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The doctor–patient relationship, defensive medicine and overprescription in Chinese public hospitals: Evidence from a cross-sectional survey in Shenzhen city

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ABSTRACT

Defensive medicine describes physicians' behavioral response to threats from medical malpractice litigation. Previous studies have found widespread practice of defensive medicine that is responsible for the global escalation of health care costs. Defying the traditional explanations, this study, with a case of a Chinese city, reveals that in a country where medical malpractice lawsuits are rare, physicians' self-perceived threats from patients may constitute a major reason for defensive practices. Defensive behaviors in the Chinese context mainly take the form of overprescribing diagnostic tests, procedures and drugs. The existing literature tends to explain this in terms of Chinese doctors' desire to supplement their low incomes. Behind this is a series of misaligned incentives deeply embedded in the Chinese health system. Using a cross-sectional survey of physicians, this study shows that overprescription in Chinese hospitals is driven not only by hard economic incentives, but also by doctors' motive of avoiding disputes with patients. The survey was carried out in Shenzhen City, in December 2013. A sample containing 504 licensed physicians was drawn by random sampling. Descriptive analyses identified significant dissatisfaction with income and workload as well as severe tensions between doctors and patients. Drawing from the literature on defensive medicine, multivariate analysis revealed that physicians' previous experience of medical disputes is significantly associated with defensive behaviors, particularly overprescription. Low income continued to be a critical predictor, reinforcing the target income hypothesis and suggesting the resilience of perverse economic incentives. This study sheds fresh light on China's recent health policy reforms by highlighting the critical impact of the doctor–patient relationship. The effort to contain health care costs must progress on two fronts, mitigating the tensions between doctors and patients while still reforming the remuneration scheme cautiously to enable physicians to respond to right incentives.

1. Introduction

Studies on provider behaviors occupy the central stage of health economics and policy research. A particular strand of the literature focuses on medical malpractice and its effects on provider behaviors. Defined as medical practice based on fear of legal liability rather than on patients' best interests, the concept of defensive medicine describes physicians' distorted behaviors in response to potential threats stemming from malpractice litigation (Kessler et al., 2006). In the global escalation of health care costs, defensive medicine has been increasingly recognized as a perverse engine as it motivates physicians to provide lots of unnecessary services. Explanations for physicians' defensive behaviors, however, vary. Many studies especially those based on the US context attribute defensive medicine to medical malpractice litigation systems whereas others have sought to explain it from physicians' internal emotional mechanisms rather than from external modifier of behaviors (Cunningham and Wilson, 2010).

This article joins the debate with a fresh case from China, where empirical studies analyzing defensive medicine are scant. Based on the rich body of literature on the country's health system, this article notes that defensive behaviors in the Chinese context mainly take the form of overprescribing diagnostic tests, procedures and drugs, a problem plaguing the country's health system for long. Defying the traditional explanations for defensive medicine, this

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study, with a survey of physicians in a Chinese city, reveals that in a country where medical malpractice lawsuits are rare, physicians' self-perceived threats from patients may constitute a major reason for defensive practices. Echoing the target income hypothesis, this study also reinforced the finding that low remuneration continues to drive Chinese physicians towards overprescribing. Despite its nature as a city-level case study, this article represents the first attempt that examines the escalating tension between doctors and patients in China and its effects to medical practices.

2. Literature review

According to the US Office of Technology Assessment (1994), "[d]efensive medicine occurs when doctors order tests, procedures, or visits, or avoid certain high-risk patients or procedures, primarily (but not necessarily solely) because of concern about malpractice liability." There is a rich body of literature encompassing both theoretical modeling and empirical evidence which demonstrates the wide practice of defensive medicine not only in the US but also in other countries (Hershey, 1972; Kessler and McClellan, 1996; Brown, 2007). In a national survey of physicians in the US conducted in 2009, an overwhelming majority of respondents (91.0%) reported that they ordered more tests and procedures than needed to protect themselves from malpractice suits (Bishop et al., 2010). Studdert et al. (2005) reported similar result indicating that 93% of subjects in Pennsylvania practiced defensively. Ortashi et al. (2013) sampled 300 hospital doctors in the UK, and 78% reported practicing at least one form defensive medicine. A study in Japan in 2006 noted that 98% of Japanese respondents enjoyed defensive medicine in their medical practices on a regular basis (Hiyama et al., 2006). A survey of Italian physicians in 2009 suggested that about 80% of the respondents admitted having practiced defensive medicine at least once in the previous month (Catino, 2011).

Defensive medicine, in practice, takes two main forms. Positive defensive medicine includes the supply of care that is unproductive for patients while negative defensive medicine occurs when providers decline to supply care that is productive for patients (Kessler et al., 2006). Defensive medicine, therefore, encompasses multiple forms of behaviors, including; 1) the avoidance of risky patients or procedures believed likely to result in malpractice claims; 2) the prescription of unnecessary drugs or clinical tests or the performance of unnecessary therapeutic procedures to avoid malpractice; and 3) the overutilization of medical services in an effort to forestall negligence claims. Various studies have revealed that unnecessary prescription of clinical tests and procedures is the commonest form of defensive medicine (Summerton, 1995; Ortashi et al., 2013; Moosazedeh et al., 2014).

Strictly speaking, defensive medicine is not necessarily clinically harmful or of zero benefit, but "fear of liability pushes physicians' tolerance for medical uncertainty to low levels, where the expected benefits are very small and the costs are high" (US Office of Technology Assessment (1994)). It increases the costs of the health system and may expose patients to unnecessary risks such as a delivery by cesarean section (Tussing and Wojtowycz, 1997). Overall, this practice has made no positive contribution to quality of care but has brought about tremendous pressure on health care costs (Hermer and Brody, 2010; Adwok and Kearns, 2013). In one report by Jackson Healthcare (2011), the costs of defensive medicine in the US alone are estimated at between 26% and 34% of the country's total annual health expenditure.

A major weakness of the existing literature, however, is that most studies are based on the US context and hence tend to attribute the prevalence of defensive medicine to the country's rigid medical malpractice litigation system. Emerging from this, such studies tend to propose tort reforms to reduce physicians' exposure to this risk, but as Veldhuis (1994) rightly points out, the pressure from lawsuits may not be the key cause of defensive medicine in other health systems where such litigation is rare. Using the case of the Netherlands, Veldhuis illustrates that it is actually the desire to prevent problems in the doctor–patient relationship that causes defensive behaviors. He stresses that this nonlitigation-related defensive medicine is rooted in the doctor–patient relationship in the Dutch context. Cunningham and Dovey (2006), too, observed that in New Zealand's litigation-free medical system, complaints from patients have led to a variety of doctors' behavioral changes such as more investigations, referrals and documentation, all of which aim to forestall potential complaints. Cunningham and Dovey's study reinforces that malpractice litigation does not constitute the sole reason behind defensive medicine; this doctor-patient perspective has provided a useful alternative in explaining the pervasive overprescription in the Chinese health care system.

3. Research question

China is in the midst of carrying out an ambitious program of national health care reforms. Launched in 2009, this initiative is intended to overhaul a system which has deteriorated significantly in the past three decades, and build a comprehensive and universal replacement by 2020 (Chen, 2009). An extensive literature documents the sorry condition of China's health care since the 1980s. Double-digit inflation in health expenditure and reduced access to care are the main symptoms of decline (Blumenthal and Hsiao, 2005; Yip and Hsiao, 2008). These problems are deeply rooted in a series of misaligned incentives, particularly on the supply side (Hu et al., 2008; Yip et al., 2010). At the root of the rapid inflation in costs lies a plethora of distorted physician behaviors driven by perverse incentives. In particular, the overprescription of pharmaceuticals, high-tech clinical tests and expensive procedures are very common in Chinese hospitals (Hsiao, 2008; Eggleston et al., 2008).

Containing such inflation is one of the key objectives of the ongoing health care reforms. Any cost containment measure targeted at the supply side, however, must be based on thorough understanding of a single fundamental question: *why do Chinese physicians overprescribe?* Most studies explain this by reference to economic incentives; that is, poorly paid physicians are motivated to provide unnecessary care in order to supplement their low incomes. The author's motivation to pursue this study comes from having conducted a series of in-depth interviews with Chinese frontline doctors from 2010 to 2012. In an attempt to probe the underlying reasons for physicians' cost-inflationary behaviors, he invited 22 doctors from four provinces, Zhejiang, Fujian, Shanxi and Guangdong, to participate in interviews on an individual basis. What astonished the author was that while all interviewees confessed to overprescribing, they exclusively attributed this to the rising tension within the doctor–patient relationships rather than to monetary returns. A typical explanation ran as follows:

> *The reputation of doctors has declined rapidly over the years. Patients and their family members are often very suspicious of our diagnoses and treatments. The number of medical malpractice lawsuits has risen. The consequences of getting swamped into medical disputes or even being sued could be rather severe. Our reputation would be ruined, we may be penalized by the hospital, and there is even a possibility of imprisonment! To reduce the risks of misdiagnosis and to retain essential evidence for use in a lawsuit, sometimes we do have to prescribe more [tests, procedures and/or drugs]. Not to mention that many patients may charge us for negligence if we don't do so."*