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“Research is not only necessary but is a critical component to solving or discovering solutions to challenging societal problems. Hence, the more frequently detailed studies are conducted on societal problems, solutions to issues become resolved and positive influences and behaviours are accepted by society. Any cuts should be phased over three to five years.” Monique J Grant-Coke, University of Jamaica

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How can we economise without damaging science?

As researchers brace themselves for bad news in the spending review, **Luisa Dillner** argues that cuts will diminish the UK’s research pedigree and won’t help the economy

No sooner had Cambridge University ousted Harvard from the top of this year’s QS world university rankings, than Vince Cable, secretary of state for business in the United Kingdom, was making his first science, research, and innovation speech.¹ In it he asked, “How can we economise without damaging science?” When the results of the government’s comprehensive spending review are announced later this month few doubt, but few want to believe, that there will be serious reductions in research funding. Research quality is, after all, a factor in the QS rankings that puts six of the UK’s universities in the world’s top 25. Mr Cable has already denied in a radio interview that 35% of the research budget will be cut. “That is way in excess of what we are talking about,” he said. But rumours are circulating that the seven research councils that invest around £2.8bn (€3.38bn; \$4.31bn) a year in research covering all academic disciplines, including medical and biological sciences, have been asked to prepare scenarios on the basis of funding reductions of 10%, 20%, and 30%.

Cable’s speech argued for prioritising the funding of only excellent research and that which translates best into commercial success. “My preference,” he said, “is to ration research funding by excellence and back research teams of international quality—and screen out mediocrity—regardless of where they are and what they do.” But Gwyn Bevan, professor of management science at the London School of Hygiene and Tropical Medicine, argues that there is a complex relationship between basic

science research and commercial exploitation. “It is a clichéd criticism of Britain that we are good at new ideas but not as good at translating them into products,” he says. “Pure research is in the public domain, and it is up to others to take advantage of it.”

It is not known which areas of research the coalition government values most, but there is evidence that in science the UK has for some time punched above its weight. The UK produces more publications and generates more citations per researcher than any other G8 country.² It provides 7.9% of the world’s publications and has 14.5% of citations with the highest impact factor.³ After fears of a brain drain in the 1980s, the UK is now an importer of scientists.

The Royal Society argues that it will be hard to reduce funding to only excellent research as most falls into this category already.⁴ The Research Assessment Exercise for 2008 concluded that 87% of funding went on research that was of international quality.⁵

Martin Taylor, chair of the advisory group for *The Scientific Century*, a Royal Society report into the link between research and economic prosperity warns, “It’s hard to say whether particular disciplines will fare badly, but we can assume that younger scientists will bear the brunt of cuts. Severe cuts will mean we are likely to lose a generation of young scientists.”

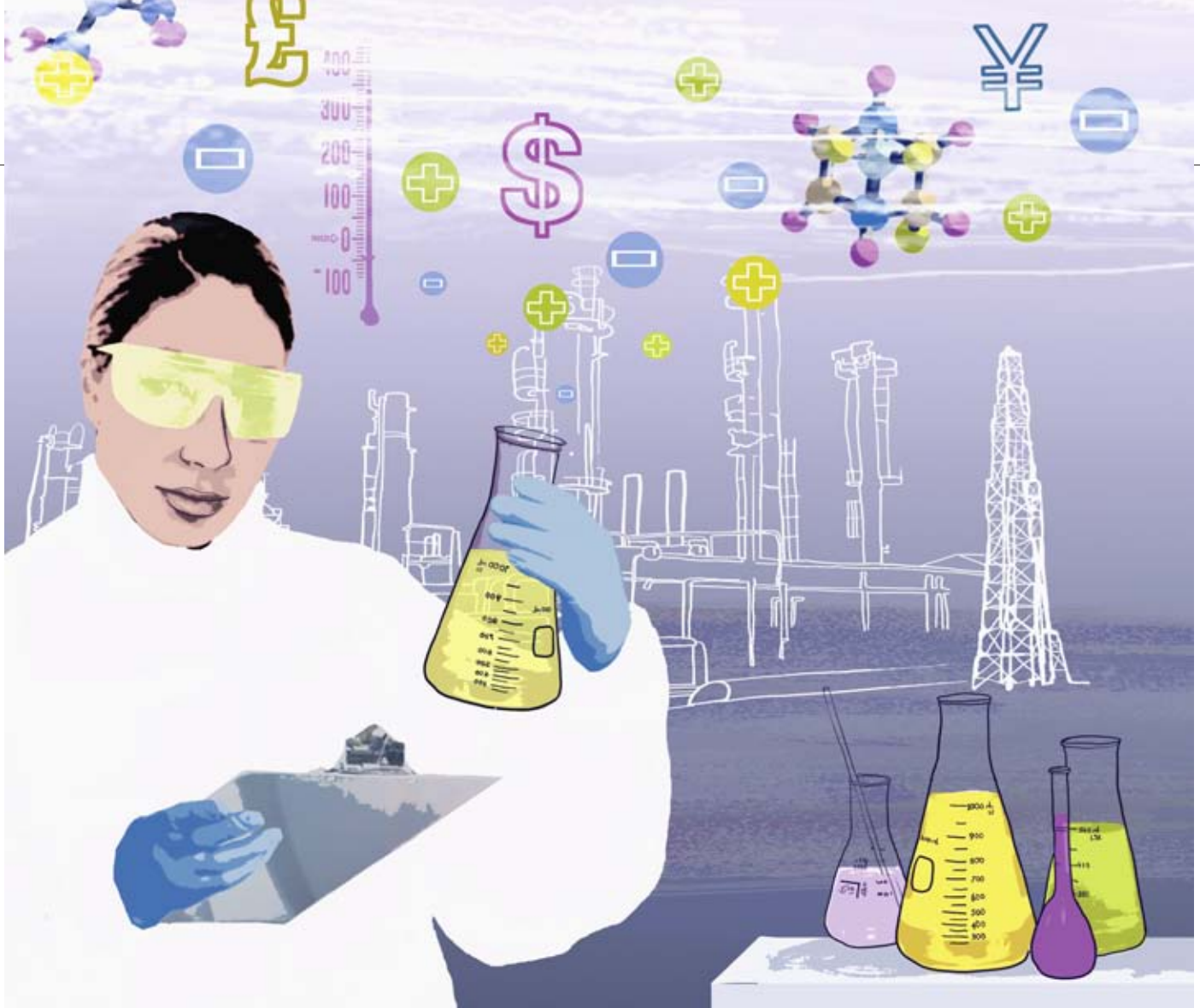
Economic value

The arguments for investing in science research as the power house of economic recovery have been well rehearsed, especially in biomedical research. A paper from the

Health Economics Group at Brunel University in association with RAND Europe showed that every pound invested in public research into cardiovascular diseases in the UK from 1975 to 1992 produced health and economic benefits equivalent to 39 pence per year in perpetuity.⁶ Over the past decade the spin-off companies from bioscience departments of universities have generated considerable revenue. The Royal Society report cited the sale of Solexa, a company that sequences DNA, which generated \$600m. In the UK, the strong link between academia and research (unlike in countries such as Germany where research is more rooted in research specific institutions) has encouraged 250 000 overseas students, generating \$5bn for the economy. Such is the link between research and economic growth that a report from Imperial College Business School estimated that if support for research councils were cut by £1bn from its current £3bn a year then gross domestic product would fall by around £10bn.⁷

If the government in the United Kingdom is unmoved by these arguments, other countries are not. In the United States \$21.5bn of its fiscal stimulus package of \$787bn is being given to scientific research.³ President Obama has argued that support for research is essential in a recession. Singapore is now one of the fastest growing producers of science research in the world after its government invested over \$2bn. China has launched a 15 year investment plan for science and technology that will see its investment increase sixfold. In Germany the education and research budget will rise by more than 7% in 2011. Sir Martin observes, “The contribution that science makes to the economy is clear. Other countries know that investing in science will boost the growth of their economy.”

“Such is the long life cycle of research funding, with much of it committed to funding people, that sensible, reversible cuts are going to be hard to make”



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Not everyone who supports the research community is convinced of the clear link between investing in research and growing the economy. “We’re on weak ground if we argue that cutting research will have a dramatic effect on the British economy,” says Professor Bevan. “But we do have world class institutions that attract students from all over the world, that have taken time to build, and will take no time to destroy. What sort of a society are we if we want to savage funding to the extent that we lose these institutions?”

Difficult decisions

The Royal Society warns that the damage of sudden cuts should not be underestimated. In biomedical research it could mean the loss of the translational research in personalised medicines, regenerative medicines, and stem cell therapies. Such is the long life cycle of research funding, with much of it committed to funding people, that sensible, reversible cuts are going to be hard to make.

For some time the commercial impact of research has been a consideration in approving grants. But the Academy of Medical Sciences in its submission to the coalition government on

research funding warns against an assumption that industry will make good any shortfalls. For every £1 increase in public funding drug companies already invest up to £5 in research.³

None of the institutions that fund research wants to contemplate any cuts to the research budget. But off the record they say that if cuts are inevitable the government should also provide a long term plan for research funding. For research to thrive, they say, it needs the government to provide a vision for the future, to reassure talented researchers and anxious investors that there will be life after cuts. Any cuts should be phased over three to five years to safeguard ongoing work and be reversible later if possible. The preservation of high quality researchers and their projects should be protected above capital spending projects. No one denies that savings might be possible in the submission of research grants and the bureaucracy around them in biomedical research, but this will only be known when a review on its regulation is concluded later this year.

However, some commentators would go further. In a recent article in the *Lancet* Iain Chalmers and Paul Glasziou argued that there

was enormous waste in medical research. “The fact is that people continue to embark upon research without doing a systematic review first to see what has gone before,” says Sir Iain. “They will also do trivial additions to the research, that is not in the interests of patients. There is a danger that cuts to research budgets might do harm but a knee jerk reaction to maintain the research quo is not right. The research community needs to put its house in order.”

But whatever the final budget is for research Professor Bevan warns that the government should be careful to nourish what we have. “Economic arguments aside, it is,” he says, “an important part of our cultural heritage.”

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References are in the version on bmj.com.

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Nominations open

The BMJ Group Awards are back for a third year, with three new categories, and more of an international flavour than ever, reports

Nigel Hawkes

ENTER NOW

Nominations for awards can be made online at groupawards.bmj.com. Nominations open on 16 October and close on 4 January 2011. Members of the BMJ editorial team and BMJ Group staff will act as champions for each of the awards and will organise panels of distinguished judges to make the decisions.

The awards ceremony will be held on 18 May 2011 at the London Hilton on Park Lane, London. Tickets for the ceremony can also be bought at groupawards.bmj.com



Nominations open on 16 October for a total of 13 awards, building on the success of an awards scheme that has rapidly become established for its recognition of excellence in health care. Last year there were 780 entries, a huge increase on 2009, and the hope is to exceed that number this year.

The awards mix prizes for UK based doctors and teams with those that are open to international nomination: six are UK only and seven international, including the top prize, the BMJ Group award for lifetime achievement.

Fiona Godlee, editor in chief of the *BMJ*, said: "These awards are a great opportunity to celebrate excellence across the whole of health care. There are lots of unsung heroes in health care doing important work to improve life for patients and the public. I'm glad that the BMJ Group is able to give them the recognition they deserve."

Judith Mackay, a lifetime campaigner against smoking, said that winning the first ever lifetime award in 2009 "meant more to me than any other award I have received."

"I had the greatest respect for the other eminent shortlisted colleagues from a wide variety of disciplines, mostly in curative medicine," she said. "But individuals, academics, organisations, and governments voted essentially for public health, disease prevention, global health, tobacco control, and the importance of health issues in low and middle income countries, the areas where I work."

"The award put public health to the fore, whereas too often it has been an undervalued and underfunded discipline of medicine," she said.

Melba Gomes and her team from the World Health Organization won the research paper of the year award last year for a paper showing that children with severe malaria unable to take oral treatment could be saved by the use of artesunate suppositories. She said winning the award was a "great honour." "It has helped increase awareness among disease endemic countries and donors alike of the importance and lifesaving potential of early treatment."

This year sees the launch of several new categories, including Medical Team in a Crisis Zone, sponsored by BUPA. Andrew Vallance-Owen, Group Medical Director of BUPA, said the sponsorship was in memory of Karen Woo, a doctor who was killed in Afghanistan on 6 August this year. Dr Woo, who was 36 and came from London, was one of 10 people working for a charity, the International Assistance Mission, who died when they were ambushed by gunmen in a remote area of north-eastern Afghanistan.

Dr Woo had worked for BUPA as an associate medical director. "She was a lovely person who inspired people she met," said Dr Vallance-Owen. "This award is perfect for us to sponsor because working with a medical team in a crisis zone was exactly what she was doing."

For the second year, the Medical and Dental Defence Union of Scotland (MDDUS) will be the headline sponsor of the awards categories:

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for BMJ Group Awards

These awards are a great opportunity to celebrate excellence across the whole of health care. There are lots of unsung heroes in health care doing important work to improve life for patients and the public.

The BMJ Group is seeking nominations in 13 categories

RESEARCH PAPER OF THE YEAR

Sponsored by GlaxoSmithKline, this award is for original research published after 1 January 2010, either in the United Kingdom or internationally, that makes an important addition to knowledge and helps doctors make better decisions about clinical practice, research methods, or health policy

GETTING EVIDENCE INTO PRACTICE

This award is for evidence based improvement in care, completed after 1 January 2009 in the UK, that uses innovative methods to show measurable improvements in health outcomes

PRIMARY CARE TEAM OF THE YEAR

Open to general practices in the UK, this award, which MDDUS is sponsoring, is for team projects or initiatives that have shown improvements in patients' outcomes since 1 January 2009 and have used innovative methods

SECONDARY CARE TEAM OF THE YEAR

Hospital and secondary care teams in the UK are eligible for this award, which is based on the same criteria of excellence as the primary care award

JUNIOR DOCTOR OF THE YEAR

A new award that is open to non-consultant, non-career grade doctors from the UK who have built up an exceptional portfolio of work or who have overcome exceptional challenges

EXCELLENCE IN HEALTHCARE EDUCATION

sponsored by MSD and open to entrants from the UK and abroad, this award will reward publications, initiatives, or projects in the calendar year 2009 that had measurable effects on improving education in health care

BEST IMPROVEMENT IN QUALITY AND SAFETY

The Health Foundation sponsors this award. Judges will be looking for a UK based team or organisation that has implemented a change in care since 1 July 2008 that has made things better for patients, improved outcomes, and overcome barriers

CLINICAL LEADERSHIP

Sponsored by McKinsey&Company, the award will go to the individual in the UK who has done most since 1 January 2009 to achieve measurable improvements in the care of patients

HEALTH COMMUNICATOR OF THE YEAR

This award, sponsored by Alliance Boots, is open to those, both in the UK and abroad, who have shown excellence in promoting understanding of medicine and health in the published or broadcasting media

INNOVATION IN HEALTH CARE

Celebrating an individual, organisation or company that has shown excellence in health care through the development of therapeutics, devices, or technology

MEDICAL TEAM IN A CRISIS ZONE

An award, sponsored by BUPA, for a medical team that has had an exceptional effect on a crisis situation in the UK or abroad

SUSTAINABLE HEALTH CARE—Recognising a healthcare organisation that has shown outstanding and effective commitment to sustainable health care

BMJ GROUP AWARD FOR LIFETIME ACHIEVEMENT—This award is for an individual who, through a working lifetime, has made a unique and substantial contribution to improving health care.

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Clockwise from top: Fiona Godlee, *BMJ* Editor; lifetime achievement winners 2009 & 2010; Clinical Leadership winners 2010; Research Paper winners 2010; Best Quality Improvement award winner 2010; Health communicator of the year 2010