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No evidence that patient choice in the NHS saves lives

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The Health and Social Care Bill 2011 has been framed to abolish direct parliamentary control and public accountability for the National Health Service (NHS) in England. In the face of enormous public opposition to the Bill, the UK Government stood down the legislative process between April and June, 2011. Prime Minister David Cameron used the temporary pause to advance the case for the Bill and argued “Put simply: competition is one way we can make things work better for patients. This isn't ideological theory. A study published by the London School of Economics found hospitals in areas with more choice had lower death rates.”¹

The study to which Cameron referred was a working paper by Zack Cooper and colleagues.² However, contrary to Cooper and colleagues' claims, their study did not show a causal inverse relation between patient choice and death rates.² A statistical association is not the same as causation. As set out by Bradford Hill in his seminal paper,³ certain factors must be considered when determining whether a statistical association is likely to be causal: “experiment” or study design, plausibility of intervention and outcomes, strength, consistency, specificity, coherence, temporality, and quality of data. Cooper and colleagues' study does not meet scientific standards. In the absence of evidence proving that competition improves health, Cooper and colleagues' work should not be cited as scientific evidence in support of choice, competition, or the current market-oriented Health and Social Care Bill 2011. A revised version of the study, published in *The Economic Journal*, clarified points of detail, but Cooper and colleagues did not address its fundamental flaws with respect to representation of literature, study design, methods, analysis, data, and conclusions.⁴

The working paper cited by Cameron purports to show that “using AMI [acute myocardial infarction] mortality as a quality indicator...mortality fell more quickly (ie, quality improved) for patients living in more competitive markets after the introduction of hospital competition (to the NHS) in January 2006”.² Although Cooper and colleagues claim to examine the impact of patient choice, they do not ascertain whether choice significantly affected the destination of patients. They did not analyse data on general practitioner (GP) referrals and admissions to hospital to see if patterns of activity changed after the introduction of choice policies. Moreover, they did not compare data for England with those for Scotland or Wales where the competition or choice agenda had not been introduced during the same period. Instead, Cooper and colleagues' model involves two analyses, neither of which evaluates patient choice. The first used data about elective surgery, hospital density, and travel distance to derive a proxy measure of competition. The second analysis examined trends in mortality rates within 30 days of admission for AMI and their association with a theoretical measure of

“potential for choice”, which was derived from the number of hospitals within the 95th percentile of the distance travelled from GP practice for elective surgery. Crucially, the study lacks plausibility because Cooper and colleagues produce no explanation of any causal mechanism or path by which choice of provider for elective care could have affected outcomes for AMI in the NHS. The reference to an association with management quality is based on interviews with 161 senior staff and did not take account of relevant causal factors.⁵

AMI is a medical emergency and patients generally have no choice when they are sent to the nearest NHS hospital with appropriate facilities by the ambulance service or GP. Furthermore, Cooper and colleagues misrepresent the literature. AMI is not a measure of hospital quality; at best 30-day AMI mortality rates are a measure of clinical care for cardiology.^{[6], [7], [8] and [9]} The fact that they might be correlated with waiting times or length of stay for elective knee or hip replacement does not make them a valid proxy measure of safety or quality of elective care. In the revised paper,⁴ Cooper and colleagues cite the relatively high mortality from AMI compared with that for elective hip replacement surgery as a reason for their use of AMI mortality. This suggests that the study lacked statistical power to measure the safety of elective surgery.

In the case of AMI, differences in hospital performance are largely due to differences in medical treatments that are not products of competition.^{[7] and [8]} These include the introduction of early percutaneous coronary intervention (PCI) during the same period when changes in care for elective surgery were introduced. PCI has better outcomes than thrombolysis and is more likely to be available in specialist centres in urban areas. A recent analysis showed that hospitals with the highest proportion of primary PCI for patients admitted with acute coronary syndromes had the lowest mortality.¹⁰ Primary and secondary interventions and service changes are independent of competition and price and have contributed to the long-term downward trend in AMI mortality.¹¹

Cooper and colleagues produce no evidence that policies which give patients choice affect their destination hospital. Moreover, they do not cite the relevant research that contradicts their hypothesis that patient choice is a crucial driver of quality.^{[12], [13] and [14]} The extent to which patient choice is available is another consideration. The National Patient Choice Survey showed that only 35% of patients questioned in July, 2006, and 46% in December, 2008, recalled having been offered a choice of hospital by their GP.^{[12] and [13]} In 2006–07, only 11% of primary care trusts had achieved the target of 90% Choose and Book utilisation.¹⁴ Of patients who recalled having been offered a choice in December, 2008, 5% used the NHS Choices website, whereas 48% relied on their GP for information.¹³ The 2010 King's Fund survey found that 45% of patients were aware that they had a choice of provider before visiting their GP and 49% recalled being offered a choice; of those who were offered a choice, 69% chose their local provider, 4% consulted the NHS Choices website, and 6% looked at leaflets.¹⁵ In any case, major changes to services—many driven by deficits and the costs of private finance initiatives—will confound the interpretation of the impact of patient choice.

Equally problematic is Cooper and colleagues' choice of “competition” variables. They are derived from five elective procedures: hip replacement, knee replacement, knee arthroscopy, cataract repair, and hernia. Cooper and colleagues used straight line distances to find the 95th percentile of distance from each patient's GP surgery rather than the patient's home, since they did not have access to individuals' postcodes recorded in Hospital Episode Statistics to derive the hospital index of market concentration for each operation. They did not explain why all the hospitals within this radius were included irrespective of whether the GP referred any patients to them. The more likely explanation that the measure of market concentration reflects differences between urban and rural provision was mentioned and explored in a subsidiary analysis that used the concentration of secondary schools as a measure of rurality, but urban and rural differences were not integrated into the main analysis.

The working paper implied that the analysis was for mortality within 30 days of admission for AMI.² However, a footnote to the published paper⁴ states that the linkage between Hospital Episode Statistics and Office for National Statistics' mortality data was poor in the years covered by Cooper and colleagues' analysis so they considered only in-hospital mortality. An earlier analysis by Goldacre and colleagues¹⁶ of linked records suggests that this approach would have excluded about 15% of deaths within 30 days of admission for AMI. Patients who were discharged alive less than 3 days after admission were excluded because of perceived risks that the diagnosis of AMI had been “upcoded” but the evidence for this is not provided. Cooper and colleagues also ignore other problems identified by Goldacre and colleagues who excluded people older than 74 years because of the unreliability of diagnosis of AMI in older people. Goldacre and colleagues also show that more deaths from AMI occur out of hospital than in hospital, that there is under-reporting and substantial differences between hospitals in the percentage of deaths which are certified as AMI but for which there is no hospital admission record for AMI, and that hospital death rates could also reflect referral patterns.¹⁶ and ¹⁷

More generally, the multiple biases and problems inherent in calculating hospital-based mortality rates and well documented in the literature are not acknowledged, elective procedures are not explained, and NHS OPCS-4 operation codes are not provided or analysed. Also, data returns are known to be incomplete and of poor quality for NHS patients undergoing these procedures in the private sector and in independent sector treatment centres (ISTCs).¹⁸, ¹⁹ and ²⁰ Cooper and colleagues also introduce bias by excluding ISTCs that provide NHS-funded care and hospitals with fewer than 25 AMIs from the measure of market concentration. AMI accounts for around 1% of all NHS hospital episodes recorded in Hospital Episode Statistics, so a range of mortality and morbidity indicators could and should have been used to test the strength of the model. Cooper and colleagues cite a study by Bristol University²¹ that claimed that higher market concentration was associated with lower 28-day in-hospital all cause mortality rates and 30-day AMI mortality rates, but this study lacks plausibility and strength of association. Indeed, the Bristol authors relegate to a footnote the finding of a lack of a statistical association with other outcomes.²¹

Cooper and colleagues have chosen to base causal conclusions on a fundamentally flawed analysis. The potential consequences of the Health and Social Care Bill are too serious for politicians to use such work as part of their justification for the legislation. Far from showing that competition saves lives, at best Cooper and colleagues' study shows that people who have an AMI and whose GPs are close to a hospital or who have many hospitals in their area might have better chances of survival. The policy solution is therefore very different from that currently being followed. We declare that we have no conflicts of interest.

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