“Too much medicine”: Insights and explanations from economic theory and research

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Abstract

Increasing attention has been paid in recent years to the problem of “too much medicine”, whereby patients receive unnecessary investigations and treatments providing them with little or no benefit, but which expose them to risks of harm. Despite this phenomenon potentially constituting an inefficient use of health care resources, it has received limited direct attention from health economists.

This paper considers “too much medicine” as a form of overconsumption, drawing on research from health economics, behavioural economics and ecological economics to identify possible explanations for and drivers of overconsumption.

We define overconsumption of health care as a situation in which individuals consume in a way that undermines their own well-being. Extensive health economics research since the 1960s has provided clear evidence that physicians do not act as perfect agents for patients, and there are perverse incentives for them to provide unnecessary services under various circumstances. There is strong evidence of the existence of supplier-induced demand, and of the impact of various forms of financial incentives on clinical practice. The behavioural economics evidence provides rich insights on why clinical practice may depart from an “evidence-based” approach. Moreover, behavioural findings on health professionals’ strategies for dealing with uncertainty, and for avoiding potential regret, provide powerful explanations of why overuse and overtreatment may frequently appear to be the “rational” choice in clinical decision-making, even when they cause harm. The ecological economics literature suggests that status or positional competition can, via the principal-agent relationship in health care, provide a further force driving overconsumption.

This novel synthesis of economic perspectives suggests important scope for interdisciplinary collaboration; signals potentially important issues for health technology assessment and health technology management policies; and suggests that cultural change might be required to achieve significant shifts in clinical behaviour.

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1. Introduction

In recent years, a movement of health professionals, researchers and consumer advocates has coalesced, focusing on the harms of overdiagnosis and overtreatment (Macdonald and Loder, 2015). This movement has adopted the label “too much medicine” to refer to the general phenomenon of unnecessary investigations and interventions given to patients who will not benefit from them, and who will be exposed to the risk of harm and medicalisation along the way (Carter et al., 2015). The primary motivation for this growing attention is the desire to avoid exposing patients to unnecessary harm; however, this phenomenon also possesses a significant economic dimension (Welch et al., 2011).

Certain aspects of this phenomenon have received direct attention from an economic perspective, for example overutilisation (Behnke et al., 2013) and “low value care” (O’Callaghan et al. 2015; Schwartz et al., 2014). Yet the overall concept of the harmful overconsumption of health care has received little attention from health economists, and appears to be significantly less prominent in the cost-effectiveness and health technology
assessment literature than might have been expected given its obvious implication — if resources are currently expended which yield no benefit (or cause harm), they could clearly be conserved with no loss of benefit to patients.

2. Methods

A detailed literature search was undertaken to review the definitions and characteristics of different forms of overconsumption of healthcare, in order to develop a working definition of this phenomenon. The online databases Web of Science (Core Content) and PubMed were searched using the following terms: overdiagnosis NEAR/10 defin*; overtreatment NEAR10 definition; overtreatment NEAR10 definition; overuse NEAR/10 defin*; overuse NEAR10 definition; overutilil NEAR/10 defin*; overutilil NEAR10 definition. EconLit was then searched to provide an entry point to the wider health economics, behavioural economics, ecological economics, and sustainable consumption literature, using the following search terms: consumption AND (health OR healthcare) AND theory; overconsumption; sustainable AND consumption.

In addition, hand searches for follow-on references were undertaken of books and articles already in hand, and from key texts identified in the online search.

The paper then reviews and discusses the literature thus identified, first to situate these phenomena in the broader economic context, and then to examine potential economic explanations emerging from this review. Key findings and their possible implications are then summarised, as a foundation for commencing a broader debate on the economics of the overconsumption of health care.

3. Results

3.1. Defining overconsumption in health care

The largest category of literature identified related to overdiagnosis, most frequently in the context of cancer screening programmes (Marcus et al., 2015; Marmot et al., 2012), but also more widely (Carter et al., 2015; Moynihan et al., 2014; Welch et al., 2011). Overdiagnosis occurs when ‘illnesses’ are diagnosed which - if they had remained undiagnosed - would never have caused patients harm, with the consequence that patients are exposed to unnecessary treatments for which risks outweigh benefits.

A number of authors consider the problem of overtreatment (Carter et al., 2015; Moynihan et al., 2014), or the use of unnecessary clinical services or interventions which provide negligible benefit, so that harm outweighs any small benefit in virtually all cases. This definition is highly contiguous with definitions of overuse (Beckman, 2011; Segal et al., 2015) or overutilisation (Behnke et al., 2013). Overuse (or overtreatment) thus represents an “error of commission” in which services with a poor benefit to risk profile are provided to patients (Chan et al., 2013).

A closely related concept which begins to incorporate aspects of cost or value is that of low value care, defined as “…practices that are, at best, of little to no clinical utility and, in certain situations, harmful” (O’Callaghan et al., 2015, p. 175) or “…care that was likely to provide minimal or no benefit on average” (Schwartz et al., 2014, p. 1073). In similar vein is the idea of questionable care, described most simply as “…treatments that do not work, and may do harm” (Duckett et al., 2015a, p. 2).

The concept of “pharmaceuticalisation” was also identified in the recent literature as involving “…the transformation of human conditions, capabilities and capacities into opportunities for pharmaceutical intervention” (Gabe et al., 2015, p. 193). This concept has also been related to situations in which medicine use ceases to be rational, fails to confer benefits and/or risks harms without concomitant benefits (Busfield, 2015), noting the growing importance of pharmaceuticalisation as medications are increasingly used preventively in broad populations, not just in the sick. Pharmaceuticalisation is clearly a cousin of “overmedicalisation”, most famously propounded in the 1970s by Ivan Illich, (1976). This can be described as “…altering the meaning or understanding of experiences, so that human problems are re-interpreted as medical problems requiring medical treatment, without net benefit to patients or citizens” (Carter et al., 2015, p. 5).

A common feature of all these terms is that they describe phenomena in which resources are used unnecessarily, with little or no benefit, and often with potential to cause harm.

3.2. Contextualising “too much medicine” within the economics literature

As a first step, it is helpful to consider how the phenomenon of “too much medicine” relates to a number of core concepts within the ecological and sustainable economics and health economics literature, before reviewing specific parts of this literature in more detail. It is long been recognised that health care markets display a number of significant special characteristics that differentiate them from a perfectly competitive market (Arrow, 1963), including pervasive uncertainty, unavoidable information asymmetries, and the need for principal-agent relationships. Subsequent discussion will draw heavily on these identified departures from the “standard” model of perfect competition.

Implicit in the very idea of “too much medicine” is the need to ask the question: too much relative to what? An orthodox economic approach to this question implicitly compares the consumer surplus generated by the actual health care market (with all its acknowledged imperfections) with the consumer surplus that would have been generated by a perfectly competitive market (Peacock and Richardson, 2007). A second approach to this question argues that moral hazard means those with insurance will consume more health care than if they were uninsured — and that the overall effect of such additional consumption on economic welfare is negative (Frick and Chernow, 2009). Neither of these approaches explicitly address any negative impacts of overconsumption, but appeal directly to orthodox notions of consumer surplus.

By contrast, a third implicit approach to the question of “how much is too much” compares actual consumption with need for care as defined by appropriate expert evidence or opinion (Boulding, 1966; Deber et al., 2008). The defining feature “too much medicine” set out above is the provision of treatments which provide no significant benefit and may also cause harm — so by implication, such treatments should never be considered as “needed” if evaluated correctly. Similarly, when viewed through the lens of cost-effectiveness analysis, “too much medicine” will deliver no incremental benefits (and may reduce overall benefits through causing harm), but will incur the additional costs of these unnecessary interventions. It therefore represents care that is less effective and more costly than available alternatives — hence it will always be dominated in cost-effectiveness terms by other strategies (Drummond et al., 2015).

The ecological and sustainable economics literature offer some alternative approaches to considering the same question, i.e. over-consumption relative to what benchmark? Much of this literature focuses on aggregate measures, to consider whether total consumption is or is not excessive in relation either to intertemporal social welfare (i.e. maximizing the present value of current and future utility from consumption) or sustainability, i.e. the ability of
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