The decline in stroke means that we potentially overestimate stroke risk from atrial fibrillation by as much as 100% in today's population
Des Spence, p 39

Remember Starfield: primary care is what counts

Barbara Starfield's research showed that investing in primary healthcare is the way to a successful health system. So why are these lessons not being heeded, asks **Michael Caley**, and will general practice commissioning help?

The UK government's Health and Social Care Information Centre published data in March showing changes in the medical workforce of the NHS in England between 2002 and 2012.[1] The number of consultants rose 49%, from 27 070 to 40 394, whereas the number of general practitioners rose by only 19%, from 30 312 to 36 105. The proportion of all doctors working in general practice has fallen steadily, from 42% to 37% of the total medical workforce.

So what has driven this disproportionate increase in consultants compared with general practitioners? The answer may be more financial than ideological. The introduction of payment by results for secondary care since 2003-04 enables hospitals to increase revenue, and hence workforce, by increasing activity and from the general increase in demand for NHS services. An analysis by the think tank the Nuffield Trust showed that between 2003-04 and 2011-12 spending on hospital care increased in real terms by 40%, compared with only 22% for primary care.[2] In contrast, general practice contracts are paid on an annual cost per patient basis, which can be capped regardless of increases in demand for services; this occurred in the most recent negotiation of general practice contracts.[3]

Over more than 20 years, Barbara Starfield, professor of health policy and management at the Johns Hopkins Bloomberg School of Public Health in Baltimore, who died in 2011,[4] consistently showed that increasing the supply of primary care physicians, even after correction for socioeconomic factors, results in lower all cause mortality[5 6]; lower mortality from cancer, heart disease, and stroke[7]; increased life expectancy and better self reported health[6]; lower rates of admission to hospital[8]; lower infant mortality[9]; reduced health inequalities[10 11]; and reduced costs.[12] Furthermore, she showed that relatively more medical specialists compared to primary care physicians resulted in greater costs and a trend towards an increase or neutral effect on overall mortality.[5 10]

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Between 2003-04 and 2011-12 spending on hospital care increased in real terms by 40%, compared with only 22% for primary care

Improvements in these outcomes are broadly identical to the objectives of the NHS in England now and in the previous decade. However, looking at the changing distribution of finances and workforce throughout the NHS, it is clear that her lessons have been either forgotten or ignored. Instead, investment in secondary rather than primary care has been prioritised, and the most deprived areas of the country with the worst health outcomes continue to have the fewest general practitioners.[13] Some of the strongest and most consistent evidence for the improvement of health and the reduction of health inequalities has been ignored in favour of the expansion of hospital or specialist care.

The faster growth in hospital spending and workforce relative to primary care raises questions about whether the NHS has the right balance for the future. If we consider the preliminary findings of the Department of Health commissioned report on general practice workforce, there is some hope that the trend of the past decade may be corrected. The report suggests a 41% rise in the number of general practitioners will be required to meet demand by 2030. This increase is hoped to be achieved by an already planned expansion of training places for general practitioners.[13] This workforce planning needs to be matched with financial investment in primary care by NHS England to allow structured expansion of capacity, skills, and infrastructure.

So what does this mean in the new NHS in England? To achieve the required investment in primary care, the patchwork of newly created organisations with separate but interdependent budgets and responsibilities must work in a fully integrated way. However, even the most charitable review of the history of NHS organisations would conclude that only a handful of trailblazers will succeed. The likelihood of clinical commissioning groups transferring savings made in secondary care to NHS England to commission additional primary care services seems remote. Even general practice leaders in clinical commissioning groups who are successful in making savings may be prevented from investing in primary care because of perceived conflicts of interest—despite this investment being in the best interests of their patients and the population.

Starfield consistently reminded us that sufficient, consistent, and high quality primary care is the bedrock of a high performing health system. Let us hope that the new organisational and financial system of the NHS does not make us forget her lessons once again.

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- Obituary: Barbara Starfield (*BMJ* 2011;343:d4265)
- Education and debate: Why is the grass greener? (*BMJ* 2005;330:727)

FROM THE FRONTLINE **Des Spence**

Bad medicine: atrial fibrillation

General practitioners are the canaries of epidemiology, monitoring large cohorts of patients over many decades and observing changes in illness trends long before research does. Consider atrial fibrillation (AF), with a reported lifetime risk of 25% for men and 17% for women, the Framingham study found.[1] And this is an underestimate for paroxysmal AF, which apparently carries the same risk of stroke but is often missed.

The annual risk of stroke in people with AF is 3-4%.[2] As AF is so prevalent, it follows that a large proportion of the population will have a stroke. These so called facts do not reflect my experience of 20 years in Glasgow, the vascular disease capital of the Western world. Stroke is increasingly rare in my daily work. But these numbers are accepted, with implications for the millions being advised to take anticoagulant drugs lifelong. So are these calculations correct?

The background incidence of vascular disease is in stellar, if unexplained, decline.[3] In 2006 death from stroke was a quarter of what it was in 1968, and despite increasing rates of diabetes and obesity this decline continues.[3] This is the problem: the risk assessment data used to decide the benefits of anticoagulation are decades old.

This is the problem: the risk assessment data used to decide the benefits of anticoagulation are decades old

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The decline in stroke means that we potentially overestimate stroke risk from AF by as much as 100% in today's population.[4] In turn this halves the absolute benefit from anticoagulation. This background decline in vascular disease is an epidemiological anomaly that hugely increases the number needed to treat (NNT) for other interventions such as statins and antihypertensive drugs. This is a fundamental problem with all individualised risk assessments.

There is another problem too. The new CHADS-VASc risk assessment tool is being touted as more discriminating than traditional CHADS2.[5] According to this new algorithm, simply being age 75 (or 65 for women), without any other risk factors, would recommend anticoagulation.[6] The overall numbers recategorised as high risk for anticoagulant drugs have leapt from 18% to 78%.[7] Yet validation of CHADS-VASc uses high risk hospital populations, is a decade out of date, gives no measure of disability, and is observational and not tested prospectively.[5]

The dangers from anticoagulation are fixed and substantial, and annually as many as one in 130 patients has an intracranial haemorrhage, with a mortality rate of nearly 50%.[8] We are on the cusp of a massive expansion of anticoagulation with the promotion of allegedly safer, newer anticoagulants, but this medication is easy to start and yet impossible to stop. If the anticoagulation numbers are wrong, we risk the slow growing of a perfect storm of overtreatment, iatrogenic harm, and bad medicine.

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IN AND OUT OF HOSPITAL **James Owen Drife**

The fight for good writing

As a journal editor, I'm part of an ageing rearguard defending the English language. The job has changed over the years. Online editing is done at home, on a train, or even (heaven help me) on holiday, and most papers now come from outside the United Kingdom. Just how pedantic should I be?

The best English no longer comes from Britain or even Ireland. Scandinavia is reliable but not quite as good as China, where authors use commercial language services (though sadly, not for their revisions). But even professional editors have irritating little quirks. Instead of "and" they write "as well as," and "therefore" becomes "as such."

French English can tantalise you with phrases that aren't quite right but cannot be improved, though eventually you learn that "even if" means "although." Americans always use "exam" for "examination." Nobody from any country uses the word "but." Instead they begin every second sentence with "however."

Many languages have no definite or indefinite article, and I sympathise with authors who insert "the" or "a" in all the wrong places and omit them from all the right places. Some British doctors have this problem, and their senior coauthors are too polite to correct them. Or perhaps they feel that's my job. Or maybe they just don't care.

It has long been unfashionable in Britain to worry about grammar but things may be changing. Civil servants are once again being urged to use plain English. Their style manual, Gower's *Complete Plain Words*, written in 1954 and reissued in 1973, is still in print, though one Amazon reviewer advises, "Don't buy this book unless you have a very strong foundation in grammar and punctuation." That should narrow the UK market.

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I bought my copy 40 years ago after my first *BMJ* article had been ruthlessly subedited. I also invested in *Thorne's Better Medical Writing*, written by Stephen Lock, previous editor of the *BMJ*. Appendix B, "Words to avoid," is an education in itself. Appendix C, "Pseud's corner," includes "holistic" and "parameter." Today "iconic" could join them.

Stupidly, I gave away my *Thorne*, but I've just replaced it with a second hand copy from the library of one of our leading universities. They had evidently decided to get rid of it. That says it all.

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