

CAREERS

TURNING POINT From medicine in China to cancer research in the United States **p.258**

ADVICE FORUM Get expert input on scientific career issues go.nature.com/lm1x4t

NATUREJOBS For the latest career listings and advice www.naturejobs.com



COLUMN

Part-time balance

Flexible academic positions help women to juggle work and family. **Kate O'Brien** and **Karen Hapgood** explain how to avoid the 'female ghetto' when working part time.

When scientists become mothers, many seek part-time positions to maintain their careers while still spending significant time with their families. But they might not anticipate the downside: part-timers can lose research time and seniority. In academia, they risk being funnelled into teaching positions that can exclude them from research. But there are ways around this.

Part-timers are generally at a disadvantage when competing with full-time colleagues. Full-timers' higher productivity leads to more funding and attracts top-quality collaborators, postdocs and graduate students, so part-time researchers, who are often women, can fall behind. Teaching and administration further reduce the part-timer's research time. And yet they are frequently assessed on the same scale as their full-time colleagues, using metrics that do not account for either their part-time status or the longer time they spend in 'early-career'

phase, when output is understandably low. An absence of role models exacerbates this; most or all other academics in the department, particularly senior ones, will be full-time tenure-track. This creates a discouraging situation in which capable women working at a high level may still be judged poorly. There is also a risk of a 'female ghetto' — a tier of women with fewer opportunities for promotion and job security.

A PATH TO SUCCESS

The part-time model is much more viable in teaching-focused roles, in which evaluation is often based on current performance rather than on accumulated output. Also, teaching does not have the same minimum participation rate as research, and allows ready flexibility. Part-time staff naturally drift towards teaching, or can be pushed there by management — they are often allocated disproportionately high teaching loads because of their

reduced research productivity. Consequently, many female academics focus on teaching at the expense of research. Teaching contracts can be a workable, flexible and fun way to remain engaged with science while your children grow, but it is difficult to re-enter research from teaching later.

Yet it is not impossible to pursue a part-time career in scientific research while devoting time and creative energy to raising children. Choose a role that lets you maintain and build your skills, and define success on your own terms. Developing a research group and teaching in a tenure-track role will be difficult part time unless you are already quite advanced in your career; a contract role in a strong research group might bring less prestige and security, but will let you develop your expertise and build a track record in preparation for a successful tenured position when your children are older.

Choose an organization that is friendly to ▶

BELLE MELLOR

► part-time workers. You will need a manager who can appreciate your contribution and nurture your development. Find out about the presence and status of other part-time scientists; schemes that support career re-entry; and whether there are limitations on part-time staff supervising PhD students or applying for funding. A good manager will recognize that your worth is unlikely to be directly reflected in metrics that have been developed for and by full-time academics. Be sure that your institution, directors and manager will allocate part-time teaching and administration loads fairly, and are willing to adjust metrics and milestones to account for career stage, part-time status and other duties (such as teaching).

If you are in a tenured position, take the initiative and find solutions that will work for you and your department. Negotiate for all your teaching duties to be in one semester, so you can dedicate the other to continuous research. Collaborate with or join a research team in which your expertise is valued, your part-time status is accepted and you can work with established researchers. This may require compromise and concentration on one key research area.

Recognize where part-time work provides an advantage over more conventional employment. A part-time postdoc, research fellow or contract researcher can adapt to workloads that vary with the cycles of grant funding, and provide continuity and management in a lab group. At the same time, the part-timer can maintain and build their own expertise so that they can embark on more ambitious projects if they return to full-time work after a few years, or even decades.

You need to be brave to undertake an unusual career path. You may be unsuccessful according to the metrics used by administrators, and your performance may be judged poorly against that of full-time scientists. Maintaining confidence in your abilities will be difficult under these conditions. Wise mentoring, and acquaintance with others who have worked part-time or follow non-traditional career paths, can help you to negotiate the system.

You must be patient with your ambitions, and with your managers and colleagues as they adapt to working with part-time researchers. Above all, enjoy your time with your children. Your full-time colleagues will be promoted ahead of you, but there will be time to focus more on your career once your children have grown. ■

Kate O'Brien is a part-time lecturer in chemical and environmental engineering at the University of Queensland in Brisbane, Australia. **Karen Hapgood** is a full-time associate professor in chemical engineering at Monash University in Melbourne, Australia.

TURNING POINT

Qin Liu

In July, Qin Liu began her tenure as an associate professor of biostatistics at the Wistar Institute in Philadelphia, Pennsylvania. She explains how she has combined a medical degree with graduate research in epidemiology and biostatistics to focus on cancer research.

You set out to be a clinical doctor. What sparked your interest in biostatistics?

I expected to become a clinical doctor when I completed my MD at Shanxi Medical University in Taiyuan, China. I got a job offer at a hospital in Changzhi, my parents' current residence. Then, during the last year of medical school, I did an internship at the Center for Disease Control and Prevention in Shanxi Province. I wanted to use population-based data to get useful public-health information. I thought I would do a graduate programme in epidemiology, but the principal investigator wanted a man. He felt it wasn't safe for a woman to travel alone collecting data in the countryside. Biostatistics was similar, without the travel, and a good fit. I did a survival analysis of people with lung cancer.

How did you end up in the United States?

After completing my PhD at Shanghai Medical University and working there as a lecturer, I was chosen, from 30 applicants, for the one opening in a biostatistics postdoctoral training programme at the Cancer Center of the University of Massachusetts (UMass) in Worcester.

What was a pivotal point in your early research?

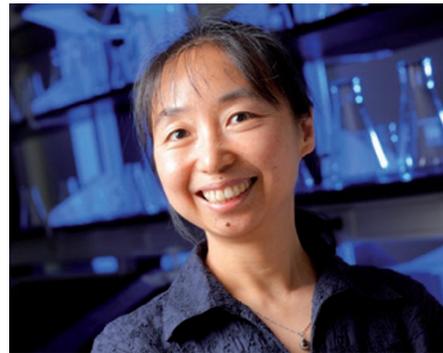
I found that women who get pregnant have an increased risk of developing breast cancer for several years after pregnancy — but later in life, their risk decreases. My team and I interpreted this as evidence that the risk might be associated with hormonal changes. That was a big paper for me. Several years later, using a similar statistical model applied to the same Swedish population data, we found the opposite trend for ovarian cancer. We need more data to understand this phenomenon.

Why did you then pursue a master's degree in epidemiology?

My mentor was an epidemiologist, and I felt that I needed more knowledge for population-based studies. At the time, UMass employees got a 50% reimbursement for work-related degrees, so I thought, 'Why not?' I was also curious as to how US university teachers teach.

What are the biggest differences between Chinese and US teachers?

In China, teachers seldom ask students'



WISTAR

opinions or discuss topics with them. When I taught, I talked for the entire 45 minutes of class. But here, they use half their time to lead a discussion and ask students questions. It makes the students feel active. I was nervous at first as a student, because my English was not good and I couldn't organize my thoughts to reply. But I learned to focus my energy to be ready when the teacher called on me.

Do you think you will eventually return to China?

Several people have contacted me, and I know there is a lot of funding from the Chinese government to attract good researchers back to help develop public-health projects. But so far, I haven't thought about going back.

How have funding ups and downs affected your career?

I worked at the cancer centre at UMass for seven years, until our funding ran out. Almost everyone in our group had to look for another position. It was very hard. This is a challenge in our field: there are few independent granting sources, so biostatisticians have to either collaborate with other people to analyse their data or work in a group that provides statistical services to faculty members.

I was lucky that the UMass Biostatistical Research Group, which provides statistical services to the entire department of medicine, had an opening and chose me. I worked with all different types of researchers, conducting everything from clinical to policy studies. But I realized I really wanted to return to cancer research when I saw this opportunity in the oncogenesis programme at Wistar. Luckily, the hiring committee saw me as a potential bridge between the basic science and the clinical research being done there. I hope the position will afford me more research independence. ■

INTERVIEW BY VIRGINIA GEWIN