ADEE – Lyon (30th August 2012)

Association of Basic Science in Dentistry Special Interest Group

The New Biology; bridging the gap with the dental curriculum – MEETING REPORT

Overview

At the Association in Dental Education Meeting and satellite Association of Basic Science Teachers in Dentistry (ABSTD) symposium in Antalya, Turkey in 2011, there were key presentations by Dr Charles Shuler of the University of British Columbia and Dr Alan Mighell of the University of Leeds. Both took the Human Genome Project as a theme. Subsequently, Josie Beeley and others gave glimpses into emerging disciplines such as Proteomics, Nanotechnology or Regenerative Medicine. Whilst, in these areas, the knowledge base has been expanding exponentially, any impact on the clinic has so far been relatively small. Yet, there is a consensus amongst informed commentators that this will change. If the next generation of dental students is to be prepared for these changes, the current undergraduate curriculum will have to evolve to accommodate them. The group sought to explore some of the challenges this poses, to identify issues relating to the current coverage of the basic sciences in the Dental curriculum and to stimulate debate as to how these may be manipulated to accommodate these newly emerging areas.

Report on Special Interest Group Meeting

In the majority of the schools represented, teaching of basic sciences features at the beginning of the programme, and is based around traditional scientific disciplines. Often it is very compartmentalised, with little contextualisation to real clinical problems. Some schools still fail to recognise that the need for basic science teaching is not restricted to the early years, but evolves with progression through the clinical curriculum. There is often little or no opportunity to revisit basic sciences in the later years. This could be tackled by greater integration between disciplines horizontally within specific years of a programme, and vertically between successive years.

Some colleges had made an effort to address this by developing Oral Biology as a link topic between the traditional pre-clinical and clinical areas. One more progressive school reported developing a much more extensive oral bioscience programme around an evidence based approach, to include Critical Appraisal and Research Methodology. Yet, even with this, it was difficult to site topic coverage in an appropriate clinical context. Several schools reported that once into their clinical years, Dental students, unlike their Medical colleagues, were very focussed on the delivery of practical techniques and saw the basic and applied sciences as secondary disciplines.

Cross disciplinary approaches may help in an appropriate measure, but one small school, heavily dependent on teaching from outside Dentistry for much of its basic and applied science coverage, reported that the more other professional groups became involved in the delivery of their undergraduate dental curriculum, the greater the issues of maintaining relevance to the dental programme and contextualisation became. Contemporary problem based approaches may provide an answer, and in some circumstances they have worked well.

Coupled to the need for greater contextualisation of subjects already in the curriculum, there are the challenges posed by contemporary scientific advances. New knowledge arising out of the Human Genome Project, and the growing accessibility of new technologies such as the $1000 genome, are

leading to seismic changes in the contemporary learning landscape. As these technologies take root, change will be inevitable and will be a feature of the practicing lifetime of our current students. The curriculum will need to respond, by adaption and evolution to include a foundation in these areas if we are to produce dental graduates with an appropriate knowledge base for the 21st century.

The prevailing view was that block teaching of individual *'…omics'* would not be helpful. Although much harder to achieve, a more desirable goal would be a programme embracing both traditional topic areas and the *'New Biology'* in order to emphasise how contemporary science is opening up new areas of understanding. Again, this would have to be applicable to, and guided by clinical need. Undoubtedly the best people to define these needs are practicing clinicians. This creates a strong case for greater engagement with clinical colleagues to define the basic science goals of the undergraduate dental curriculum. Once again, contextualisation and integration emerge as recurring themes.

Several challenges were highlighted. Dental school basic science staff are few in number leading to the probability that from time to time they may be required to work outside their comfort zone if an integrated approach is to be achieved. The paucity of accessible integrated dental texts does not help, and the predominance of texts following traditional subject boundaries mean that students as well as staff will have to take greater control of their learning and take a lead in breaking down these traditional boundaries. Assessment drives learning and integrated assessment packages may assist in this process.

Conclusion and Future Goals

The extent and depth of many of these issues revealed by the discussion confirm that this area poses a significant challenge to Dental educators. Wide debate and consultation is essential in order to establish a consensus view, and to lead to the development of guidelines of assistance in informing curriculum development. The preparation of a draft set of guidelines for a basic science curriculum, to include coverage of the newly emerging disciplines, and informed by the '*Profile and competences for the graduating European dentist'* for presentation at the 2013 ADEE meeting in Birmingham would be a significant goal and one which we should strive to achieve.

Jon Bennett and Josie Beeley
Convenors
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