Outpatient, Both or Unknown (data not shown). The patient setting for the diagnosis claims are known for 587 cases, the majority of which (484 cases, 82%) occurred in the outpatient setting. Similarly, patient setting is known for 460 of the treatment related claims, the majority of which (295 cases, 64%) also occurred in the outpatient setting.

Table 1

Allegation group of NP paid malpractice claims (1990–2014). Total number of paid nurse practitioner malpractice claims for years 1990–2014, identified by major allegation group with most frequent sub-allegation group identified.

Allegation group	N of total	% of total	95% CI
Diagnosis	711	41.46	0.39–0.43
Failure to diagnose	(456)		
Delay to diagnosis	(194)		
Misdiagnosis	(54)		
Treatment	528	30.79	0.28–0.33
Delay in treatment	(51)		
Medication	219	12.77	0.11–0.14
Wrong order	(43)		
Monitoring	79	4.61	0.03–0.05
Obstetrics	73	4.46	0.03–0.05
Surgery	31	1.81	0.01–0.02
Other	29	1.69	0.01–0.02
Anesthesia	21	1.22	0.007–0.18
Behavioral health	15	0.87	0.005–0.01
Equipment	6	0.35	0.001–0.007
IV & blood products	3	0.17	0.0005–0.005
Total	1715	99.71	

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