Both clinical and academic medicine are vocations. Edward Murphy wrote, “those who are dismayed at the prospect of recurrent failure, perplexity, hard work, boredom, at the demands of thoroughness, of inventiveness, of severe intellectual discipline, are unlikely to derive much from a life in research”. As a 50% clinical/academic 100% whole time equivalent Senior Lecturer and NHS Consultant I often feel that I have two full-time jobs. And this excludes my other job of being a mother (also cook, housekeeper, dog-walker, and finder of lost PE kit/homework/socks).

For computational biologists, one of the most exciting challenges is piecing together heterogeneous data. For those who prefer to work at the bench, however, this jumble of information inspires (mostly) procrastination. More and more, dry-laboratory biologists are involved in the design of a study from the outset, and I cannot emphasise enough how important this is. Consult a bioinformatician before you find yourself trying to compare apples and oranges. If you are there already, consult one anyway. Where there are good data, there is hope.

From the dry-laboratory perspective, the real challenges in handling big data are about understanding basic biology, and this inevitably includes the semantics associated with each part. For people working in a very technical environment, there can be a kind of gravitational pull away from the biology into the technical details, and at times that can get in the way of addressing the scientific question. Ongoing collaboration between “wet” and “dry” researchers is the most productive way to bring out the best ideas and see them through properly.

The essence of big data is that it can deliver powerful results when large numbers of patients or samples are represented. To achieve this, it is absolutely critical to share data and information. Large, global cohorts can be formed—sometimes even retrospectively—when research is done following standards, data are produced and described consistently, and results are shared openly. It might seem a bit idealistic, but high-throughput technologies have matured to the extent where novel insights can be revealed by combination of different datasets produced anywhere in the world. It will take a lot of cooperation among groups that normally do not interact, so in a sense some of the biggest challenges in big data are social rather than technical.

To make the best use of big data for health care, clinical researchers will need to develop new expertise and approach their work differently. Ideally, every laboratory or clinic would have its own bioinformatician to manage and channel the data appropriately. And just as clinicians have shifted from scrawled notes to typing into mobile devices in a very short time, so I believe that, once the power of this approach is proven, clinicians will embrace the technology and get the hang of thinking big when it comes to recording observations.

Of course, genomic medicine will demand professional training for all individuals involved in health care, from nursing to clinical research. By combining current knowledge with emerging clinical data and facing the challenge of big data head on, we can ensure that the riches of our new understanding of genomes and human biology can be translated into improved health for all.

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Work-life balance in academic medicine

Both clinical and academic medicine are vocations. Edward Murphy wrote, “those who are dismayed at the prospect of recurrent failure, perplexity, hard work, boredom, at the demands of thoroughness, of inventiveness, of severe intellectual discipline, are unlikely to derive much from a
The world of drug discovery has changed substantially during the past 20 years, and it is no longer the sole province of very large multinational companies. The present status might be best envisaged as a triangular relationship between small and large companies and academic research. In this environment, it is sometimes hard to see where early career researchers might forge a career.\textsuperscript{1,2}

Family life in the UK has changed. A recent survey reported that most dual-earning families include a parent working long hours at atypical times.\textsuperscript{2} It is a modern challenge to balance two vocations and a family. In truth I manage this balance sometimes very badly; sometimes reasonably; and very, very occasionally I get it right. I believe academic medicine can develop so that it supports family life and retains women, but there are several steps we must take.

First, we must be realistic about what we can achieve in a day. The pile of work never goes down, and the commitments always get longer. I wrote a list of how I prioritise my time, and it went like this: (1) children/patients/research; (2) grant and paper writing; (3) husband/collaborators (no particular order); (4) dog; (5) people I barely know or will never meet but who email me (a lot); and (6) me.

This madness is part of the fun, but sometimes you have to say no. With ever-increasing pressures to win grants, publish, and teach it can be hard to say “no”, but “no” must be said when a request is truly beyond delivery. Family time is valuable and our children are not a burden or hindrance to academic life, they are what ground us in the real world.

Second, we can foster the right kind of mentoring. A good mentor will help you to build a career that plays to your strengths, discuss ideas and honestly appraise them, and help you to decide when you really have to say no. Your mentor should not be your direct supervisor (too many conflicts of interest), but should be someone who appreciates the things that make your life work. It took a wise mentor to convince me that I didn’t need to apologise for having a family, for saying “no”, and for not being able to move to Alice Springs for a 6 month placement at a week’s notice.

Third, we can forge collaborative links between women to support and learn from each other (panel). Some barriers to career progression and a family life are individual, but many are shared. You are not alone in feeling overwhelmed, undervalued, or that some award schemes or funding bodies do not understand family commitments. Studies suggest that women leave academic medicine because of reduced access to mentoring and rewards, isolation from colleagues, and the notion that academic life does not support family life. The landscape can seem bleak, but I believe that old school attitudes can be tackled, if we work together, and are beginning to decline. There is a wealth of talent in our medical schools and hospitals, but focusing a career pathway on less than 50% of the potential cohort means that the UK research community, and ultimately our patients, lose out.

A work-life balance is a struggle, but academic medicine offers incredible rewards of intellectual excitement, job satisfaction, and variety. It is also evolving. There is a greater than ever appreciation that the old systems do not work well for people with families. Perhaps this is the start of an opportunity to shape where we go next.

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Panel: SUSTAIN
Professor Moira Whyte, Professor of Respiratory Medicine, University of Edinburgh, Edinburgh, UK, and Registrar of the Academy of Medical Sciences writes:

The Academy of Medical Sciences with partners will shortly launch a pilot programme for women early-career researchers, particularly those with carer responsibilities. The project, known as SUSTAIN, aims to support individuals along their career trajectory and in particular their transition to senior academic positions. Both clinicians and non-clinicians will be invited to join the scheme, which will provide bespoke workshops, tailored mentoring and coaching, and we hope, the sustaining collaborative networks and support that Liz Sapey highlights in her insightful Comment.