

Chapter 10

Myth #7: The Myth of Measurement

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10.1 Behavioural Sciences and Evidence-Based Health care: What Do We Really Need to Measure?

Matteo Motterlini and Carlo Canepa

10.1.1 Measuring Models or Changing Behaviours?

The mantra that inspires healthcare systems is: “If you can’t measure it, you can’t manage it.” The measuring process is closely related to the epistemological ideal of modern science. This has been developed through a world simplification, which is considered useful to disclose principles that work under surrounding reality. The search for natural laws carries a distinctive component: phenomena are not accepted as they are, but they are instead transformed through abstraction and

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experimentation. What is considered as real is the result of abstraction and experimentation. This attitude, however, entails that some reality aspects are sacrificed in their variety and entirety. In economics, especially in the rational choice theory, the world, where we make decisions and judgments, is not real, but outward and accidental. In its stead, we find abstract constructions of expected utility maximization and pursuit of self-interest.

Here we claim that, in order to improve decision-makings about health and the administrative environment, we need to understand if we are really measuring what we want to manage. In this sense, we accept Henry Mintzberg's challenge ("Managing the myths of healthcare"), which has pointed out the "measuring process" as one of the "myths" associated with the traditional biomedical model. The measurement problem as a healthcare myth carries the "rational agents" assumption. It depends on the price we have to pay in terms of abstraction from the real world, concrete decisional contexts and decision-makers' cognitive faculties, in order to measure exactly. The point is: What do we really need to measure and consequently manage?

- (a) Are we aiming at measuring and managing the idealistic behaviour of omniscient and hyper-rational agents which act in the vacuum of abstract economics models? Or, rather,
- (b) Are we aiming at measuring and managing the decisions of human beings made of flesh and bones with their cognitive and emotional boundaries, greatly influenced by specific "choice environments"?

We shall argue that the latter is the relevant question. In light of experiments and case studies from the behavioural applied sciences, we claim that in order to improve the quality of a sustainable healthcare system, the systematic nature of human irrationality has to be taken into account. This sort of evidence is crucially needed for efficient and focused interventions.

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10.1.2 Choice Architecture and Evidence-Based Nudges

Why do people continue to behave in a manner detrimental to their good health, in spite of awareness campaigns and education? Why do patients often follow wrongly the medical treatments and the intake of drugs in spite of detailed care information? Why do doctors often overestimate their own capabilities, prescribe useless tests and not use simple checklists, which could avoid many deaths? These are some of the practical challenges faced by the behavioural approach to improve specific choice environments and consider how human beings really make decisions.

The concept of choice architecture is crucial here. It refers to the way in which choice options are presented during a decision procedure. In the same way as a building structure fixes physical restrictions on how we can move inside it, the way in which choice space is structured affects decision-making results. Every detail counts and conditioning capacity is omnipresent and never neutral. We never make decisions in a vacuum, but in a specific context. Structuring the context is the chosen aim of the architect. In policy making procedures, institutions can exert leverage on citizens' cognitive mechanisms to lead them towards virtuous behaviours—in favour of themselves and collectivity—using a “gentle nudge.” According to R. Thaler and C. Sunstein, a nudge is an architectural element choice, which systematically (and predictably) modifies human behaviours, without limiting freedom of choice, or significantly changing economic incentives.

In a healthcare system, a nudge, which has proved its efficiency, concerns organ donations. In many western countries, declared donation percentages stay low—around 20%—in spite of the great majority of citizens asserting that they agree with donating their organs. How is it possible? A comparison between two culturally similar countries can answer this question. Germany and Austria show considerably different donors percentages. The first does not reach 18%, the latter touches 99%. The explanation of such a difference has to be tracked down to the different default options that regulate the enrollment in the national donors register in these two countries. In Germany there is an opt-in system; a citizen is a default non-donor, and if someone wants to become a donor, they need to actively enrol in a specific register. In Austria, instead, there is an opt-out system: an Austrian is a default donor, but if they want, they can opt out. The way in which choice options are structured should not modify a rational agent's preferences, but that is not so. Small, low-cost, well-devised and transparent “architectural elements” can point towards virtuous decisions, which are better for society.

Furthermore, the potentials of behavioural approaches are evident, thanks to the evaluation experimental methods, like randomized controlled trials. Generally, a nudge is applied to a group of people—called the treatment group—which is compared with a second group—the control group—to whom the treatment is not applied. Precisely like testing drug's effectiveness, the experimental method can evaluate which nudge works, without making ordinary selection and attribution biases thanks to randomization. That way, policy makers can overtake traditional models that interpret social sciences in quantitative and idealized terms. How is this

achieved? By evidence-based designed interventions to promote prevention behaviours and to simplify doctors and patients' architectural choices.

10.1.2.1 The Case of the Behavioural Insights Team

Behavioural Insights Team (BIT) is an association of behavioural scientists which has been the first to apply the nudging approach. Since 2010, the BIT has collaborated with many British governmental departments, like the National Health Service (NHS). The “Nudge Unit” works applying a framework contained in the MINDSPACE acronym, in which every letter represents factors that influence citizens' behaviours. People are strongly affected by who conveys information (Messenger); peoples' responses to economic incentives (Incentives) are regulated by various cognitive mechanisms; citizens are influenced by what others do (Norms); they tend to choose habitual and default options (Default); their attention is directed by new and salient surrounding elements (Salience); their actions are guided by cues that work at a subconscious and automatic level of cognitive elaboration (Priming) and by emotional states (Affect); people tend to be consistent with their public promises and reciprocal actions (Commitment); they act to improve their self-esteem and wealth (Ego).

The BIT is guided by the principle that if promoting behaviours is necessary we have to make them easy. Since 2011, the BIT has introduced prompted choices in the regulations for organ donations. When a citizen renews their driver's license or identity card, they have to choose whether or not to enrol in the organ donor register. The choice is easily modifiable online.

The NHS has exerted leverage on social comparison to reduce the “Did Not Attend” (DNAs) by 31%, which are scheduled appointments that patients miss. DNAs have an enormous impact on the healthcare system in terms of cost and waiting time, significantly adding to delays along the patient's pathway. So the real percentage of fellow citizens who respect appointments is communicated to patients who book a visit. This message carries the social norm of respecting appointments. In addition, an active commitment is requested, i.e. a patient has to fill out a form by hand, where they insert the day and hour of the visit. Research data shows that adherence to social norms, with active behaviour, works both as a reminder and as a support to self-control and willpower.

10.1.2.2 Fight Against Smoking

The World Health Organization data shows that more than half of all years of healthy life lost are as a result of behavioural factors—including smoking, diet, alcohol and unsafe sex—which are entirely avoidable. How can behavioural approaches help, for example, in the fight against tobacco smoking? Cigarette packages with strongly emotive images are more effective than written information warnings, like olive green standardized packages, whose aim is to reduce both

social effects (which commercial brands use especially on young people) and perceived quality of the tobacco. Captivating design packaging propels purchases, while anonymous packaging influences negatively on the perception, taste and associated consumption of tobacco by smokers. Another introduced intervention consists in reducing the visibility of smoking products inside stores, which are often purposely displayed to catch the consumer's attention.

Using economic incentives is part of traditional models utilized in changing behaviours. The novelty of the behavioural approach consists in taking advantage of incentives in a behaviourally informed way, i.e. taking into account how citizens really react to incentive modifications and not how citizens ought to react according to classical economic models. In the fight against tobacco, this method has shown encouraging results. A study by Kevin Volpp and colleagues has found that it is possible to obtain an increase of 15% of subjects who stop smoking in a 12-month period, thanks to an economic incentive—in this case a \$100 bonus offered to employees of an American multinational. The same results have been found using incentives to reduce tobacco abuse by pregnant women in lower middle class families.

10.1.2.3 Obesity: The Power of Context

Small contextual changes in the choice environment can guide citizens towards healthier eating habits, reducing the incidence of phenomena like obesity and being overweight on the costs of the healthcare system. In this domain, research focuses on the disposition of items in canteens and supermarkets, and how it affects the consumers' choices. The way in which food is unveiled and the significance of plates and glasses, influence what people will eat and in which quantities. In a study, Paul Rozin and colleagues manipulated two factors in a self-service canteen: the proximity of high calorie dishes, which were distanced 25 cm from the consumer's usual location; and a spoon which was replaced by tongs as a serving tool. Both modifications, which work on the location and accessibility of dishes (and not directly on their quantity), have led to a decrease of unhealthy consumptions from 16 to 8%. Similar research has shown how the order of the names in a menu affects the choice of dishes. Those located at the top and at the bottom of the list tend to be chosen twice as often as those located at the center.

10.1.2.4 Increasing Prevention

With regard to vaccinations and screenings controls, Katherine Millikan and colleagues have shown that active commitments, which oblige employees to write the date and hour of an influenza vaccine, have increased the percentage of vaccinations by 4.3%. With regard to colonoscopy screenings, the same method has obtained an increase by 15%.

Greg Chapman and colleagues have shown how default options can enhance vaccinations inside a university. Two different messages via email were compared. One group was informed that flu shots were free, with the possibility of booking a vaccination online. Another group was informed that every member had been included in an anti-influenza vaccination, with the possibility of deleting the default visit online. The second group, with the opt-out system, has showed a 45% vaccination rate, against the 33% of the first group, in which an opt-in system was applied.

10.1.2.5 Simplifying Doctors' Choices

Not only citizens, but also doctors can benefit from better choice architectures. How can we help physicians to make more precise decisions and to avoid errors? At first it is possible to simplify the complexity of the environment where decisions are made. An effective tool is by using control lists. Checklists, with orderly steps to be applied, can have a huge impact on surgical operations. Many post-operative complications are due to human avoidable errors. In 2009, The World Health Organization published a report to subsidize the diffusion of checklists for security in the operating room. It contains 19 items as a guide for supporting surgeons (which instruments to be used, which anaesthetic, etc.), systematically favouring adherence to security standards recommended to prevent mortality. The report, based on a study sample of 3955 patients, showed post-operative mortality dropping from 11 to 7% after the implementation of checklists.

10.1.3 Concluding Remarks and Next Steps Forward

The nudge approach provides policy makers with the capacity to face present and future challenges inside health policies, without intending to substitute traditional tools. The newness is twofold: (i) evidence-based behavioural policies help citizens fill the intention-action gap, which characterizes the majority of health-related behaviours. (ii) it fuels the culture of experimentation inside institutions, which enables the efficient allocation of resources and award interventions that work and which are based on: evidence of effectiveness. Future research should focus on: (i) long-term duration of changes in choice architectures; (ii) understanding how people interact with them in a social network, and not only how they individually make decisions; (iii) the importance of the replication of applied interventions.

In their ultimate complementary relationship, cognitive psychology and economics provide the opportunity to construct decision-making models able to mediate between abstract principles of rational behaviour and real human behaviour in action. These particular and integrated models are the best chance we have for future success in mapping out efficient and targeted interventions for the world we live in rather than the abstract world of abstract theories. When the moment of

economic policy decisions comes—quoting the Nobel Herbert Simon “better to be roughly right than precisely wrong.” Public policy choices are too often affected by purely abstract models and reasoning, which are distant from the study of a particular context in which concrete problems are located. The evidence-based policy theoretical framework, linked with applied behavioural sciences, shows how to correctly rebalance the connection between theory and evidence, without levelling traditional healthcare and managerial models on the false measurement myth.

10.2 Performance Measurement at Work: How Can It Be an Effective Management Tool

Sabina Nuti

10.2.1 Premises

“The Myths of Measurement and of Scale Measurement is a fine idea, as long as it does not mesmerize the user. Unfortunately, it so often does: both managers who rely on it for control and physicians who believe that being ‘evidence-based’ always has to be better than ‘experienced-based.’ Management and medicine alike have to balance these two in order to be effective. Unfortunately, too much health care at both the administrative and clinical levels has been thrown out of balance by their obsessions with measurement.” (Henry Mintzberg 2012a, b).

The view of Henry Mintzberg is very stimulating and provocative for experts of measuring systems in health care. Of course, regarding this issue, not all cultural settings are the same. In some countries measures such as outcomes, quality of care, timeliness, access, financial sustainability or patient satisfaction are available and widespread, also in terms of public disclosure. In Italy the propensity to measure is quite recent.

Indeed research on comparative content analyses of the Italian regional acts, concerning the performance evaluation system adopted in the regional healthcare sector carried out some years ago, showed that only 18% of the regions based their objectives mainly on quantitative indicators. The study analyzed the acts of 14 out of 21 regions between 2008 and 2011 and pointed out that past performance was not taken into consideration because of the large use of qualitative targets (Vainieri and Nuti 2015).

In recent years the situation also in Italy has changed a lot: at a national level the National Agency for Healthcare Services on behalf of the Ministry of Health has developed The Italian National Outcome Evaluation Programme (NOEP) that measures outcomes nationwide (<http://95.110.213.190/PNEed15/index.php>). Moreover, the Ministry uses the “LEA” grid (i.e. the essential levels of care) that