AN UNLIKELY BENEFACTOR

Money for research has tended to be compartmentalised by discipline, but as **Geoff Watts** reports, one funding body is broadening its horizons

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Tissue engineering, such as growing epidermal strips in the lab, could benefit from the funding

Think of the government funding sources that underpin most UK research in medicine and health and you probably wouldn't think of the Engineering and Physical Sciences Research Council. But the council has recently identified next generation health care as one of its four priorities.

The council drew up its priorities for funding in response to a government statement setting out the key challenges facing UK society.¹ Kedar Pandya, head of the council's life sciences interface programme, is overseeing the next generation healthcare activities. One factor in the choice of theme, he says, was the government's interest in putting more emphasis on the lifelong maintenance of good health and wellbeing. Another was a consultation with the council's advisory board of senior academics and industrialists. "We looked at our strengths, and two that emerged were medical imaging and tissue engineering," he says. So health care seemed a natural choice.

This consultation also highlighted the UK's persistent failure to make the most, commercially, of the ideas it has proved so good at generating. The council hopes to tackle this by encouraging stronger partnerships between industry and academia. "Engineering and physical sciences have a key role in delivering new diagnostics, better tools for medical imaging, and so on," says Dr Pandya. "The aim is to build relationships to allow a flow from the fundamental science and engineering through to final application."

Where will the money go?

How the money is spent will depend on the response to research proposals, but past experience should offer insight of what's to come. David Hawkes of University College London's department of medical physics and

bioengineering has had the council's support. His department's work on medical imaging technology and image guided intervention exemplifies the sort of enterprise that the council would like to see.

One challenge that Professor Hawkes and colleagues have taken on is to increase the sensitivity of mammography without increasing the rate of false positive results. Because the examination of mammograms is such a lengthy and expensive task, automation could play a part in this. "The first stage—and there are already systems commercially available to do this—is simply to help the radiologist by drawing attention to suspicious areas of the image." How far towards full automation this process can proceed is yet to be discovered.

John Fisher of the department of mechanical engineering at Leeds University has also had funding. One of his interests is in tissue

engineering—in biological scaffolds that can support regenerative activity by the patient's own cells. "We take the tissue structures from an animal or human source and modify them to remove all the immunologically active components that might cause rejection." This is the architecture on which fresh stem cells can create new tissues. A spin-out company they have set up is working towards clinical trials.

Potential for collaboration

How easy is it for engineers to establish links with medical staff? Dr Pandya says, "In medical imaging it happens as a matter of course. But in our portfolio more generally we don't make as many links with clinicians and medical practitioners as we'd like." According to Professor Fisher, "The easiest relationship is between engineers and surgeons because they're both looking at practical applica-

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As Professor Hawkes says, there are certain areas of science—physics and biochemistry, say—that have a long relationship with medicine through the existence of radiology and pathology departments. "The sort of research that I get involved with is always located in or close to a clinical environment," he says. "But a lot of the people that I train, the PhDs and post-docs, haven't been exposed to this. A vital part of what we do is to get them to understand the language, culture, and ethos of medicine. They should know as much as the surgeon they're working with about the particular clinical area. And of course the clinical people need to understand us."

Next generation health care is not the only one of the council's four chosen themes that has the potential to benefit medicine. The other three priorities are energy, the digital economy (new information and computer technologies and their applications), and nanoscience.² Dr Pandya talks of the increasing importance of information in health care. And the impact on medicine of nanosciences could be even more pronounced if this fledgling technology fulfils the potential predicted by enthusiasts.

Next generation health care is set to receive £12m (€16m; \$24m) over the next three years. Adding the value of healthcare related research under other themes could double it. Geoff Watts is a freelance journalist, London geoff@scileg.freemove.co.uk

Competing interests: None declared.

- 1 HM Treasury. *Long-term opportunities and challenges for the UK*. 2006. www.hm-treasury.gov.uk/spending_review/spend_csr07/spend_csr07_longterm.cfm.
- 2 Engineering and Physical Sciences Research Council. *EPSRC delivery plan 2008/09 to 2010/11*. www.epsrc.ac.uk/CMSWeb/Downloads/Publications/Corporate/DeliveryPlanNov2007.pdf.

From the *BMJ* archive: see *Getting the best from research funding*. *BMJ* 2008;336:120-2.