

UoA 9 Pharmacy Panel Overview Report

Overview

The submissions to the Pharmacy unit of assessment in 2001 comprised 429 staff (headcount) in 12 institutions citing 1,748 research outputs. On average, each research-active individual submitted was associated with approximately one research assistant and two research students (on the census date of 31 March 2001), and 0.5 research degree awards and some £300k external research income over the assessment period.

Comparison with 1996

The Pharmacy Panel considered twelve submissions in 2001, four less than in 1996. However, 418 staff (FTE) were submitted in 2001 compared to 386 in 1996, an increase in the average size of a submission from 24 to 35. All twelve institutions assessed in 2001 had submitted to Pharmacy in 1996, the four that didn't being generally those with lower ratings (two had been graded 1, one had been graded 2 and one had been graded 3b).

The profile of grades in 2001 showed a significant improvement on those awarded in 1996, even allowing for the absence of those with lower grades that had chosen not to submit to UoA9. Of the twelve institutions, five improved their grades by one point, two by two points, four stayed at the same grade and only one dropped a point. Eight submissions comprising more than 300 staff were rated 5 or 5* in 2001 compared to six submissions comprising 180 staff in 1996.

The Panel believes that the overall rise in grades reflects a genuine improvement in the quality and quantity of research in the Pharmacy sector and reinforces the view expressed widely that a substantial proportion of Pharmacy research in the UK is of the highest order – according to Science Citation Index data, Pharmacy (with Pharmacology) is the most highly cited UK unit of assessment.

Panel constitution, criteria and working methods

In the course of its deliberations, the Panel applied rigorously the criteria and working methods that were published in 1999 (RAE Circular 5/99). Having been constituted with a wider range of expertise than in 1996, it was able to assess most submissions without recourse to cross-referrals to other Panels or use of specialist advisers, although a small number of cross-referrals were made, and received. Experts in pharmacy practice, clinical pharmacy and clinical pharmacology were included on the Panel in 2001 to ensure competence to assess research into the use of medicines in society and the associated pharmacy services. The presence of two representatives of the pharmaceutical industry, and an observer from the Association of the British Pharmaceutical Industry, strengthened the appreciation of the application and exploitation of pharmaceutical research.

The Panel was able to acquire the necessary outputs in order to collectively read or otherwise examine in detail at least 25% of the outputs cited in each submission, in most cases well in excess of this figure. As stated in its assessment criteria, the Panel came to a decision on grade by considering all the evidence provided, with the quality of research outputs and evidence of the vitality of the department carrying most weight in the assessment process.

In reaching a final decision, the Panel considered also the comments of a group of non-UK experts and of the Medical and Biological Sciences Umbrella Panel. The comments of the non-UK panel were generally considered useful and largely confirmed the provisional grades of those submissions reviewed. The Panel responded to the issues raised by the Umbrella Panel in trying to delineate the boundaries between grades, notably between 5 and 5* and 4 and 5. The need to make rounded judgements on the basis of all the information provided, and not to be too 'arithmetic' in allocating grades in accordance with Funding Council definitions, was reflected in the Panel's final decisions.

The State of Pharmacy

The overall impression gained by the Panel was that the growth in 5 and 5* rated submissions represented a genuine improvement over the period of assessment, and that the calibre of science associated with a grade 5/5* in Pharmacy is of the highest order. The submissions as a whole indicated a sound, creative research community, generally of high quality and healthy quantity with the ability to secure good funding from various Government agencies, charities and industry and with evidence of increasing collaboration across disciplines and with users of research such as the NHS.

The area of *medicinal chemistry* was felt to be particularly strong - almost all that submitted being considered to be of at least national excellence, with only a little at sub-national level. A significant proportion demonstrated clear international excellence. Within the medicinal chemistry sector there was strong evidence of collaboration with leading international teams and outputs in journals with the highest standards of refereeing and publication. Many groups also showed clear evidence of long term substantive, and collaborative, interaction with industry. A small proportion of the work was considered to be of a routine nature, which was sound and reliable and contributing to knowledge, without setting new agendas or moving the field on in a substantial way

Although the UK is a world leader in the area of *pharmacy practice*, much of this activity is based on the methodologies of health services research, which itself is a relatively new area of scholarship. Given its emergent status, it is not surprising that a greater proportion of work within pharmacy practice has yet to reach national standing compared to other areas of the pharmaceutical sciences. However, it is clearly improving with several centres providing evidence of work of international standing. The Panel recognises the need for more dedicated and trained researchers in an area that is essential to support the NHS and which it would expect to be a significant activity in any Pharmacy department.

The Panel considered *Pharmacology* to be strong, especially in the units where this was submitted jointly with Pharmacy - the closer integration of Pharmacy and Pharmacology was something the Panel felt should be encouraged. Most of the pharmacology submitted was considered to be at least of national excellence, with a significant proportion demonstrating international excellence.

Significant strengths in aspects of *drug delivery* research were apparent, particularly in pharmaceutical material science where a significant proportion demonstrated clear international excellence together with strong evidence of productive collaborations with industry. However classical *pharmaceutics and pharmaceutical technology*, the backbone of medicine formulation and manufacture, continues to decline with no clear plans for the future of these key developmental areas defined in a number of submissions.

In terms of *industrial links*, the pharmaceutical sciences are by their nature an innovative branch of the UK science base and one that strongly underpins national GDP through the traditionally strong UK pharmaceutical industry sector. The Panel was generally impressed by the extent to which departments appear to be generating novel intellectual property and both linking up with the industry and incubating spin-out companies in drug discovery, drug design and drug delivery. The presence of spin-offs now appears to be the norm rather than the exception. The benefits to academe that were evident from spin-outs included provision of active research staff, publications and an income stream, all of which contribute directly to the vitality of the department. Overall, the Panel was impressed by the excellent interaction between academe and large pharmaceutical companies evident in many institutions. By the very nature of the subject, much of the work is interdisciplinary and collaborative, and thus research in many pharmacy departments is well able to respond to Research Council and other initiatives.

Finally, the Panel noted that the *age profile* in some departments was a cause for concern, although it was not always apparent whether this was due to a genuinely high age profile or because many of the younger researchers had not been submitted. The Panel regarded clear succession planning as evidence of good management practice.