Is competition bad for our health(care)? We simply don't know

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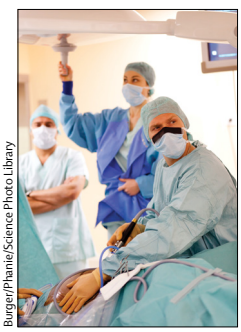

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Published Online
October 3, 2017
http://dx.doi.org/10.1016/S1470-2045(17)30623-X

See Articles page 1445

For more on **NICE's interventional procedures' guidance** see https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-interventional-procedures-guidance

For more on the **national proton beam therapy programme** see https://www.england.nhs.uk/commissioning/spec-services/highly-spec-%20services/pbt/

In *The Lancet Oncology*, Ajay Aggarwal and colleagues[1] apply innovative analytics to study the movement patterns of almost 20 000 patients accessing prostate cancer surgery across the National Health Service (NHS) in England between 2010 and 2014. They find that, in the presence of pressures to centralise surgical services and intense competition, and in the absence of any publicly accessible measure of service quality to allow comparisons, those providers who invest in high tech, in this case robotic, surgery equipment, fare better than those who don't in attracting patients and growing their business. In fact, those who don't, risk closure. One in four of the country's 65 radical prostatectomy centres closed between 2010 and 2017, with a trebling of the number of robotic centres over the same period. None of the 16 NHS centres that closed had invested in robotic equipment. Nor had any of the centres that closed done so because of explicit evidence of poorer quality. Moreover, in a previous analysis of referral patterns for specialised prostate cancer surgery,[2] the same authors showed that patients who travel longer distances, bypassing their local centres, tend to be younger, less ill, and of higher socioeconomic background than those who do not.

The authors conclude that, in the absence of any other reliable measure of quality or patient experience, patients are attracted by technology, contributing to what they describe as a natural selection process that shapes the market and has, thus far, unconfirmed effects on equity, overall cost, or outcomes. Do competitive pressures end up undermining the NHS's best efforts (perhaps through the National Institute for Health and Care Excellence [NICE] or professional guidelines and commissioning guides) to coordinate the system to make it more efficient and effective and, ideally, more equitable? Are patients misled by high tech and smart marketing by providers investing in it? And, most importantly perhaps, do patients exerting choice actually lead to better outcomes, and if so, for what type of patient and at what price for the NHS?

The answer is that we simply do not know (for now). The authors' analysis matters because it forces us to ask all these questions, especially the "so what" question, when it comes to patient mobility and the competition policies that (inadvertently or not) trigger it. More questions emerge: what is the role of central entities such as NHS England or norm setters such as NICE in management of service configuration and informing patient choice? Health Technology Assessment (HTA) has been widely applied to pharmaceuticals through NICE, but much less so to technologies such as surgical interventions. Paradoxically, the only NICE programme not to consider value for money is the interventional procedures' guidance, under which surgery, including robotic surgery, is most likely to fall. Could NICE help providers to make decisions about major investment in high tech such as robots? Or would a more realistic approach be to invite bids from providers, as was the case with proton beam therapy, where NHS England set out its specification and Trusts responded, with the successful ones selected through a competitive process? An alternative to such top-down central planning might be to expand personal health budgets to actively encourage patients to shop around, hence promoting patient choice. But most would agree that health care is not a usual marketplace,[3] and regulation and information are both needed to make meaningful choices.

Somewhat depressingly, the authors are sceptical about the potential of developing an adequate measure of outcomes to benchmark providers and complement, if not substitute, technology-based marketing. In the NHS at least, political challenges due to inertia, confusion, or just not enough money and people to think about it all, may well outweigh the methodological challenges cited by the authors, such as the time lag between treatment and real outcomes. The NHS Patient Reported Outcomes Measures programme, having stalled after an impressive start a few years back, is a case in point.[4]

Reading through the conclusions, parallels can be drawn with another case where the latest technology seemed to drive policy and investment. The Cancer Drugs Fund (CDF) in England favours the latest cancer drugs, specifically those shown not to be good value for money by NICE, at the expense of drugs for other diseases or indeed non-drug cancer interventions such as radiotherapy or surgery, as concluded recently by the same authors.[5] Despite a recent revamp, CDF remains a missed opportunity for

generation of data on comparative effectiveness to inform patient and professional choice.[6]

In summary, this is a valuable study revealing the usually ad-hoc nature of policy making and its usually unstudied implications on people's behaviour, which in turn influences health spending, outcomes, and distribution. It should not be read as an ideologically driven call for increased top-down control and central planning. Instead, the authors offer a strong rationale for collecting and sharing data on (comparative) outcomes to inform investment choices at the central and provider level, as well as treatment choices by patients and their doctors. Although controversial, rightly structured competition could save lives.[7,8] We simply do not know— but we must try to find out.

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I declare no competing interests.

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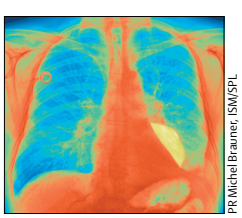
Treatment choice in *EGFR*-mutant non-small-cell lung cancer

Palliative therapy for patients with non-small-cell lung cancer (NSCLC) harbouring an activating *EGFR* mutation has improved with the approval of targeted therapy, namely the first-generation tyrosine kinase inhibitors (TKIs) gefitinib and erlotinib, which have both shown significant efficacy in terms of tumour response and progression-free survival when compared with platinum-based chemotherapy in phase 3 trials. The same is true for afatinib, which is a second-generation irreversible inhibitor of tyrosine kinase activity, of not only EGFR, but also all members of the HER (or ErbB) family (a pan-HER inhibitor). Additionally, a combined analysis of two phase 3 trials (LUX-Lung 3 and 6)[1] showed, for the first time, that afatinib significantly prolonged overall survival compared with platinum-based doublet chemotherapy in patients with common *EGFR* mutations, and especially those with the del19 mutation. The subsequent LUX-Lung 7 study in 2016[2] was the first to do a head-to-head comparison of a second-generation and a first-generation TKI. In this phase 2 trial,[2] afatinib was compared with gefitinib in the first-line setting in patients with NSCLC harbouring a common activating *EGFR* mutation. Afatinib significantly improved both progression-free survival and time to treatment failure,[2] although the third primary endpoint, overall survival, was not met.[3]

In *The Lancet Oncology,* Yi-Long Wu and colleagues[4] now present the results of their phase 3 trial (ARCHER 1050)—a second direct comparison of TKIs in patients with untreated, *EGFR*-mutant NSCLC, between dacomitinib (another second-generation pan-HER TKI that is not yet approved) and gefitinib.[4] In the trial, 452 patients with newly diagnosed advanced *EGFR*-mutant NSCLC were enrolled and randomly assigned to receive dacomitinib (n=227) or gefitinib (n=225). The difference in the primary endpoint of progression-free survival between the groups was both statistically and clinically significant: patients in the dacomitinib group had a median progression-free survival of 14·7 months (95% CI 11·1–16·6) compared with 9·2 months (9·1–11·0) in the gefitinib group (hazard ratio [HR] 0·59, 95% CI 0·47–0·74; p<0·0001). Additionally, depth and duration of response were significantly increased with dacomitinib, although the proportion of patients who achieved an objective response did not differ between the groups. A subgroup analysis showed that Asian patients benefitted more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Published **Online** September 25, 2017 http://dx.doi.org/10.1016/S1470-2045(17)30684-8

See **Articles** page 1454