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What are tests for? The implications of stuttering steps along the US patient pathway

Jonathan Q. Tritter [a,*], Karen Lutfey [b], John McKinlay [c]

[a] Department of Sociology and Public Policy, Aston University, Birmingham B4 7ET, United Kingdom
[b] Department of Health and Behavioral Sciences, University of Colorado, Denver, United States
[c] New England Research Institute, Boston, United States

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ABSTRACT

This article explores the implications of how US family physicians make decisions about ordering diagnostic tests for their patients. Data is based on a study of 256 physicians interviewed after viewing a video vignette of a presenting patient. The qualitative analysis of 778 statements relating to trustworthiness of evidence for their decision making, the use of any kind of technology and diagnostic testing suggests a range of internal and external constraints on physician decision making. Test-ordering for family physicians in the United States is significantly influenced by both hidden cognitive processes related to the physician's calculation of patient resources and a health insurance system that requires certain types of evidence in order to permit further tests or particular interventions. The consequence of the need for physicians to meet multiple forms of proof that may not always relate to relevant treatment delays a diagnosis and treatment plan agreed not only by the physician and patient but also the insurance company. This results in a patient journey that is made up of stuttering steps to a confirmed diagnosis and treatment undermining patient-centred practice, compromising patient care, constraining physician autonomy and creating additional expense.

1. Introduction

Test ordering is a major expense in US healthcare, with clinical laboratory costs accounting for 2.3% of annual health care costs, or approximately $52 billion in 2008 (The Lewin Group, 2008) and has risen approximately 85% in the last decade (Hood and Weinberger, 2012). With increased reliance on the principles of Evidence Based Medicine and clinical practice guidelines as a strategy to contain costs and standardize quality of care (Timmermans and Berg, 2003), combined with changing financial and time constraints on providers, strategic test ordering is increasingly a linchpin in the provision of effective medical care.

These issues are apparent in many healthcare systems but particularly in the US, where the healthcare system is not centrally controlled is mostly delivered by non-government providers and is financed predominantly through health insurance and out-of-pocket expenditure but publicly both for those with limited income and those over 65.

Theoretically, medical testing should facilitate the process of conducting a differential diagnosis by confirming or excluding candidate diagnoses. However, observed variation in decisions around test ordering are inconsistent in terms of the role of diagnostic certainty, with some studies finding that lower diagnostic certainty leads to more test ordering (Koch et al., 2009) while others find that increased certainty is associated with increased testing (Lutfey et al., 2009). But decisions around medical testing occur for a wide range of additional reasons, including physician, patient, and system-level factors. This confluence of factors highlights a tension between individual professional decision making and organizational constraints arising from various aspects of healthcare.

For thirty years we have known that physician's diagnostic test-ordering is price sensitive (Hoey et al., 1982; Cummings et al., 1982). There is wide acknowledgement that unnecessary testing is a key factor driving increasing costs in US healthcare and has led to initiatives to aid physician–patient discussions to make wise choices in relation to diagnostic tests and treatment (Brody, 2010; Cassel and Guest, 2012). Embedded in this approach is the assumption that patient expectation and requests drive increased diagnostic testing (Campbell et al., 2007; Brett and McCullough, 2012) and

* Corresponding author.
E-mail addresses: Jonathan.tritter@aston.ac.uk, jqtritter@gmail.com, j.tritter@aston.ac.uk (J.Q. Tritter).

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that physicians have difficulty talking to patients about these issues (Garra et al., 2010). Similarly, over-testing occurs more often when patients present with unexplained symptoms (Koch et al., 2009), or when physicians report not having pre-screening discussions (Linder et al., 2009), both of which may occur in conjunction with physician reports of their attempts to reassure patients (Houben et al., 2010). What is not discussed is what factors shape decisions to test or not test on the basis of physician assumptions of a patient's ability to pay.

In the context of the quality assurance movement in the US, the emergence of Evidence Based Medicine (EBM) has been heralded as the key tool to ensure the greatest impact of healthcare and limit unnecessary procedures (Timmermans and Berg, 2003), yet "…only about 15 per cent of their [physician] decisions are evidenced based" (Pfeffer and Sutton, 2007: 1). Noncompliance with guidelines varies significantly (5–98%, depending on the test and guidelines analysed) (Bryson et al., 2006), with both over-testing (Bishop et al., 2010; Koch et al., 2009) and under-testing (Windak et al., 2010) being common problems. The range of diagnostic tests available and the number that are ordered by physicians is increasing in many countries (Allan and Lexchin, 2008; Leurquin et al., 1995; Kristiansen and Hjortdahl, 1992). At the same time, physician commitment to testing is readily manipulated with changes to order forms (Bishop et al., 2010), suggesting many are superfluous to accurate diagnostic and treatment decisions.

Complicating the situation is the issue that decisions about appropriate diagnostic tests and treatments are the responsibility of the primary physician but are constrained by patient and organizational issues. EBM has been seized upon by health insurance companies as justification for the protocolization of clinical decision making, including the development of clinical practice guidelines, and underpins key health management tools such as the pre-authorization of diagnostic tests and treatments (Timmermans and Berg, 2003). While physicians make decisions about tests on the basis of their experience and the need to reassure patients (Little et al., 1998; Houben et al., 2010), additional concurrent explanations for this increase included test-ordering routines, defensive practice and patient expectation (Ferrier et al., 1996; Zaat and van Eijk, 1992; Wong, 1995; Hoffrage et al., 2000; DeKay and Asch, 1998; Bianchi et al., 2009; McDonald et al., 1996; Petrie et al., 2007). In part this attention to patient expectations may be an aspect of an increased emphasis on patient-centred care (Bensing, 2000; Lee and Lin, 2010) but also illustrates limitations on physician autonomy in terms of the tension between the commercialisation of healthcare in terms of patient consumerism and medical professionalism (Timmermans and Oh, 2010).

Defensive practice (Lucas et al., 2010), insurance protocols, and requirements for certain forms of evidence also define particular courses of action (Birbeck et al., 2004; Sorum et al., 2003). Physicians' fiduciary investments in on-site labs, a marker of increasingly conflicted interests in corporate American medicine, are also predictors of increased test ordering (Bishop et al., 2010). These pressures constrain physicians capacity to control the pace of their work as they are both limited in test and treatments that can be ordered and also require appropriate evidence in order to obtain approval by insurance companies.

Despite this attention to types and sources of variation in medical test ordering, less is known about the consequences of these processes for the daily work of medical decision making or for patients. We observe three key actors in the decision to test/not test: doctor, patient and health plan. However these actors have different aims and intents when they seek an intervention, and they tend to value different types of knowledge—with physicians seeking information to refine differential diagnoses, patients wanting a 'diagnosis' and course of treatment, EBM-informed healthcare systems wanting cost-efficiency and standardization. Together, these competing interests lead to a constellation of delays, inefficiencies, and inequalities that we term a "stutter-step" in the provision of healthcare to patients.

In this article, we explore the underlying reasons that physicians order medical tests, and argue that these processes produce a stutter-step in the patient journey. The tensions we observe between organizational features of healthcare settings and individual-level providers have implications for the continued debate over the impact of the bureaucratization, and standardization of medical work (Hafferty and Light, 1995; Nettleton et al., 2008). Our findings, however, have more significant implications for the quality of health care in terms of process, outcomes and limitations on medical autonomy and decision making. As Emanuel and Pearson have recently pointed out in their review of the potential impact of the Affordable Care Act "(P)hysician autonomy is the freedom to determine both the conditions of practice and the care delivered with the principal goal that care decisions are aimed at promoting the patient's well-being." (2012:367).

2. Data & methods

Qualitative think aloud data (in which individual respondents were asked to verbalize their thinking process) were collected from primary care physicians in the US as part of a larger factorial experiment designed to simultaneously measure the effects of: (a) patient attributes (age, gender, race/ethnicity and socioeconomic status); (b) physician characteristics (gender and years of clinical experience); and (c) cognitive priming status on medical decision making for an actor "patient" presenting with coronary heart disease in a videotaped vignette [main results have been published previously (blinded cite)]. A full factorial of $2^4 = 16$ combinations of patient age (55 vs. 75), gender, race (black vs. white) and socioeconomic status (SES) (lower vs. higher, depicted by current or former employment as a janitor or school teacher) were used for the video vignettes. One of the 16 combinations was shown to each physician.

To be eligible for selection, physicians had to: (a) be internists or family practitioners with Medical Degrees (international medical graduates were included); (b) have graduated from medical school between 1996–2001 or 1960–87 (to obtain clear separation between higher and lower levels of experience so we could stratify physicians accordingly); and (c) be currently working in primary care in North or South Carolina more than half-time. A letter of introduction was mailed to prospective participants and screening telephone calls were conducted to identify eligible physicians. An appointment was scheduled with each eligible participant for a one-on-one, structured interview, lasting one hour.

Physicians were recruited into four strata, including two genders and two levels of experience ($2^2 = 4$ combinations of physician characteristics). These strata were selected based on literature showing these physician characteristics are robust predictors of variation in medical practice. While additional literature shows that physician decision making also varies by physician specialty, primary care providers were the focus of the larger study because most CHD (coronary heart disease) cases present first to these types of generalist providers. Logistically, the introduction of additional experimental factors (such as physician specialty or race/ethnicity) is prohibitive for budgetary and time reasons. As discussed in a previous publication concerning the main results from the study, half of all physicians were primed (i.e., explicitly directed) to consider a CHD diagnosis in order to test whether variations in CHD diagnosis and treatment are a function of physicians not considering a CHD diagnosis for some patients, or considering it and then purposely eliminating it from a differential (blinded cite). Because