Malpractice Liability Risk and Use of Diagnostic Imaging Services: A Systematic Review of the Literature

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Abstract

Purpose: A widespread concern among physicians is that fear of medical malpractice liability may affect their decisions for diagnostic imaging orders. The purpose of this article is to synthesize evidence regarding the defensive use of imaging services.

Methods: A literature search was conducted using a number of databases. The review included peer-reviewed publications that studied the link between physician orders of imaging tests and malpractice liability pressure.

Results: We identified 13 peer-reviewed studies conducted in the United States. Five of the studies reported physician assessments of the role of defensive medicine in imaging-order decisions; five assessed the association between physicians' liability risk and imaging ordering, and three assessed the impact of liability risk on imaging ordering at the state level. Although the belief that medical liability risk could influence decisions is highly prevalent among physicians, findings are mixed regarding the impact of liability risk on imaging orders at both the state and physician level.

Conclusions: Inconclusive evidence suggests that physician ordering of imaging tests is affected by malpractice liability risk. Further research is needed to disentangle defensive medicine from other reasons for inefficient use of imaging.

Key Words: Malpractice liability, tort reform, physician behavior, diagnostic imaging utilization

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INTRODUCTION

Defensive medicine, broadly defined as medical practices that protect physicians from malpractice lawsuits without providing benefits to the patient [1], is widely considered to be a major reason for wasteful health care spending in the United States. Involvement in a malpractice case could imply substantial financial and reputational costs for providers, despite the fact that it is rare for physicians to spend personal funds in settlements [2]. Claims that result in compensation must be registered in the National Practitioners' Data Bank, which can be easily searched by hospitals, other health care providers, and plaintiffs' lawyers. Recent research indicates that defensive medicine has an empirically observable impact on US health care spending [3]. Mello et al [4] estimated that the US medical liability system costs approximately $56 billion annually, with more than 80% of the cost attributable to defensive medicine.

Physicians report ordering diagnostic imaging tests more often than any other defensive medicine practice [5]. Medical imaging utilization makes up a significant proportion of health care spending [6]. Although its growth rate has notably slowed in recent years [7], unnecessary imaging use remains a concern, as reflected through recent public awareness initiatives such as the Choosing Wisely campaign [8]. However, the role of liability pressure in physician decision making for imaging orders is not well understood. To this end, our study aims to provide a comprehensive systematic review of the empirical evidence regarding the impact of malpractice liability risk on physician orders for diagnostic imaging.

The objectives of this study are as follows: (1) to determine how various studies measure malpractice liability risk; and (2) to assess evidence for the impact of such risks on the physicians' decision to order and provide imaging procedures. We took a multidimensional

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perspective to consider both self-reported and objective measures of imaging utilization. Our review encompassed all commonly used imaging procedures, including ultrasound, radiography, CT, and MRI.

METHODS

Data Collection and Eligibility Criteria

A literature search was conducted using databases including EconLit, JSTOR, Lexis/Nexis, Social Science Citation Index, PubMed, Medline, and CINAHL. We searched the following terms: diagnostic imaging, imaging test, malpractice liability, malpractice law, and tort reform.

Research conducted outside of the United States, non-English publications, review articles, and articles from non—peer-reviewed publications were excluded from the review. The remaining articles were retrieved for further screening, and were included in the review if they evaluated physician orders of diagnostic imaging tests and examined the link between imaging use and malpractice liability pressure on physicians. In addition, we hand-searched the bibliographies of included articles. No limitation was placed on study setting or patient population.

Data Extraction and Synthesis

From the 276 articles identified from our database search (Fig. 1), we excluded 254 articles upon title and abstract screening. These included the following: 47 duplicate records; 21 studies conducted outside of the United States; 107 review articles, editorials, and opinion pieces; 1 non peer reviewed article; and 77 articles that did not address both imaging use and malpractice liability. A total of 23 full-text articles were assessed for inclusion. Ten were excluded (four used foreign data; six did not measure diagnostic imaging use; and one reported duplicate findings, for our purposes, as an included study in this review). One additional article was found to be eligible, from hand-searches of bibliographies, yielding a final sample of 13 articles. We summarized the findings of each study, according to certain characteristics: 1. physician specialty; 2. study location and period; 3. type of imaging procedure; 4. type of data analyzed; 5. measure of malpractice liability risk/cost; 6. study design; and 7. main findings. A methodologic critique was conducted for each study.

RESULTS

Eleven of the 13 studies focus on physicians who have a high risk of malpractice liability, such as emergency

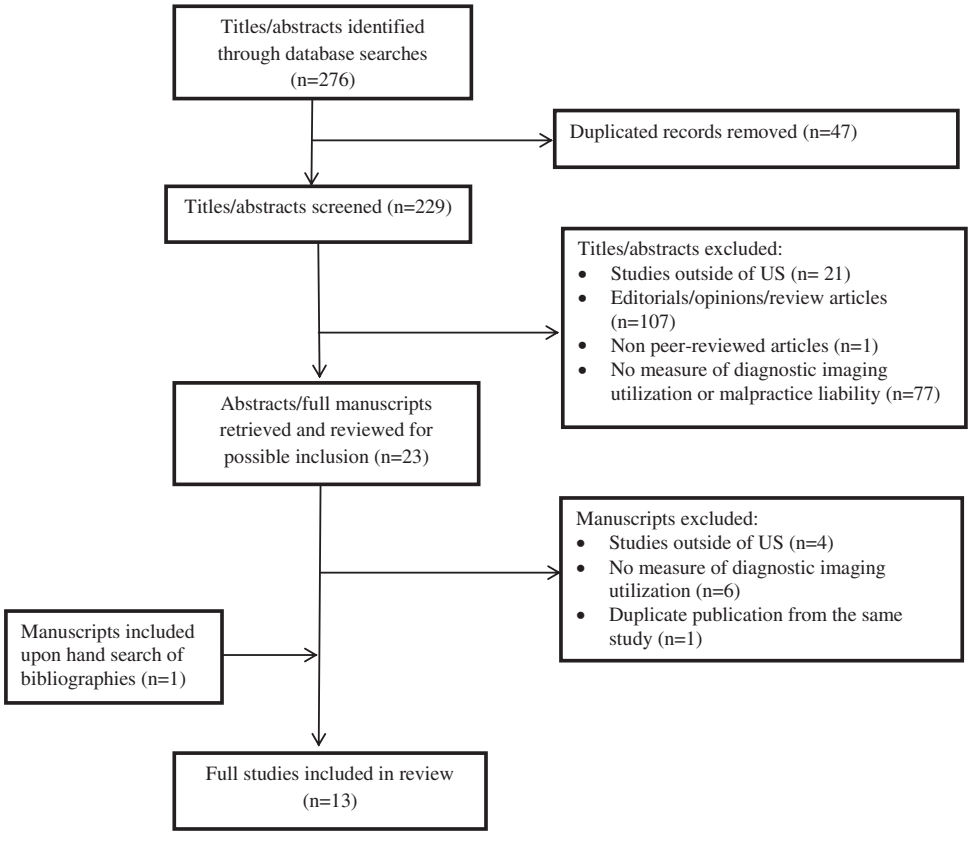

Fig 1. Summary of the study selection process.