Jonathan Lewney: 'We need to reassess the science underpinning dentistry'

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Jonathan Lewney talks to the *BDJ* about dental foundation training, his hopes for the new dental contract and why there is more to discover about tooth decay and its prevention.

Jonathan Lewney is student editor of *Launchpad*, member of the BDJ Editorial Board and currently works as a foundation dentist at a pilot scheme practice for the new dental contract. Passionate about learning, Jonathan has an MSc in medical science, a BSc in natural sciences with chemistry and is presently completing a BA in religious studies. Beginning his working life as British Airways cabin crew for over 11 years, Jonathan was able to master several languages and travel the world before turning to more scientific pursuits. Bringing his love of chemistry and dentistry together, much of Jonathan's research has focused on enamel demineralisation and the science of tooth decay. Taking up a job in dental public health later this year he hopes to focus on ways to prevent oral health problems rather than just fixing them.

After working as a BA worldwide cabin crew member for over a decade what made you decide to go back to university?

I always wanted to live abroad for a period of time and learn another language and for part of the time I was working for BA I lived in Madrid so was able to do all that. But when I got back to the UK I decided that my time with BA was over and I wanted to look for something to use my chemistry degree and masters.

Why did you choose to study dentistry?

I was torn between a PhD in bioinorganic chemistry and studying dentistry. I also considered medicine as a back-up, as the entry requirements for graduate entry medicine are less strict and I didn't have A-level biology. My qualified dentist friends were much happier than my doctor friends so that was the deciding factor for me. I had to work really hard but I got there in the end. I still had fun and actually worked all the way through my degree at a yoga studio. I just don't sit still.

Has studying dentistry changed the way you look at dental treatment?

It's a completely different experience when you're able to look at what's going on and really understand everything. In a way it makes you more worried but then knowing that dentistry is well regulated is reassuring. I'm one of those annoying patients who doesn't go numb for fillings but when I had my wisdom teeth surgically removed by my tutor I had it under local anaesthetic as I had previously performed it myself with local anaesthetic so I had to be brave. I couldn't feel a thing but philosophically it was quite strange to know what was going on. I was fine with everything until they started drilling my jawbone, not because I could feel anything but because I could hear such a loud noise going right up to my ear. It was good to see it from that side though, as I'd never thought to warn patients about the noise of the drill before! It does become very routine and I remember once the end of a drill dropped out slightly and as it happened I said '*Oops*!' and the patient panicked asking '*What's happened, what's happened?*' I thought I can never say that again when I'm treating a patient, because though it's day to day for me, it's not for them. Traditionally dentists are seen as just drilling and filling but we couldn't do that if we didn't have a good relationship with our patients in the first place. With all these brilliant medical surgeons it's purely technical, but in dentistry we do everything while the patient's awake, which is more difficult for everyone involved. The fact people still turn up shows that we're doing our job well.

Can you see yourself doing something other than dentistry in the future?

I love writing and with the religious studies course I'm doing I'm enjoying analysing how religion continues to shape history as well as trying to write unbiased essays on emotional topics. I don't think I'll ever be satisfied until I've done a PhD though. I'd love to do something that linked dentistry and chemistry. I did undergraduate research into the chemistry of enamel demineralisation and I don't think we know enough about it at the moment. We know the basics of

what tooth decay is but we only understand it well enough to fix it, not to completely prevent it. It's always really interesting when two disciplines come together because you can see things from new angles. I do lose interest fairly easily so I think a PhD that crossed two disciplines would keep me occupied.

What is your favourite thing about being the student editor of *Launchpad?*

I've been invited to some brilliant events like the All Party Parliamentary Reception at the House of Commons, which was great; but what I really love, and what is probably the most important thing about the whole experience, is understanding how dentists and students really feel because I'm not representative of the whole group. When I sit down to write an article I've always got an idea about how dentists feel about a certain topic, but at dental school when I could ask my peers for feedback I realised sometimes I was way off the mark! Your perception of things is so different to everybody else's and what's stressful for me isn't necessarily remotely stressful for someone else.

What are your favourite topics to write about in *Launchpad*?

The student and dental foundation training experience. I wrote three articles about the DF1 process last year and had to word them quite carefully because when I was writing the article there were still people, including my own friends, who didn't have jobs. There were so many different groups of people the articles would be read by; my main concern was for the people who didn't have jobs, but I also didn't want to panic people in the years below into thinking they had no control over their future. Then there were the people who were actually quite pleased with the way the process had turned out for them but found it difficult to express that out of concern for those without jobs. The old system was also flawed. For example, London had centralised recruitment whilst other deaneries didn't, and practices could favour graduates from the closest dental school. I saw so many people in the years above me having to attend multiple interviews during final year and that was not without its stresses.

I'd always felt that dental school exams favour people with a really good memory over other, more interpersonal skills but I felt the system for national recruitment worked well for me. However, I didn't feel I could say that in my articles due to the shortage of jobs. Those were the articles that were the most difficult and rewarding to write.

Do you think last year's shortage of Dental Foundation training posts will be repeated?

There's a global recession but dentistry still has the highest graduate employment percentages. Still, it will be a problem for the foreseeable future because it cannot be guaranteed that there will be enough jobs until nearer the time. There are two separate issues here though: a shortage of jobs and unhappiness with the new application process. People not getting where they wanted is a very different situation to people not getting a job at all and we need to work out how this can be managed better.

What do you think is the biggest challenge facing today's dental students in the UK?

The pressure to finish their degree, as they have to pass all of their exams and finish all of the clinical requirements. They've packed more and more into the curriculum and still expect students to complete all the clinical hours. It's getting ever more competitive for jobs and the pressure keeps building; every stage seems so critical.

Some people criticise current graduates saying they no longer have enough experience in things like crowns or root canals, but there are so many more components of a BDS now, not just the increased number of treatment options but also more in-depth EBD, DPH, behavioural sciences and so on. Add to that the multitude of systems, rules and regulations that experienced dentists struggle with; we have to understand all of those too. I don't think people are blaming the graduates themselves, and I can't imagine how difficult it must be to have a trainee who you feel isn't able to provide the care to patients you'd expect, but it can sometimes feel as though more experienced dentists wonder what we were doing with our time at dental school! It's difficult for dental schools to accurately gauge that every graduate is ready for general practice so I think it's essential to have a more structured system in place for foundation dentists who struggle with the pressures of DF1, and also more support for their trainers.

What are your five top tips for graduates going into Dental Foundation training?

1. Get the nurse on your side
2. Get the receptionists on your side
3. Get the practice manager on your side
4. Get the other dentists in the practice on your side
5. Get your patients on your side.

These five relationships are all different and all key. It's crucial to get the nurse on your side as they've got ten times more experience than you no matter what. Even if they've only done a year as a trainee nurse they've done more fillings than you have. A good relationship with receptionists is so important because if you're running late and you know your receptionist well they know not to book in emergencies for five minutes when you're going to take half an hour. The practice manager is imperative to have on your side because they sort out your leave! The other dentists can help you out if you are having problems and finally, if your patients like you then you're set. I'm being slightly facetious here of course but the point is your trainer is hopefully already on your side and these five relationships are integral; get those sorted and everything else sort of slots into place.

Working at a pilot scheme practice are you excited about the new dental contract?

Most dentists on the pilot scheme feel it's a great improvement over the UDA system and has the potential to work really well in encouraging people to improve their oral health. People who aren't prepared to put the effort into their oral healthcare will have fewer options. It aims to support dentists in telling patients that more complex items of care (like crowns and cobalt-chrome dentures) are not in their best interests

if their plaque control is poor. It sends out a strong message that they need to look after their oral health rather than just expecting a dentist to sort everything out. I think the main danger is that we now operate in a very target driven society in general, so capitation, the number of patients you have registered with you, could just become a different target to UDAs.

If there could be a new miracle dental material what would you like it to fix?

I was thinking about doing a PhD in dental materials and looking into a new glass-ionomer cement (GIC). A much stronger GIC would be good and I wanted do something chemistry based with a clinical degree, but the more research I did the more I realised how little we know about tooth decay in itself. I'd really like to find a way of understanding the process better and seeing if there's anything more we can do in terms of prevention.

Some of my research showed that if you've got less calcium and phosphate in your saliva then you're much more likely to get decay. It's more important to find out what is causing tooth decay than finding a material to fix it. There seem to be factors beyond simple oral hygiene that affect whether teeth will decay or not. We need to reassess the science underpinning dentistry. We might have missed something with the whole chemistry of tooth decay. It's still the most prevalent chronic disease in the world and there are still things in dental textbooks that are oversimplified to the point of inaccuracy. For example, that decay occurs universally when the pH of the oral environment drops below 5.5 (the so called 'critical pH' for enamel demineralisation). The 1921 paper on which this was based contains a number of premises that modern dentistry shows to be false. I carried out a computational chemistry analysis using data from a study carried out at QMUL to suggest that critical pH is variable and inversely proportional to salivary calcium and phosphate concentrations. It is these variances that we need to look at because everybody's saliva is different, everybody's teeth are different, everybody's diet is different, so a fix-all solution isn't going to work.

Are you worried about the threat of antimicrobial resistance and infectious diseases?

This is something I studied in my MSc which looked at the application of the physical sciences to medicine. During my medicinal chemistry module I remember thinking it was terrible that dentists were prescribing antibiotics when they shouldn't be. But since starting dentistry, and especially now I'm in practice, I realise that sometimes the systems we work under don't always allow 'best practice' to flourish. I've seen patients who are too anxious for RCT or an extraction without sedation, but the acceptance criteria for extractions under sedation are so strict in my area that that's not always an option. It's hard to know what else to do for patients like these with facial swellings other than providing antibiotics and this sends out the wrong message to everyone. There needs to be more joined up thinking on how systems can operate to enable dentists to perform the right care rather than just blaming individual practitioners. I've become a lot less black and white about everything.

What do you see as the future for dental journals?

Everything is becoming dictated by the internet and with more mobile internet connections interaction will be the most significant feature. I can see more people in the future becoming involved in things like online peer review and commenting on research. Maybe with case studies, published in the *BDJ* for example, people might upload their own case study in response, which won't necessarily be peer reviewed but will continue some kind of thread. At the end of it you might have 20 similar cases uploaded, which are then open to further research, with someone ascertaining a common factor and presenting this information back to the *BDJ* as a peer reviewed paper.

The future of dental journals will be centred on their role in opening a dialogue that can then be continued in the online scientific community. I'd still rather have a print copy though! We need 'the truth' in print. The worry with the future use of the internet is how people can discern what's evidence and research and what is just chat and hypotheses. We need to harness information and find ways of reporting it properly. One thing I'm passionate about is negative findings and null hypotheses because they're very rarely reported and we're losing information.

Is there anywhere in the world you haven't visited and would like to?

When I used to fly long-haul I spent all my time at home if I could, so I've been to really obscure capitals like Baku, Luanda and Montevideo but I've never been to Paris. I speak French, love France and have travelled around most of the country but have never had the chance to go to Paris. Now when I suggest it to my friends they all say they've already been to Paris but I will get there!

Where is your favourite place in the world?

When I was working for BA I used to say Blackpool - I just wanted somewhere near home that was unpretentious. Now the places I'd most like to go back to are Seoul for the clubs, Oman to relax and Calcutta for the all-round cultural spectacle.

Interview by Laura Pacey
BDJ Assistant Editor