

63. Dr Alex Wright

(1) Tell me about your background.

My background has no medical member of the family, but at school we were extremely well taught in science, and in particular in biology, and this is so marvellously inspiring. And from there I was lucky to get to Cambridge, where I did the ordinary MB course, but had the privilege of doing an extra year - part two - in biochemistry, where I met quite a lot of the most famous people in biochemistry, and particularly in carbohydrate metabolism, at that time. And then, of course, going from there to King's College Hospital. Diabetes being such a strong element, I obviously was influenced. I was never allowed to work on the diabetes unit, apart from a two week locum, which I shall never forget, which was a great experience. And, of course, I got lots of records and memories of how things were managed, in those days, because of that intense time. When you first do your medical job, it really makes a fantastic impression upon you. I suppose later on, you take it more in your stride, but the first contact with patients and responsibility is amazing. And then, from King's, I was lucky to go to the Central Middlesex, where I worked for Richard Asher[1] - very famous person in his time - a great writer, and whose daughter, Jane Asher, has done quite well outside medicine. And then to the Brompton Hospital for chests. And then started the diabetes career, proper, in 1964, at the Hammersmith Hospital; back to being a house physician, but in a very stimulating atmosphere, under Professor Russell Fraser. From there, I got an MRC Junior Research Fellowship, and did a lot of work on growth hormone, in particular in relation to diabetes, and also in acromegaly. And then - as a registrar - so, that was five years there. And, of course, the stimulation of all the people around you is fantastic, in a place like the Royal Postgraduate Medical School, as it then became. Then to the founding of the new medical school in McMaster University, in Hamilton in Ontario, where a new programme was set up with a three year postgraduate training programme for medics. And I was very lucky to be in the sort of vanguard of that, and it has been held up as quite a model medical school, ever since then. Of course, working in Canada, the different health care system, which I appreciated, although didn't particularly wish to stay in, and so, after four years, I left. While I was there, I was lucky enough to meet Charles Best, and that was a great thrill. And then back to the UK, where I was fortunate in getting a senior lecturer post at the General Hospital in Birmingham, essentially under

(2) Bill Hoffenberg (Sir Raymond Hoffenberg) but working closely with Professor John Malins and Michael Fitzgerald. So, the three of us formed a diabetes team, and, of course, I learnt an enormous amount from these. And in the course of the twenty years, or so, the number of trainees that came through, again, was very impressive, and a lot of those have gone on to be well established figures in the diabetes world. Since retirement, been working part-time with diabetic clinics and medical ophthalmology.

So, can we now back-track to school. What made you want to be a doctor?

Almost impossible question, isn't it. I think it is a combination of circumstances. The examples from medics, yes; the examples from others; but I think it's the stimulation of the learning about yourself, about the human physiology, the human anatomy, the human diseases, and then applying it. I mean, for wanting to do good; but it's the, equally, the stimulus of knowing more about human beings.

When you were at Cambridge, did you learn much about diabetes?

Not a lot, no. The biochemistry course, at Cambridge, was rather anti-medics. They considered themselves pure scientists, and didn't want to be contaminated by clinical staff. So, they used to limit the number of people going on to the part two biochemistry course, and I was lucky. I think I was one of four out of twenty four, which were allowed to be medics. But yes, you do learn the basic carbohydrate metabolism, and the... all the basic biochemistry, which... biochemistry is so fundamental to medicine, so I was very lucky. I know diabetes is one end of the spectrum, but it doesn't matter where you are in medicine, biochemistry is fundamental. You have to know how things work. And while I was there, FG Young was the professor, famous for his pituitary work, and we were taught by Nick Hales, Professor Randall, Vic Perry, and the double Nobel prize winner, Fred Sanger.

(3) And tell me what you did after Cambridge, in more detail.

Well, everyone - every medical student - had to leave Cambridge at the end of the three year course, because there was no clinical medical school, as there is now. And you had the choice of Oxford, which, of course, coming from Cambridge, was not perhaps first on your list. Most people went to London. I was lucky enough to be offered some money - I suppose a bribe, if you like - to go to King's, which was very welcome, from a relatively humble background: my parents not affording a huge amount. And so, there I was in south east London, for the next three years, at King's.

King's is obviously famous in diabetes circles. Can you tell us what it was like when you arrived?

Oh, King's was a fantastic place, and we were taught by the most wonderful selection of experts in their field - and very approachable experts. They were very memorable people, both in medicine and in surgery, and even in paediatrics, which I really didn't enjoy. But it was a very small intake, so that everyone knew each other, and - not very good for filling up sports teams, but excellent for clinical exposure - and, as I say, getting to be known by nursing staff, by the senior medical staff, and very personal tuition for the three years that I was there. In fact, I was there four years, because I stayed on as a house physician and house surgeon, for a year, after qualifying. The other, of course, thing that was looming over you, at that time, was the threat of national service. And I was given deferment each year, until house officer year, when the final scrapping of national service occurred in 1961.

Can you tell me about these people who gave you this very personal tuition?

This ranged from cardiology, for example, Dr Sam Oram; diabetes, Dr Wilfred Oakley; Fred Hoyle (should be Clifford Hoyle), Jimmy Livingstone in chests. Wilfred Oakley was a great inspiration, backed up by David Pyke, whose great wit has lasted in his writings. And so Oakley, Pyke and Taylor - the biochemist - were the three leading lights in diabetes, and whose book is still quite a treasure, written at that time. I do remember, particularly, Taylor's views on possibility of viruses causing diabetes, and he worked on that. And it's sad that still, we have that great big conundrum of why Type 1 diabetes occurs. What is it in the environment that actually causes it? So, they were inspiring. But each of the units was excellent: the cardiology unit, the chest unit, the paediatric unit, the surgical units were excellent. In the surgery side, I worked for the... the house surgeon to Harold Edwards, who's quite a Crohn's disease expert, but also joined with Selwyn Taylor, who was a thyroid surgeon, and a very good thyroid surgeon. I shouldn't tell too many stories, but I do remember having a couple of weekends off duty, during the six months as house surgeon. And I do remember Selwyn Taylor inviting me for one of my weekends off: would I come and... would I like to go away, and go on to the south coast for the weekend? The purpose was to scrape the bottom of his boat, and I declined.

(4) To what extent did you work in a team?

Well, teamwork, as it is now, was very important then. And there was a hierarchy: junior students, senior students, house officers, registrars and consultants were in a hierarchy. But in a small place, where people know each other, that's fine. You can work together and know each other's strengths and weaknesses, and that's lovely. I do remember the senior sisters on the ward were formidable. They're not quite so formidable nowadays, because there's so much more part-time or shared work. But they ruled the roost in the ward, and you had to get on with them. There was Lister Ward, which was a surgical ward, and they had a remarkably strict sister, who was starched from top to bottom, and absolutely had a complete hour's rest for patients; something like one to two. And nobody, not... nobody could go in. And there was an urgent thing that I had to do. I can't remember what it was - I shall pretend it was an ill patient - anyway, I went to see somebody. And I got reported to matron: a serious breach of ward rules. So, an appointment was made for me to see matron, and she invited me up for a nice cup of coffee one morning, and we had a little chat. But that was the sort of hierarchy that actually went on, at the time.

And when did you first encounter patients with diabetes?

The first time that I really saw diabetes was when I did the locum, as a student, on the diabetes firm. Now, of course, in those days, students were allowed to do locums. I'm not sure we got paid... we certainly didn't get paid very much as a house physician. But nevertheless, I did this two week locum. And that's when you were responsible for diabetes throughout the hospital. You had a list, you had to go round, you had to look after their insulins and their treatments. And

they had a very strict system, for anyone coming in with diabetic ketoacidosis, that they were... the diabetes team was called to the accident and emergency department, started treatment. The patient was moved to the diabetes ward for specific treatment, and with a set protocol. And I think the protocol, actually, was very good; I can't remember it. But one of the great difficulties in managing patients - both the emergencies and the routine - was the doing of blood glucoses - well, blood sugars, strictly speaking, because in those days you took the capillary blood. And during the working hours, the lab technicians did it, but out of hours it was the house physician's job. And so, in the evenings and weekends, you had this list of people you had to go round bleeding, taking capillary blood, if I remember rightly. But you then had to take it to the lab, where you had to do a sort of twenty minute bit of cookery: a Folin and Wu reaction. And it was a spectroscopic comparison of a glucose standard against the, I think it was the deproteinised blood, you had to prepare. And you had to compare these two blue colours down a microscope, and decide what the blood sugar level was. When you compare that - and that's one of the absolutely amazing transformations, making it a micro glucose measurement on two or three microlitres of blood, in two or three almost microseconds... well, two or three seconds, on a portable little meter. Now that revolution, of course, hadn't hit, as a house physician. And when you look back at the house physician, house surgeon time, of how you fill the day, well, no wonder you were busy, because you actually had very labour intensive jobs to do, and you were not given the help that you now get.

Looking back on comparing those colours, how useful was that?

Oh, it was still a... it was a useful blood glucose - sorry - blood sugar measurement, because it... Because, teaching patients - you still taught the urine testing, there was no home blood glucose testing, there was no self-testing. But the hospital results were actually very important. And further on, when I

- (5) did diabetic clinics at the Hammersmith Hospital, I do remember that we... for getting a blood glucose measurement in the clinic, you had to foresee that need. So, you booked the patient to come up, fasting, on the day of their appointment, a bit earlier. And all the bloods were taken when they first arrived, were then sent off to the laboratory in a batch. And half an hour later - if you were lucky, and the wind was in the right direction, and the machines were working - you got the results phoned down. Of course, it was more or less an hour. So, you can imagine the patient arriving, having the bloods, waiting for the collection of the group, then being sent to the lab: you've got about a two hour wait. And that's routine diabetic clinic appointments. And again, it is amazing change.

Back-tracking to King's and 1958, when you first encountered people with diabetes, what kinds of patients were these?

Well, the type of patient in hospital was, I think, three sorts. There were those who were admitted to the special diabetes ward for stabilisation, maybe initiation of insulin, or sorting out their problems. There were those who were

scattered throughout the hospital, having been admitted with other problems, and including, say, foot problems, often under the - in King's - it was under a very good orthopaedic surgeon. But there was a very good team relationship with them, and conservative surgery, so that worked. And then there were the lying-in patients, if you'd like to call them: the antenatals, from about thirty two weeks onwards. So, there was an obstetric component, where there was bed rest for the last four weeks, or so, before delivery. One of the things I did, as a student at King's, was be secretary to the History of Medicine Society, which I thoroughly enjoyed. And I was privileged enough - I'm not sure how it came about - but I invited RD Lawrence to give a talk in the medical school. And it was something I shall never forget, because his own personal story, which has been well recorded in print, but to hear him give it verbatim: that message, when he was dying in Florence, the telegram "insulin, it works, come back quick", and his reply, "no, I've tried all these quack remedies, I'm not going to try any more". And then a further message, and the saving of his life by insulin. To hear that personally, from him, is still something that rings in my ears, and I shall never, ever forget it. I shall never forgive King's for losing the tape recording that I made of his talk. I've got a little note from him to say "thank you for inviting me", and how much he enjoyed it, and I did give a copy of the tape to him. Now, I know a lot of his own personal effects were destroyed in a fire in his flat, I believe, so I don't know whether the family have still got that tape. But it would be wonderful to have that, as a historical archive for future generations, and I'd be very sorry if it had been lost.

- (6) Lawrence, obviously, is famous for his Line diet. Can you tell me what dietary recommendations were like when you arrived at King's?

Yes, the dietitians were very important, and I think Lawrence should be given tremendous credit for his Line, and then portions, diet. And the ten gram portion system, which is based on... for carbohydrates, has stood the test of time. And, indeed, has come back, to some extent, with the carbohydrate counting that is now done for Type 1 diabetes. It was rigid - it was too rigid, maybe - and we would like a much more flexible diet and a flexible insulin regimen, which we've learned to adapt. But the fundamental ability to look at - or weigh, if you wish - the actual food, and to get the right amount of carbohydrate, was taught very strictly at King's. And that is, indeed, all based on Lawrence's own work. I noticed in the paper recently that the sugar content of bread has gone up. Now, whether the two thirds of a standard slice of bread still is ten grams, I shall have to go on a refresher course to find out. But that's the sort of information that we learnt at King's, and has stood me in good stead the whole of my life.

And what kind of insulin were you using in 1958?

Well, basically it was the soluble Lente and Isophane. I suppose the two things about the insulins of those times, which was so tiresome: firstly, the having to mix soluble and Isophane insulin in a syringe to get the proportions, which is useful to be entirely flexible, but a very tedious business. And the other thing, which is knowing your four times table. I mean, everything in marks on a syringe,

and the two different strengths: forty units per ml and eighty units per ml, with the occasional twenty units per ml if you wanted it. But basically, absolutely minefield for mistakes, and mistakes were made. And, of course, administration, with these glass syringes that you boiled up, and needles that - well, I don't think our patients often sharpened them, but they were awful, big, thick needles. The whole thing was dreadful. Spirit-proof cases, and... oh. The ability to move over to newer insulins and newer delivery systems has been a tremendous revolution, and indeed makes insulin much more acceptable. First of all, the delivery systems: going on to disposable syringes was a great move forward. And these are still around and useful, but then the... John Ireland, with his introduction of the insulin pen, again, is fantastic. And the ability just to be able to have that simple little thing in your pocket or handbag, and dial a dose, and in it goes without any problem. Well, I say no problems; of course there are problems, but no problems compared with what it used to be like. And then the different sorts of insulins: we've gone through the highly purified insulins, the monocomponent insulins, and now these genetically derived insulins, which are fantastic. I suppose we've waited a tremendous long time to get away from the Isophane Lente duration - the long-acting insulins - to a more satisfactory one. And the more recent introduction of Glargine and Insulin Detemir has been a great step forward, and we've had to wait a very long time for that basal insulin to be got right. In the early days - it wasn't as a student, but as a postgraduate - there was Ultralente, Ultratard introduced, and that was a good long-acting insulin. And that's what the UK Prospective Diabetes Study was based on: long-acting Ultratard. But that wasn't available as a student.

You mentioned that mistakes were made in the measurement of the first insulin. Do you have first-hand experience of those mistakes?

Well, I can't remember precise details, but you can imagine that the patients got half or double the amount of insulin, and that this is quite serious. And mistakes were made; it was awful.

(7) When did you next encounter patients with diabetes, after leaving King's?

Well, between 1962 and '64, I started the postgraduate training in London, and was lucky enough to go to Central Middlesex Hospital, under Richard Asher - the person who coined the term "mixoedematous madness", amongst other things - and then on to the Brompton Hospital in chests. But we just saw diabetes patients as part of the general run of general medicine. And I suppose it's the contacts in postgraduate training that you make at that... start to make at that time, which have a great influence on your career, and so that you're part of a network.

What kind of influence on your career?

Well, in terms of knowing the strengths of your colleagues. And you obviously get reshuffled around the various secondary care facilities, and you're bumping each other in different contexts, and knowing them is a great privilege. And London, in those days, did attract a lot of overseas visitors, so that from Brompton, and

then my next position at the Hammersmith Hospital, you were meeting a lot of overseas people. For example, Arthur Rubenstein, who worked with Steiner on the C-peptide and Proinsulin work. And he was at the Hammersmith, and then moved over to Chicago.

(8) Tell me about your time at the Hammersmith.

The Hammersmith, from 1964 to '69, was a very stimulating time, working for Russell Fraser and Graham Joplin. I suppose the clinical work was partly pituitary[2], but Russell Fraser's aim in life was to solve diabetes problems, and particularly Type 2 diabetes. And his insulin-like activity work, which I was not directly involved in, was going on in the laboratory, and was quite pioneering. The ability to move from being house physician to a MRC Junior Research Fellowship was tremendous. And I did work in radioimmunoassay of growth hormone, firstly with Martin Hartog, and then on my own. And part of the time there, I was given the opportunity to work, for two weeks, in Berson and Yalow's lab in The Bronx. Now, they were the pioneers of radioimmunoassay, and eventually became Nobel prize winners. But it was a wonderful experience to learn how to iodinate proteins, which is the basis of all immunoassay work. And, of course, that was applied... has been applied to a large number of hormones since, and it was...

You mentioned that Russell Fraser was particularly interested in Type 2 diabetes. Would it have been called Type 2 then?

No, I think it was called maturity-onset diabetes, at that stage; and then, of course, non-insulin-dependent diabetes, and now Type 2 diabetes. It's all the same; it's a ragbag of things, and Type 2 diabetes is probably easier, as a non-committal sort of title, to be given it. But at that time, no, it was maturity-onset diabetes. And, of course, at that time, there was Maturity-Onset Diabetes of the Young was described by Tattersall and Fajans, and that still has stuck, so that the acronym MODY, for that condition, has now become established.

And tell me more about your time at the Hammersmith.

Well, again, the people you work with were fantastic. Wilfred Oakley's son, Nigel, who became diabetology at St George's, and also part... a stalwart member of the UK Prospective Diabetes Study. He was on the staff then, as registrar then, and that was stimulating. Clara Lowry - did a lot of work on diabetic pregnancy, and then went on to work with Peter Sonksen and the development of the home blood glucose monitoring, and all that work - was, again, a very stimulating colleague.

(9) What are your memories of the experiences of pregnant women, during the 1960s?

Well, I think the strictness of diabetic control had been firmly established. And I worked with Graham Joplin in the antenatal and postnatal work, in the Hammersmith Hospital, for the diabetic pregnancies, and I think our results were good. He was very meticulous at diagnosis, so that what we now call

gestational diabetes - Impaired Glucose Tolerances - were well recorded. And we had a very curious prednisone-glycosuria test, if I remember rightly, which, of course, is a further stress for the system. And I'm not sure it actually led to any better diagnoses, but at least it drew attention to the problem of Impaired Glucose Tolerance at pregnancy, which is still an expanding industry, really. And probably within it, there is a certain amount of very important clinical management.

And what were the outcomes, in terms of mortality?

Well, I think the outcomes were very similar to today. They probably won't be quite as good as today, because I think the obstetric management has improved, leaving people to be nearer to term, less prematurity. And as a result, I think we've actually probably gone to more Caesarean sections. But the overall stillbirth rate and perinatal mortality still remains higher than the normal non-diabetic population, and at that time, it would probably be a little bit higher than today, because it has improved. But I think our results were... you could guarantee patients, sort of, 95% chance of success.

(10) What did you do after you left Hammersmith?

In 1969, I left Hammersmith, as an immigrant to Canada; a landed immigrant - it was a sort of halfway stage between being granted proper immigrant status and just being a visitor. Anyway, that allowed you to work, so that I was lucky to join Moran Campbell, the new Professor of Medicine at McMaster University, setting up the new medical school. I think I joined the first day the students arrived. The new hospital wasn't built, so I worked in one of the town hospitals, and developed the teaching programmes in endocrinology and diabetes for students. In those days, it was tape-slide shows. Now, when you look at modern PowerPoint, it really was a very cumbersome method of developing audio-visual aids. But the whole point of the medical course, there, was problem solving. Now, the General Medical Council in Britain has caught up with this, but it was pioneering, in 1969. And I think the selection of students, for that course, was appropriate. They had to be problem solvers, and, of course, to begin with, it was a very small intake and personal tuition. But they were given a problem to solve, and learn their, say, their diabetes from a diabetic problem, and have to look up the basic biochemistry, the basic anatomy, the basic physiology of the disease, as well as the clinical. And the pathology, and whatever, had to go in on the same module. So, it was a very good discipline for the teacher, as well as for the student. So, I learnt a lot from that. And it... there's no great, sort of, publications or innovation that we contributed, but overall, the course has stood the test of time, and has been held up as being pioneering. The people I worked with, there, the... In diabetes, there was a very well established physician from Toronto, Bill Spaulding, who came across as one of the father figures of McMaster, and he helped to run the diabetes. And when you think about it, in 1969, he was way in advance of his time. He said "well, we've got to do something different", and "the nurse is going to run the clinic". So, we had what we would now call a diabetes nurse specialist, who



was trained and ran the clinic. So, she saw all the patients, sorted out what the problems were, and asked us to see whatever it was that needed to be seen. And all the routine was done by the nursing staff, and that was quite in advance of its time. The other eye-opener, as far as I was concerned, is going to Oshwegan, the local North American Indian reserve. And we were negotiated a clinic there, once a fortnight, and we used to do what we would now call annual reviews, on a list of patients; some of whom turned up, and some who didn't. And, of course, the appalling level of control, of interest, and ability to do anything, was quite an eye-opener. And sadly, of course, these reservations still exist, and there is a two tier system, as a result.

- (11) Of course, the ability to work abroad is very stimulating, and I always advise this for everyone. Where in your career you do it is always difficult. I was unmarried, and that was useful. Of course, what it does, it opens your eyes, a) to a different system, but b) the opportunity to meet lots of people, and to go to different meetings. The Canadian meetings were quite good, but the American Diabetes Association[3] meeting was just fantastic, and still is. The ADA annual meeting is worth going to, and I've enjoyed those very much indeed. I did, actually, meet Charles Best, and got him to sign book, and that was a great thrill. And, of course, from a history point of view, Hamilton, actually, is next to Dundas, where Osler moved to - the Osler family moved to - from Bond Head, north of Toronto, to where his father became vicar of Dundas, and where his main childhood was spent. And it's a great thrill to go back, to actually go to the area where he was brought up. There's not a lot to be seen, but it is an amazing thing that he came from this tiny little hamlet, up in north of Toronto, and became such a fantastic physician. He, of course, did not think there was anything that could be done for diabetes.

And what did you do when you left Hamilton?

I was fortunate to come back to Birmingham, near where I was born, and a job came up for senior lecturer, with the expansion of the Birmingham medical school to include the General Hospital in Birmingham. And, of course, ever since then, there's been an increase, year by year, of the number of students. The post was officially a senior lecturer under Bill Hoffenberg, and I think part of the reason why I got the post was coming from McMaster, where the problem solving approach was of interest to people who were thinking about changes in the British medical curricula. Bill Hoffenberg was asked to be chairman of a group in the medical school to look at revisions of the curriculum, along problem solving lines, and we drew up a very extensive, detailed report suggesting that we should do this, to a large extent, and to use integrated teaching. This was hotly debated. It was rejected by the medical school as being too labour intensive for staff, and that this wasn't applicable. So, Birmingham continued largely under the traditional pre-clinical clinical divide, with traditional subjects. Of course, most medical education has moved forward, now, and indeed Birmingham does lots of problem solving techniques, and has got a lot of mixture of pre-clinical

and clinical work all the way through, so that it has come to pass, although it has taken a time.

Is it right that starting with just one patient and solving that patient's problem is more labour intensive?

No, it's not necessarily right. I think it does depend on what student intake you've got, and I think the problem solving approach doesn't suit everyone. Some people get lost, and that's where they need help. And if you've got students selected who are problem solvers, then you can apply the system. And I think it is a good system. I personally wouldn't like it, but then I probably wouldn't have got into medical school.

- (12) As far as diabetes, and the teaching of diabetes, is concerned, I think problem solving is good, because diabetes is a problem, is a multi-factorial problem, both in pathogenesis, and in the clinical manifestations and clinical problems. So, what I like about this is that you can set nice problems with diabetes. And also, in this day where students can select subjects - there's a lot more options, they don't have to do everything - that you can then offer diabetes as one of the options, and hopefully get people coming to you for teaching who are wanting to learn about diabetes. So, I do think that, in this age of tremendous, sort of, you could say conveyor belt teaching, that you can actually get some... much more refined selection and interest. And that will be good for all subjects, including diabetes.

And when you began this job, in 1973, what were the current orthodoxies regarding diabetes?

Well, I suppose the diabetic clinic, at the General Hospital, was held up as the traditional dinosaur; claimed to be the - I don't think there was any justification - claimed to be the biggest diabetic clinic in the country. But it did represent exactly what we shouldn't do. It was a huge performance, three days a week; three or four desks in a large room, so very little privacy. We did have private cubicles to go and examine patients, but basically the consultation was done almost in public. So, it was a cattle market. And some patients loved it, some hated it - the staff certainly didn't like it. But that was the way it had been done and had been built up. And it took an awful lot of changing to get that moved forward to a rather more... one personal interview in a room with a doctor. And, of course, what the nurses did in the clinic, again, very little. And now there's, of course, a lot more involvement of nurses in clinics. The other thing that was very traditional was - although not reproduced everywhere in the country - but, of course, having a diabetic ward. And this was very useful in terms of education. And, in fact, if you think about it, the main function was education; the other was dealing with diabetic... acute diabetic emergencies. Now, the acute diabetic emergencies now go almost anywhere in the hospital, which is not necessarily a good idea, but that's what's happened. But the teaching side of the diabetic ward has been extended and developed,

and, of course, is a lasting legacy. And, from that, was the development of the first diabetes nurse specialist education and qualification. And that was very interesting, to be part of that first movement, particularly pioneered by Janet Kinson, the nurse in charge, and Malcolm Nattrass. But I think it has led the way in... for many subjects that followed diabetes; diabetes led the way in that. So, yes, there was an old-fashioned clinic, old-fashioned inpatients facility, but out of that has developed the modern techniques.

(13) What are your views on the development of the diabetes specialist nurse?

Diabetes specialist nurse are fundamental to the management of diabetes. But like every other member of the team, they only are part of the team, so that the medical side is very important, particularly for diagnosis and overall review and management. Diabetes specialist nurses are fantastic at all the technicalities of diabetes, particularly insulin, and syringes and pens, and so on. They're much more available, so that patients can have much more direct access for advice, and that's excellent. They're also extremely good at applying protocols, so that any agreement about how things should be managed is going to be done by nurses, less so by medics. But, of course, part of the diabetes team is the dietitian, the chiropodist, the social worker. They're all essential parts, so that no one can be dominant. It may be led by somebody, but it isn't that they're the only people who can do everything. So, yes, essential, but you can't expect a diabetes nurse specialist to do absolutely everything for the diabetic patient.

Back in 1973, would there have been a chiropodist and a dietitian, and perhaps one regular nurse, in these big old-fashioned clinics?

We were lucky, at the General Hospital, and this did happen. But, of course, I think other hospitals weren't so lucky, and still struggle to get somebody who is committed to diabetes, in the dietetic department. I think all the results have shown that chiropody done jointly, and is... it gets the best results. So that, although work in Manchester, with Andrew Boulton, has led the way in this - and Edmonds in King's - I think it has been practised in all good centres for a very long time.

(14) Why were these old-fashioned clinics so big?

I think, primarily, that diabetes was managed in hospitals, in secondary care. The interested general practitioners were few and far between. There was no incentive to run diabetes clinics, and no expertise. A few general practitioners, who were interested, were... tended to be clinical assistants in these hospital clinics, and therefore were not providing, necessarily, the diabetes services on their own home patch. This has changed totally, because the routine management of diabetes is done in primary care, and they've done extremely well. And so, the need for these huge referral clinics and follow-up clinics are not needed. Of course, diabetes, in some ways, has become more complicated. It was very simple, in those days, so that, although you had a huge clinic - you might see twenty or thirty patients - but, of course, what you actually dealt with, with each patient, was a much simpler problem solving; not complex medical problem solving, as

you get in hospital diabetic clinics now, with the complex cardiovascular disease and renal disease or eye disease, complicating the management. The simple adjustment of therapy can be done in primary care very easily, by nurses running to protocols and by interested medics. At the end of the day, the patient with diabetes is served only by people who are interested in diabetes. You cannot run a service that just is a nominal service. It has to be somebody, be it medical or nursing, who is committed to diabetes, and that's the only way that you can run an effective service.

Presumably, though, people were coming, in 1973, with all kinds of complications?

Yes, there was the same sort of complications as we get now, with heart disease, foot disease, eye disease, kidney disease. Yes, indeed, they were still happening, and, in fact, more blindness than there is now. Renal disease, perhaps less common, because there was a sort of inevitable worsening of kidney failure and death, whereas now... and patients were not given the opportunity to go onto renal dialysis or renal transplant programmes. And, of course, that's changed completely, so that the mix of patients you saw in these large dinosaur clinics was a mixture of very simple treatment adjustment, and the same spectrum of complicated patients as we get now.

(15) Can you talk more about eye care?

Yes, eye care and eye management and eye disease has changed over the years. The management, with introduction of laser, has been a fantastic benefit to a lot of patients. But, of course, not only that, we now have the knowledge that good diabetic control and good blood pressure control is also vital. So, the end result of the management of diabetic eye disease is so much more hopeful, and is bearing fruit. I was very fortunate in London, at the Hammersmith, to be working alongside Eva Kohner, who is one of the pioneers in the study, really, of the natural history of the disease; that proper documentation, grading - all these sort of things which we actually take for granted now, but in those days were not done. You just looked in the eyes with an ophthalmoscope - perhaps with dilatation, but often not - and you saw massive problems at the back of the eye, and what did you do about it? When I first started, you couldn't do anything. You improved the diabetic control, but you said your prayers. And the clinics were, in those early days, were a lot of white sticks and guide dogs. And those have not entirely gone, but largely gone, thanks to the proper documentation, and the much better management than we used to have. It is an absolutely wonderful thing to be able to offer to a patient that advice, that providing they look after themselves, they should preserve sight. When patients had diabetes diagnosed in, when I first started, in the 1960s, when diabetes was diagnosed, they said, "well, am I going to go blind?" was almost the first question. And now you don't hear that, and nor should you.

Any more memories from your time at the Birmingham General Hospital?

The support of the British Diabetic Association, as it was then, is very important to everyone in diabetes, be it patients or staff. One of the great thrills is going

on a diabetes camp. I've never been so exhausted in all my life, but I did three, and I think it is part of everyone's education to be a staff on one of these camps. There's nothing like having to live with diabetes, being responsible for diabetic children, to get that feeling of what it must be like to be a parent with a diabetic child. And I think that day in, day out, not knowing what activity's going to be done, according to the weather or the programme; what effects there are going to be on diabetic control - and, of course, the ability to monitor is much better now - but even so, many sleepless nights being concerned. I remember one child got shingles. Now, shingles in children is really not on, but it did happen, and that caused terrible upset. And another child got diabetic ketoacidosis, because they'd got appendicitis. I suppose that's - if you're in paediatrics - that's sort of all routine, but it is frightening to actually live with these events. If you work in a clinic or a hospital, you can go home and you can forget a lot of it, and somebody else is available when you're off duty. But being on a camp, you're on duty the whole time, and that is quite an experience.

- (16) Also, at the General Hospital, I was invited by Robert Turner, from Oxford, to join the UK Prospective Diabetes Study. Now, a lot of people, at the time, across the country, were very ambivalent about this ambitious programme that Robert Turner had set up. Anyway, we were asked to be one of the six pilot centres to see whether it would work: the protocol would work, the recruitment of patients, and so on. And, over the years, we built up a very devoted team, both of patients - devoted patients - and staff. And it was a great thrill to be contributing to all that extra knowledge about Type 2 diabetes that came out of the study. One of the reasons that Robert Turner approached people - the main criteria - was longevity. He was very keen that the principal investigators in each of the centres should, if at all possible, live for a large number of years, for a planned, long-term study in diabetes. I mean, sadly, the only person who didn't live much beyond the end of the study was Robert Turner himself, but everyone else did. And he chose well. Also, the secondary consideration for Birmingham, of course, was its ethnic mix. And we were expected to - and indeed we did - get a very nice group of patients from all backgrounds, ethnic backgrounds, and followed those through for the eighteen years, and, of course, beyond, as far as documentation through their general practitioners is concerned. I was very lucky to be asked to be part of the policy advisory group, so that some of the protocol changes - which can be criticised, but we heavily debated in that group - and we were privileged to see all the early data as it came through. Not unblinded, according to the allocation of treatment, but at least overall trends, which was very helpful. The culmination of all that was, of course, the presentation of the results in Barcelona. And I do remember this marvellous sports hall at the European Association of Diabetes Study (European Association for the Study of Diabetes, EASD), where we were actually following the Spice Girls - a week after the Spice Girls. Anyway, we managed to almost fill this great sports hall, and the unveiling of the results was very dramatic.

A bit too impersonal, because, you know, a big event like that, it's just statements, really. And Robert Turner very carefully rehearsed us all for... we went into a sort of papal enclave, secret destination outside Barcelona, where we rehearsed giving all these results, and rehearsed the papers. And then, halfway through the whole proceedings, he decided the order of the programme was not right. So, he got hold of the organiser of the European Association of Diabetes Study, and said "we're not going to present it like that; we're going to present it like this". And he got away with it. It was just marvellous to be working with somebody who had that vision, and was able to communicate. And that was just a great thrill; I shall never forget it. The study still continues, and David Matthews and Charles Fox and myself still get endpoints to allocate to events. And this will finish at the end of this year, and then the final results of the post-study follow-up will be declared. But it has been a most marvellous, stimulating time; partly because of the people and the centre, but also the results.

How have the results affected your treatment of patients?

Well, basically, the control of diabetes matters, control of blood pressure matters, and control of lipids matters. So that it's brought home to everyone the importance of all these things that we've all known, but it's actually proven it for Type 2 diabetes. It's also underlined the progressive nature of the disease, which was not fully understood, or not properly documented, because the numbers, of just over five thousand patients, was adequate for most of the aims that were set at the beginning.

(17) Why were some people not very keen on the study, when it began?

Well, first of all, the scientific questions were thought to be rather weak. And I don't think so. I think in a very common disease, with all sorts of endpoints, it's very important to get proper documentation. But the main concern was that it was just a clinical study. And, of course, that, it wasn't true: a lot of basic laboratory work was done at the time. But the establishment got into its head that it just wasn't worth supporting. Now, the British Diabetic Association certainly did its best, and put in a lot of money. But, even though... even within this body, it was thought to be disproportionate to the amount of money that was going on other things. So, Robert Turner had a job scraping around, getting money. And we, at one point, there was one year where the whole thing almost folded, and we all had to get local money to support staff. But, at the end of the day, the results have shown that it was worthwhile, and I think the money has been well spent. And when you look at the cost of a study like this, compared with the cost of some of the drug trials, and so on, it was very little, and it was good value for money. And I do hope that the establishment has learnt that from this.

And tell me about retiring from Birmingham.

Well, the major upheavals in Birmingham was the closure of the General Hospital in Birmingham, and moving to Selly Oak. And I worked there for a bit, but

basically went part-time, working four days a week, and joined Tim Harvey at Walsall. And then, subsequently, still doing some part-time work there, have joined Paul Dodson at Birmingham Heartlands Hospital. But still have this connection with Selly Oak, as an academic connection, which I very much appreciate.

(18) And can you tell me about your private practice?

Private practice arose, partly because, when Michael Fitzgerald retired from the General Hospital, he said “why don’t you help look after some of these patients?” And, being a senior lecturer, it was frowned upon to do any private practice; that was just not right. So, I agreed, but to do it on a Saturday morning, and I got permission to do that, and have done it ever since. It’s very satisfying. It has its pros and cons. The pros are that patients get personal attention, and that’s good; personal time, that’s good. It enables somebody to come, by appointment, at a time that suits them, and particularly for professional people, a Saturday morning is excellent. Some people, like butchers, find it impossible, because that’s their busy time; and that must apply to others. But it is a time that is more relaxed. The phone doesn’t go, it is a time... And provided you can get some nursing support, because I don’t think doing it on your own is right... And it can provide a service, up to a point; but only up to a certain point. There is a limit: the facilities you have, the investigations you have. So, when there are problems, it can be a dangerous place, and you’ve got to recognise the limits of what you can offer patients. And a very good example is what to do in emergencies. Well, what to do in emergencies means you must go through your general practitioner, and you can’t provide a twenty-four hour emergency private service. I think, on balance, patients gain, because they gain time: time to discuss things, and time to educate. But I think they, and you, have to be very careful about the limits of what you have to offer for them.

You said that most primary care, nowadays, is done by GPs, so how do you, in private practice, relate to GPs?

Well, there is a conflict of interest, sometimes; a potential conflict of interest. And the poor patient is told off by their general practitioner for not attending them and going privately, and, of course, the patient is actually dependent on the general practitioner for all their basic medical care, and all their prescriptions. So, it is vital that the patient and the practice nurse and the general practitioner continue to be on good terms. On the other hand, somebody who is very busy, and can’t attend the mid week diabetes clinic at their general practitioner, and wants to come in the evening or weekend for diabetes care, I respect, and I think that’s very reasonable. However, I do try and get the patient to play both carefully, and that they may attend privately, but that they must keep contact, whatever way they wish to, with their general practitioner, because, as I say, their basic care has to come that route. And I think it has worked out in practice, now. It used to be difficult, but the general practitioners are much more aware of the importance of the private consultation, and the extra time that’s being given. However, I think one has to be very sensitive to that particular issue. Of

course, the question of prescriptions from their general practitioner: the problem of how many blood glucose strips they're allowed to have can be quite an issue, between a patient and their general practitioner, and I can make some useful comments about that. I have to remind patients, though, that, of course, their getting free prescriptions is a fantastic privilege, that has been in the NHS since it was founded, and this is way and above most chronic diseases. And diabetic patients should be very grateful for that. I do have to remind them, occasionally, that the cost of their prescriptions is really quite considerable.

- (19) To some extent, you've given me the impression that everything in diabetes care has got better and better. Is that the case?

Generally speaking, that's true. But one of the downsides is that there are a tremendous number of guidelines and protocols. These are helpful for providing, sort of, basic structure of care, but are incredibly restrictive in stopping innovation and development. We are bombarded by guidelines: guidelines from the Department of Health, from the National Service Framework, from the National Institute of Clinical Excellence. We have guidelines from the Royal College of Physicians, the Royal College of General Practitioners, and, of course, we have guidelines from Diabetes UK. There are European guidelines, there are American Diabetes Association guidelines, and there are International Diabetes Federation guidelines. It is an impossible lot of guidelines, and it is all the great and the good writing down what we think we should be doing. But the trouble is that, although they're useful, they do tend to stifle innovation, and tend to be a bit out of date. And I think they should be used with... have a little cautionary note, or a sell by date put on them. One of the first ones that came out was the St. Vincent's Declaration, some ten, fifteen years ago. And that's useful, and it avoided giving specific targets - well, it gave general targets, rather than specific targets - and I think that was good. But, of course, that has been developed into fantastically specific - much more specific - targets, ever since then.

Can you give me an example of how too many guidelines can prevent innovation?

Well, innovation, particularly of new drugs. And the incretin system, which has led to the introduction of two new drugs this year: the Gliptins, the Sitagliptin and the Exanotide, working on the incretin system. Now, clearly, they have a place, but they haven't yet been incorporated in any guideline, no one is prepared to sanction their prescription, and it's going to stifle development. It's going to be so much slower than it used to be, when you arranged with your local general practitioner, or your local hospital pharmacy, to have a trial of this new medication.

Have you always embraced new developments yourself?

Of course, I'd like to think I have embraced new developments. Of course, that's not absolutely true. I do remember hanging on to urine testing for Type 2 diabetes as being a useful monitoring system. Of course, it is pretty pointless. As far as insulin regimens are concerned, I've always been pro at least twice a day insulins. But when the four times a day insulin - the basal bolus system,



where you give short-acting at mealtimes, and a long-acting basal insulin - when that was first mooted, I thought that was absolutely ridiculous. Patients aren't going to want to inject four times a day. We have difficulty enough persuading them to go from once a day to twice a day, and I've worked through that one; I'm not going to be persuading people to be going to four times a day. But I've been proven absolutely wrong. It is a wonderful system for the Type 1 diabetic, and the occasional patient with Type 2 diabetes. It does provide logical insulin delivery. Extending it, of course, to insulin pumps - constant infusion of insulin, subcutaneously through a pump - this is a... I've welcomed that sort of innovation, because, again, that's a very logical, physiological replacement of insulin, and that's to be welcomed. And I'm saddened by the cost of that system, which I think, this country, we are lagging a bit behind others in its introduction.

(20) You said that patients adapted well to four times a day. Have you found, in general, that patients did what you suggested?

Of course, I'd like to think they did, but, of course, the truth is that some of them will and some won't. And that's true of the four times a day insulin regimen, which is fantastic, but isn't suitable for everyone. Some people don't like it; some people find it's inconvenient at work, and they won't do it. What I do expect patients to at least give things a try, that they're recommended to do, and they can always revert. And the more old-fashioned, or the person who's had diabetes a long period of time, might well say that "I prefer my old system, and I'm going to stick by it", and I respect that. I even respect the use of pork insulin, which still is around, and still some people swear by it, particularly for hypoglycaemia. I'm not convinced, but they're convinced, and I can't change them. And they've... provided they've given the new insulins a try, I don't mind; they can revert back to their pork insulin. So, I think it then becomes a question of, as long as they're educated, and as long as they have an informed choice, it's their choice. You can't force something on somebody. It is treatment they have to take of their own free will. As far as health professionals who come to me, who have got diabetes and need care, be it in the health service or privately, of course they're given the same advice. And you'd think that they would be more intelligent, more educated, more informed, and be more compliant, but the truth is, they're the same mixture of compliant and non-compliant. So, I don't think - although education is absolutely vital, it's fundamental - you cannot expect education to actually make 100% compliance. Overall, it's the personality of the person that matters. And I think this is extremely important, to be aware that diabetes affects people of all intelligence, and that the least intelligent can be the most compliant, and the opposite is true, that the most intelligent can be the worst compliant.

Notes from Alex Wright:

[1] Richard Asher introduced the term Munchausen Syndrome

[2] Hammersmith work included pituitary implants for proliferative retinopathy

in diabetes.

[3] In attending the American Diabetes Association annual meetings, I was present at the first public presentation of the results of the UGPD (University Grants Diabetes Program). The uncertainties of the UGDP findings were the stimulus for Robert Turner and the UKPDS,