

**Professor Walter Holland CBE in interview with Dr Michael Ashley-Miller
Oxford, 25 May 1996, Interview II, Part One**

MAM Professor Holland, we've reached the stage where you have a small funded department, you've got a chair and the Department of Health and Social Security as it was then have now given you considerable resources for a major unit for health services research. So this next discussion would be really about the twenty-two years till you retired in '94 – all the work that you did. Now, we did discuss that there's a raft of research in those years, and it would probably be reasonable not to worry too much about chronology and dates except where they are important for a particular crisis or something. But actually we agreed that we could probably break it down to what we call local studies, hubbing around the three hospitals which you were associated with – which was Tommy's [St Thomas'], Frimley and the hospital at Basingstoke – and then national studies; that is studies that may have been done at one of these hospitals, but has national significance. And then the last batch would be studies of major international significance. And I wondered if we could start with what we've called the local studies based on the three hospitals. And the one I'd like to pick up from last time, because we didn't really hear the outcome, was you were talking about you were about to embark on the study of healthcare needs in the Lambeth population just at the time that actually you inherited the unit. So, perhaps we could start with that one and then pick up some important local studies that you did.

WH Yes, certainly. The Lambeth studies, we decided that we would try to use a defined population to determine the health service needs of the population. We decided that we would use a defined part of Lambeth, north Lambeth, the part nearest St Thomas', as illustrative of the health care needs. What we did was to do first of all a private census of the population of the six wards, and then we did four directed studies to illustrate different problems. The first of these was on the prevalence of cardiorespiratory disease. The reason we chose that is that it's the major cause of mortality and user of in and out-patient facilities. The second was [on] disability, chronic disability, both physical and mental, because that is a major user of local authority and community services; [the third was] of peptic ulceration because that is a major user of out-patient facilities and diagnostic facilities. And finally, [the fourth was] of skin disease because that is both general practice as well as hospital out-patients. In each case, we used essentially the same model of trying to define the prevalence of these conditions, of trying to determine what use if any they made of health or social services, and to examine where there were major gaps. What we found was that for the three medical conditions – that is cardiorespiratory disease, skin disease and peptic ulceration – there was a relatively little gap between utilisation of services and need as expressed by some arbitrary measures such as, for example, utilisation in relationship to severity. We obviously couldn't find an absolute measure, but we used that. We did find a major gap in services for the disabled. And, that was...

MAM Both physical and mental, or...

WH Well, there were very few mental, they were mainly, they were mainly physical and we found major gaps in that.

MAM Was that a fault of general practitioners more than anything else?

WH It was a fault both of community services, local authority, hospital services, but primarily of general practitioner services. We found that the general practitioner services in that part of London were not good, so that in fact, for example, the records of general practitioners did not really correspond to the findings of any of the conditions that we'd identified. So, perhaps one of the major consequences of the study was the recognition that if we wished to improve healthcare for Lambeth, which was what our primary aim had been, we would not need to attack the hospital, but we would need to attack the general practitioner services in Lambeth. We'd already established the senior lectureship chair with David Morrell. The hospital then decided that they would invest in general practice in the area through the endowment funds. And one of the assistant clerks of governors, John Wyn Owen, and David Morrell – the professor, he was then senior lecturer in general practice – went round all the practices. [They] identified what their needs were and tried to provide some sort of help, both in terms of practice improvement grants as well as the establishment of a training scheme funded by the endowment fund so as to teach GPs to be better GPs.

MAM That was a very... It's a, it's a useful outcome, and it was...

WH Yes. It wasn't exactly what we'd expected. But yes, it was all right.

MAM You might have, today I think you would have expected it?

WH Yes, now we would have, but not at that time.

MAM Did the GPs take up, at that time, the offer? I can understand them, to improve their premises... But did they really want to come back to, to learning and being updated?

WH It was quite surprising how welcoming they were in the ability to take time off from their surgeries which would be paid for for the first time in order to take part in a course which would give them an additional degree. And it was, the first thirty or so places were all local, and that was quite remarkable.

MAM Would that hold today? I mean, one of the problems is general practice is the inner city, and I would count Lambeth as a pretty deprived inner city area. You, from that imply there is hope of bringing up practices to standard?

WH I think the situation has changed greatly. I think it depends very much on individuals. The major change that has occurred in general practice in the area around St Thomas' is that now at least a third to a half of the GPs actually are own graduates. When I qualified, I don't think there was a single practitioner who had qualified in a London medical school.

MAM So, you really seeded St Thomas' into the community?

WH Yes, yes.

MAM Which would be different from a lot of areas?

WH Yes. I think that we also used only local practices for teaching and thus we, the local practitioners saw that we wanted to invest in them as well as to use them. To become teachers and thus attain the status – there was no money in it, for them – they had to take three-week training courses, they had to go on away-days, they had to be taught. And they did that quite easily and quite well. I think there are quite large differences in the inner cities, and I think that it depends very much on the degree of involvement of the senior people in the local healthcare institutions as to whether the GPs will actually take part in what I would call 'educational initiatives'.

MAM That obviously was a major and very significant finding from that. So were there any other important... I mean obviously there were other findings, but were they important?

WH Well, I would, yes, I mean I think that major... There were two, I suppose. The first was that it served as the basis for the national studies on disability which were then followed by the, which were done by the OPCS [Office of Populations Censuses and Surveys]. They learnt and used the methods that we developed, and I think our results were rather similar to theirs. I think that the second thing was that it demonstrated how difficult actually epidemiological methods of needs assessment were, and I don't think many people have yet appreciated the complexity of that. And the third was that we actually invested in general practice.

MAM There are not... If I'm right, at that time there had been very few studies of the needs assessment of a population as such. Because needs assessment, up to then, my understanding had been predominantly about one condition, not, not the general needs.

WH Yes, as far as I know there had been no previous studies to that, to ours.

MAM So, there was a methodological outcome as well?

WH Yes. The method, the major, the major... I suppose the major finding was that the acute care services provided by St Thomas' were appropriate both quantitatively and qualitatively to the needs of the local population. That was one of the major questions, and we'd answered that one.

MAM Yes, in fact the problem was...

WH It wasn't a very dramatic finding, but, I mean, it was a real finding.

MAM Yes, yes. Going on with other, what we called the local studies hubbing on hospitals, was there any others that you felt were particularly significant, either at St Thomas' or the other two?

WH Well, I think that probably the other two... There were two. The first was that we did a randomised control trial of early discharge for hernia and varicose veins. This was to try to determine whether, what the consequences were of getting people out of hospital to their own homes shortly after operation compared to leaving them in for the standard seven to eight days. That showed that it was perfectly feasible – the complication rate was no greater when the people were in the community. However, the interesting thing was that it did not result in the saving of money that everybody expected, in that although obviously the NHS saved money, the total community cost was virtually the same whether you stayed in hospital for two days or whether you stayed in hospital for seven days, because there was a shift in expenditure to the individual and to his or her family rather than to the NHS. Furthermore, what people always forget, forget is time off work, the National Insurance contributions, the time off work payments are actually very large. And since people who stay in for two days stay off work for the same length of time as those that stay in for seven days, actually the total cost is hardly different. The second study was on stroke, where we established a stroke register to register all individuals with stroke to see what services they got both in the community and the hospital, and also what their prognosis was. This was in the early, late sixties/early seventies, which was probably one of the first major stroke registers. We showed that essentially the majority of those who survived regained within three years the same level of function as, as they'd had before they'd had their stroke. But we also showed major deficits in the provision – particularly of services within the community – for individuals with stroke. The other study that...

MAM Did the, sorry to interrupt, did the services provided for people either in hospital or particularly in the community actually have any effect on the long-term outcome?

WH We didn't measure that. I can't, and I can't answer... I can't answer that question.

MAM I only asked because you say in three years they seemed to have recovered. The implication is it didn't really matter whether they were good or bad services.

WH It wasn't designed to answer that question, so that it is impossible to say, really say whether in fact the services provided helped people to recover or not. I think subsequent studies that others have done have shown the inability to disentangle what people call 'the black box of rehabilitation', that we have not yet been able to decide which particular service after the initial stroke actually helps the individual most. And that is I think a major question which needs to be answered.

MAM Yes. We, we're now...

WH I'm sorry, (?) package, which bit...

MAM Which bit, yes. Certainly... I've taken up a bit of community service and it seemed to us that looking after the carers, which was usually the spouse, and supporting her was actually as important as treating the patient. Because you got more morbidity it seemed to us in the carer in the first six weeks than anything else. But I think, you know, we are well aware now of how easy it was to take that for granted. Right, any other...?

WH The other one was on a large mental hospital in Basingstoke called Prewett, Park Prewett, where we showed that of the 1500 or so residents, that the policy of community discharge was perfectly feasible for some in that we were able to allocate at random people to be discharged to community care and people to stay in hospital. And we showed that their satisfaction and functioning and so on was equivalent in both. So, it was perfectly feasible for those who were clearly defined. But of the 1500 individuals in that institution, about twenty-five per cent in fact came from God knows how many different places, who'd, they'd been in there perhaps thirty to fifty years. So returning them to a community actually was a major question mark as to which community should they go to, so that the closure of that hospital took many, many years before it actually...

MAM Was that the thrust of your study, was it possible to... I mean, that was, was it the start of the drive to close big institutions, you were asked to see could you... What was involved in discharging patients?

WH Our question was could you in fact look after people in the community or not. And we showed yes, it was perfectly feasible for a defined, carefully defined group, and there was no disbenefit to that group. We didn't go into costs in that group at all. But there was also a very large category, very large group of individuals who were so institutionalised and really had nowhere to go to, that you couldn't do that to.

MAM Yes, they, they were stuck in a type of institutional care...

WH Yes.

MAM Did you look at the costs at all of community versus institutional care?

WH We did some rough estimates of costs. We did not have as much economic input at that time as we really needed. Most of our economic, economists were used on the early discharge study. We showed that costs were virtually the same, if anything community costs were higher than keeping them in hospital. But it was not as rigorous an economic study as the early discharge one.

MAM That's a very important study actually. It must be one of the early ones, because the policy was based really on a sort of political belief, or with a small political belief that big institutions were bad. But there wasn't any fact to back this up and you obviously provided quite a lot of information about the feasibility. Also, I suspect you provided, what wasn't really known was the population in institutions.

WH Yes, I think that the...

MAM Because I think a lot of people didn't know that patients had been there thirty years or so.

WH Yes. I think it's quite important that these are all studies approved, or if you like commissioned, by the Department [of Health]. One of the interesting things was the initial negotiation since one of the senior civil servants held up the studies for some six to nine months because he said that 'These studies may question our policy.'

And it took some time for that to be resolved, but actually science is there to question policy!

MAM Can I just, before we go on to studies of national significance you've done, pick up a point that I wanted to ask you. You have, by now, a galaxy of talent and a lot of people in the unit and the department. Some of your studies quite clearly would have been commissioned or asked for, not necessarily designed, but there were particular questions that the Department of Health as your main sponsor would ask you to do. But a number of studies clearly came if you like from internally. What sort of system did you have in firstly garnering ideas for research, and secondly, how did you then decide to give priority to certain issues? Because you had an awful Sargasso Sea to explore.

WH Yes, I think that was probably, it's very difficult to be able to answer that clearly. I think that first of all we had an advisory board – which consisted of individuals from outside as well as from the Department of Health, from the hospital and so on – who provided both advice as well as criticism of what we were doing. So some of the advice came from them. Secondly, the, I think that one became aware through lunchtime gossip and discussions of what some of the issues around the health service were. And thirdly, individuals within the unit had ideas and put them forward. It's very difficult for me to say that, to say where any particular idea came from. We had a general strategy of what sort of things we wanted to deal with, namely health services and disease aetiology, and that we would try not to get deflected onto issues that would only answer the problems of an individual or an individual department. But then, as to the priorities... It was dependent upon, it was dependent upon the, if you like, the time and the availability of individuals that really conditioned the priorities. I think we were very fortunate in the, certainly at the beginning, to be able to persuade our funders to become customers of our own ideas rather than only to be receptive to their ideas.

MAM Well, that I think in those days was the way it was done. When the extraordinary kerfuffle over post-Rothschild, and the MRC [Medical Research Council], the MRC told the Department [of Health] what they, they asked the MRC to do.¹ It was a... A macro-basis is wrong, yes.

WH I think that probably also it was helped in that I and several others were on influential committees. We knew what the sort of problems were.

MAM Can you think of examples where if I was a junior temporary research worker with you, could I... If I had a good idea, was there a system that actually that could be looked at and picked up if it was good?

WH We actually had a system whereby... This was in order to recruit people into the field. This was started through discussions by Keith Porter, who is the senior administrative medical officer of South East Thames region... [We had a system] of

¹ The Rothschild Report suggested that all research be done on a customer-contractor basis; the customer (DHSS or NHS) stated what research they wanted done by the contractors (researchers). The problem with this is that the contractors were often unable to be precise enough to ask a researchable question, they had to be persuaded to ask a general question which could be illuminated by a piece of research.

having an SHO [Senior House Officer] post – of actually having a junior for a year in post to do a piece of research that he or she wanted to do as well as to continue in their clinical, clinical responsibilities and duties at the sort of SHO grade. And we would provide the support in terms of methodology to that individual. There were quite a number of different studies, that these relatively small studies, all small studies, that actually resulted in quite good results and stimulated individual researchers' interests in the field. For example, what are the factors that lead parents to have their children immunised, what are the barriers to immunisation? And we found that it was the, it was the healthcare personnel and not the parents who were the barriers to immunisation, in that they were, parents were given wrong advice. That's an example. Another one was the frequency of respiratory illnesses ... in neonatal, in neonatal care units. And so on.

MAM So, and some of those might have been expanded later on after the year if they were runners?

WH Yes, if they were runners, yes.

MAM Did you have two or three colleagues who worked with you or did you yourself decide yes, we'll go for that or no, we won't. I know research isn't always yes and no, but occasionally there must have been required decisions that said we'll put a fair bit of resources in and pursue that. Did you, actually at the end of the day – you know, the buck stops here – did you take that role on or were you more democratic?

WH Well, we had what is, what we called heads of, heads of sections where we discussed what we should do, what resources should be deployed and who should be responsible. But yes, it was my ultimate decision and I had to take responsibility for that.

MAM Yes, and you kept that, in fact as a...

WH Yes, yes.

MAM That's a perfectly reasonable leadership role.

WH Yes.

MAM Yes. Did you, I have to ask this, have a major argument if you like with a group or a section that particularly wanted to do something, and you decided that was not a good line or was too exhaustive of resources?

WH I think it was usually the other way round, in that I was stopped from leading into areas... I was usually, my colleagues usually...

MAM Reined in!

WH Reined in some of the suggestions which we, we put forward.

MAM But you can't recall a particularly ... I'm not talking about criticism, but a

very difficult decision of go or not go that you had to resolve personally?

WH No, I don't think so. I don't think, I have no... I cannot remember any occasion where that happened.

MAM Right. If we've done a number of sort of the, what we called local studies based on the hospitals, could we move perhaps to what we called studies of major national significance. I have to ask you about one for which you are well known anyway. Could you start off in that category with your work on screening?

WH Yes, we... Yes, of course. The problem was whether multiphasic, what is known as multiphasic screening was of any use or not. And many people were extremely enthusiastic with the idea that if you looked at people, you would find things wrong with them and be able to treat them at the time that it was reversible.

MAM Multiphasic in that sense, looking for a number of conditions, a sort of army medical...?

WH Heart disease, chest disease, eye disease and so on.

MAM Right, at a specific, special...

WH At a special clinic. What we did was to recruit two large group practices to undertake a randomised control trial in which the individuals on the practice list were allocated at random, by family, to either attend a special clinic where they were first of all examined by questionnaire, by blood pressure, lung function, ECG and other tests – blood was taken. They then came back ten days later, were examined by their own GP with the results of the tests available so that he did a directed examination, and then instituted treatment if necessary. The GPs were all enthusiasts for this, and we did this over a period of five years. That is, we did two screening examinations at two, two year intervals and a final examination of the total population, both screened as well as the unscreened, and then followed them all up for a further three years. The question we were asking was first of all was there a change, difference in mortality? Secondly, was there a difference in morbidity as measured by levels of function? Such as for example blood pressure, smoking, weight, or by being able to go to work, or by using health, home-helps for women since, of course, they don't often, they didn't often go out to work. And finally, we ... measured the costs. Those were the three things we measured and we showed to our surprise that there was almost no crossover – that is the patient, the individuals invited to be screened came to be screened at about 75 per cent. Individuals not invited to be screened did not come and bang on our doors, which was actually an interesting finding. We found to our, disappointment – I think this is the proper way to say it – that there was no difference in mortality at the end of eight years between the group who were screened regularly and the group who was not screened. There was no difference in levels of function, that is ability to go up and down stairs, levels of blood pressure, smoking habits and things like that. And there was an increase in costs. And so, as a result of that, we suggested that the idea that if you screened people regularly in middle age – because this was all for individuals aged 40 to 64 – was really a waste of time. It would probably increase health service costs by 10 per cent.

MAM Wow!

WH And ... that was an unwarranted expenditure for no benefit.

MAM Or miniscule...

WH Or miniscule.

MAM Even now one finds that a surprising finding. I mean, I could understand the gains would not be worth the expenditure, but to get almost a parity between the two groups I find surprising.

WH The explanation which we felt explained it was that when you examine the behaviour of the, of the individuals, you find that actually individuals go to see their GP usually quite regularly, somewhere around three times, three to four times a year. And only a very small proportion of people do not go to their GP at all and actually, because I suppose they were good GPs who did the screening, they picked up the abnormalities.

MAM You mean in the course of ordinary...

WH In the course of their ordinary practice, not as part of screening. So, they received equivalent care. So we suggested that a far better way to do screening was to do what we call 'case finding'. That is, that you do a specific examination at a time that the individual comes to see you for some complaint, such as for example, if you come with a bad toe, you may take his blood pressure, or if you come with a cold you tell him not to smoke and things like that, rather than to have screening clinics which require extra personnel, extra tests and so on which yield very little. I'm sorry, I ought to say, yield very little – that's wrong. 50, somewhere around 65 per cent of the people had abnormalities of one sort or another, but that doesn't mean necessarily that they weren't either being treated already...

MAM But they may have been known then?

WH Yes, yes.

MAM That has tremendous, that really is an extraordinary study in health service terms because if the findings – and I assume the findings were accepted – that has enormous financial implications.

WH The study was certainly accepted at the time, between 1978 and 1989, and...

MAM Well, that's not bad!

WH For those ten years the policy was that we should not introduce...

MAM Are you implying there's a, coming back to...

WH Oh yes. In the, in the '90... In the change in the GP contract and in the so-called NHS reforms, these things were reintroduced in spite of the fact that the

literature had shown there was no benefit.

MAM But, if I understand it, it's the older patients in the contract that were being so-called screened.

WH Well, it was changed eventually, and has been changed now. But, I mean at one stage it was ordinary individuals.

MAM Oh, was it? How interesting.

WH Oh yes, there was a great deal of furore about it.

MAM Was that study of yours used as an argument to shift that away?

WH Yes, it was.

MAM It still holds water ten/ fifteen years later?

WH Yes, yes, there haven't actually been any studies since. There have been, there were two other studies about the same time – one in the United States which was not quite of the same degree of random, random allocation rigour as ours, and one in Sweden. They all showed exactly the same.

MAM What was the size of the population that...

WH It was about two and a half thousand people in the treatment group and two and a half thousand in the control group, so it was a relatively...

MAM And that was over...

WH Over five years.

MAM Five.

WH Eight years.

MAM Well, eight. What would be the cost of a study like that because, because I think that people listening would be not aware perhaps sometimes of the costs of health service research?

WH I think that it's fair to say that that study probably cost about half a million to a million pounds.

MAM And that's 1980 prices?

WH 1980 prices. But it, remember that it saved...

MAM Ah, yes.

WH ...each year somewhere around a hundred times that cost.

MAM Oh. Accepted, but you're still asking, in health service research terms you're still asking for very considerable sums of money to, to undertake a definitive study to answer an important question. I mean, [a] question that may have very, very big financial implications. Nonetheless, there is still if you like financial risk money in going into a study like that. And there's no way out it seems to me. You, if you do the study you spend a great deal of money. And that means that people like you have got to persuade the sponsors actually to really think in very big terms, financial terms, let alone the time commitment of keeping a study like that going.

WH Yes, I think that people underestimate, grossly underestimate the costs of these types of studies. And the trouble is that in fact if done properly they have to entail the collection of data and not the use of secondary sources of data from routine records. And that is expensive because you have to pay the people, and I'm afraid that that is one of the problems.

MAM Yes, I mean health service research of that order is expensive, and mostly the important questions will require studies of, of resources.

WH Yes.

MAM Sorry, I started you off on screening because obviously you are well-known for that. Would you like to mention some other studies of national significance?

WH Well, I think the one that has probably lasted longer than any was the study, national study of health and growth, because...

MAM On children?

WH On children. This was the, this was occasioned by the changes in funding for free school meals and free school milk by the secretary of state for education at the time...

MAM The old iron lady!

WH ...one Margaret Thatcher, and secretary of state for health, Keith Joseph. And they were concerned that they should, they... A large amount of money was being spent on school meals, free school meals and free school milk. They felt that with the levels of nutrition this was no longer warranted. And studies that we and other people had done showed that they were correct, that there were no pockets of under-nutrition. However, it was agreed by the departments of state that there should be a system for monitoring and so the Department of Health set up a series of monitoring studies to ensure that the change in policy would not lead to any problems. We were responsible for the study of the health of schoolchildren between the ages of 5 and 11, and what we did was to take about 26 areas of England and Scotland chosen on the basis of their level of deprivation, with, obviously controlled areas. And what we did was then to measure the height, and weight, and skin for thickness, and question children going to schools in those 26/28 areas every year and measure their rate of growth. We were able to show that the changes in policy on both school meals and school milk did not lead to any detriment in measures of health as exemplified by

rates of growth or increases in weight.

MAM How long was that study?

WH That study continued until 1992. It was changed in 1982/83 when it became apparent that the indices of poverty that we'd used were no longer appropriate. In the seventies, poverty was commoner in the rural areas than in the urban areas. In the eighties, we changed the study so that we firstly increased the number of areas and secondly we were able to decrease the number of visits, because we were able to get as good data by going every second year rather than every year. So, the costs were not increased but the number of areas was doubled. And the new areas all consisted of inner city areas with ethnic minorities. And we were able to show that really there were problems: firstly, the children, particularly girls, were getting fatter and they began to take off really in the early eighties; secondly that the groups that were really at highest risk were those from the immigrant groups, particularly from the Indian sub-continent. And the group at greatest risk of all are the female children of the immigrant groups. That study was continued until the nineties.

MAM Has that stopped now?

WH I'm afraid the Department of Health decided in their wisdom that they no longer wanted it.

MAM When you followed your children, it seems to me there are two ways... You take a child at 5 and you see it through to 11, you know, examining its nutrition, or you take a series of children coming in at 5 years old at annual intervals. Which, which policy did you...

WH Well, remember we did both.

MAM You did both?

WH We, what we did was to examine all children at school each year, so that there were some of them...

MAM I see, there were new children?

WH There were new children as well as...

MAM As ones that had gone before...

WH ...ones that had gone before. So we were both able to do prevalence as well as incidence.

MAM Your population, I assume, did not increase because they fell off at 11, is that right?

WH That's right, yes, yes.

MAM How did you do this? Did you send teams to the districts?

WH We had, we used the local nurses and health visitors. But we also had a team of nurses of our own, usually, usually three, and they, they went to each school and they acted as a quality control, so that one, one of the highly trained individuals examined a sample of the children and the school nurse did the remainder. So we were able to, always to check the school nurse results versus our calibrated observer. That's why that is also quite expensive.

MAM That was, it was an enormous study really to keep, keep ticking over too, which is difficult, difficult to maintain something that long. Right...

WH The third major national study was that of take-up of smoking in...

MAM Sorry, this is children starting...

WH Schoolchildren, and we took secondary schools. We took Derbyshire, and we took half the secondary and middle schools in Derbyshire and the other half we didn't study. In the, in these we again used a questionnaire technique to determine the attitudes towards smoking as well as smoking habits of children, about 5 to 7000 each year. We again did the same design... I'm sorry, it was a slightly different design in that we started off with a cohort at age 11 in 1973 and then we followed those children until they left school at age 16. We actually continued that study until age 21 because of the interest in the take-up of smoking after leaving school. We showed, I think, a number of important findings. The first is that the child's attitude changes before behaviour, which is quite important, secondly, in terms of what sort of message to put through. Secondly [we found] that there are a variety of different pressures that exert, that are exerted on the child which influence their take-up of smoking – things like peer pressure, parental and home environment and smoking habits in the home, attitudes towards games and so on. Thirdly, we showed [a] massive increase in smoking after they leave school, and that is partly conditioned by what happens to the child after leaving school. That is, the ones that really take it up are those who drop out from the educational system and from the occupational system. They, the unemployed school-leavers are the ones that really smoke.

MAM They were still taking it up after they left school?

WH Yes, yes.

MAM That's, that's interesting.

WH There are...

MAM I would have thought they'd be already smoking at school.

WH No, it was, no, in fact the major take-up... Although they may have been experimenters...

MAM Yes. No, I meant as a regular...

WH There's a great deal of, there's a great deal of experimentation. But the thing

that leads an individual to actually becoming a regular smoker year on, year out appears to be related to their employment and educational status more than anything else. Also, I think that if you're going to put through anti-smoking messages, you have to do it before they go to secondary school. There are...

MAM You have to be in primary school?

WH You have to actually deliver the message beforehand, or begin to deliver it and reinforce it afterwards, because there are already sufficient numbers of children with attitudes, positive attitudes towards smoking by the time they enter secondary school. The other thing that we found was, I suppose the two other things about this, firstly that it's no good threatening a child about what's going to happen fifty years later. It's important to get them, to concentrate on their immediate things such as, for example, it's much more effective to tell them that they taste like a stale ashtray, than ... that they are going to die of cancer of the lung. The other thing is that their own habits... For example, telling that their habit, that they are much more likely to be off school with respiratory illnesses and to do worse in games, is much more effective than most other messages. Using a very complex mathematical model, it is relatively simple, you can show that if you... It would appear from our modelling that about – you could reduce the smoking habits of school-leavers by about 50 per cent if you used all the appropriate messages throughout the scholastic career.

MAM But that is a professional commitment, it's not just giving a message once a term or whatever, it's a professional...

WH No, no. It is very important to do things such as, for example, getting teachers not to smoke, getting, getting children taught about, things about how to take care of themselves and make them feel responsible for their own decisions rather than always being at the beck and call of everybody.

MAM Is there a difference between, I mean things may have changed now but was there a difference at that time between boys and girls?

WH At the beginning it was boys who were more likely to smoke than girls, and by the end I'm afraid it had, it had reversed in that the girls were, were beginning to smoke more than the boys.

MAM Really? Did, I think you said this was in Derbyshire, did the education authority take note of your report? They presumably must have helped and been supportive of the study?

WH I think that it's, I think at the... Certainly at the beginning they certainly took great note and were very supportive and took notice of what, what we were saying. I think towards the end, the changes in education that have occurred in the last few years have actually neglected the sorts of lessons that we were trying to put across.

MAM Yes. So, in many senses that's now rather wasted. Although, would you say the findings, of some years ago, are still highly relevant?

WH The findings are still completely relevant now to what they were then.

MAM And you've really got to go back to primary school?

WH Yes, yes.

MAM Right. Those were the three...

WH Those were, I suppose, the three major national studies that we did. I mean there were other ones such as for example the evaluation of lithotripsy. This is a machine that crushes renal stones where we hoped to do a randomised control trial in that patients would be referred to one centre and have either lithotripsy or percutaneous nephrolithotomy done. Unfortunately, when it actually came to be started, none of the nephrologists, none of the urologists were willing to do a randomised control trial. And so we were left with a rather worse evaluation than we would have liked, comparing patients treated in one centre by lithotripsy compared to patients treated in other centres by nephrolithotomy.

MAM Were you hoping to do it in one centre, or...

WH We were hoping to do a randomised control trial whereby...

MAM In one centre?

WH In one centre, yes.

MAM What did you end up with, a scrambled egg or something else?

WH Well we showed, much to the disgust of the, of everybody, that the outcome was very little difference between the two methods of treatment. Certainly in terms of costs, the lithotripter was much more expensive, was more expensive. It depends which way of discounting the half million cost of the machine you used as to whether it was very much more or just more expensive. In terms of complications, in terms of duration of stay and so on, in fact there were no differences. Patients with lithotripsy had to be admitted more often, even if they stayed in hospital for a shorter length of time, because of the recurrence of stones because the nephro-, the lithotripsy didn't get rid of everything.

MAM Oh, I see. So, you were left with a stone on which...

WH On which... Yes, you were left with a little bit of sand on which the...

MAM The oyster grew.

WH The oyster grew. And in terms of patient satisfaction, there really was no difference between them.

MAM That, if I recall from a recent report, is actually still not being accepted because I read somewhere, you know, that lithotripsy was, was the choice now. Is that, is that true?

WH Well, I'm afraid it was, it was not accepted, and hasn't been accepted since then, because the criticism, which is a proper criticism, is that the lithotripsy was not done as well as it should have been done because it was the first, first NHS lithotripter.

MAM And now it's, it's better...

WH And now it's better and now the machine is cheaper...

MAM That's true is it?

WH Which is all true. The degree of skill required for lithotripsy is less than the degree of skill required by percutaneous nephrolithotomy, so that...

MAM So, the picture has changed?

WH The picture has changed. Yes, yes.

MAM Did you do any other ... technological evaluations because that really was an equipment evaluation, wasn't it?

WH ... Yes, I suppose the, I think that the... Well, not really. The only other national study that I suppose, I'm sorry, I haven't mentioned, is our randomised control trial of low tar cigarettes. We've been in, since the government policy changed from, in terms of tobacco and tobacco additives, the policy now was to reduce the level of tar in cigarettes. And we, after a great deal of negotiation and a great deal of time, in this did a randomised control, a national randomised control trial in which we had three groups – one medium tar, medium nicotine cigarettes, one low tar, low nicotine cigarettes and one low tar, medium nicotine cigarettes. We started off, that was probably the largest trial that I have ever done in that we've started off by questioning around 800,000 people about their smoking habits...

MAM On a national...

WH On a national, by a mail survey, and then we gradually got down to the people who were eligible to take part in the trial. To be eligible to take part in the trial they had to refuse to take any notice of the advice to stop smoking, they had to be regular smokers, they had to be a male and aged between 25 and 45 and things like this, so that we had a...

MAM You didn't provide free cigarettes?

WH No, but we did sell them cigarettes.

MAM Did you?

WH Oh yes. We had, we sold them cigarettes at the cheapest price that they would have got, that they would have been able to get them in a supermarket.

MAM I see. These, these were not specially made for the trial, they were...

WH Oh yes, they were. Well, they weren't actually, but they were all plain pack cigarettes, so the individuals who took part didn't know whether they were, which of the three types of cigarettes they were smoking. They were supposed to, to smoke these for six months. And we visited them every, every month to, first of all give them their, sell them their supply of cigarettes. Secondly, to measure the urine cotinine, to get a specimen of urine for measuring cotinine levels to see how they, how they were, whether they were smoking, or much they were smoking or not. Thirdly, to pick up their stubs to see whether they were buying other cigarettes as well and fourthly to question them and measure their lung function.

MAM Did they on the whole stick to the trial cigarettes?

WH Yes. I mean, we obviously had a drop out rate, but the trial was designed, it actually did what we had, what we'd set out to do very closely. That is, we were, the trial was to show a 10 to 20 per cent improvement in symptoms and lung function in individuals who smoked low tar, low nicotine cigarettes compared to medium tar, medium nicotine cigarettes.

MAM Were that group actually though prepared to stay with low tar, low nicotine?

WH We found that the drop out rates in the three groups were almost all exactly the same.

MAM I was thinking after the thing was over...

WH We never took...

MAM You didn't. So, I mean your, your trial was to show the general issue, not for specific individuals?

WH But remember, but the trial did show that the low tar, low nicotine cigarette is not an answer, because we showed that the people titrated by the way that they smoked the amount of nicotine that they took in. The trial actually failed to show any difference between the three types of cigarettes because the individual smoking the low tar, low nicotine inhaled more tar and nicotine...

MAM And they were smoking more?

WH Because... Yes, they were smoking as much as the medium tar, medium nicotine, virtually.

MAM But they were smoking more of the low cigarettes.

WH Yes, yes.

MAM Yes. So in fact it was the nicotine level that they were maintaining?

WH That's right. Well I'm not, I'm not absolutely sure. Remember the tar is actually a very habituating thing as well, so I don't know.

MAM Yes. So, whatever level they were doing, you would smoke more to maintain that?

WH Yes.

MAM One other, as we are going back on smoking for a moment, did you do any work on passive smoking or wasn't the, passive smoking was not known about in those days?

WH We'd already, we'd showed, we'd showed in 1972, which was actually only the second such study, that smoking, passive smoking in children was important. We showed that, in our Harrow study that the children of smokers had twice, between two and three times as much respiratory illness as that of the children of non-smokers. And it was dose related according to the amount the parents smoked and whether both parents smoked or not. That study and one by Harlap and Davies in Israel were the first two studies to show the effect of passive smoking inhalation on health. We did not do any studies on cancer of the lung.

MAM No, that would have been a long-term...

WH Yes, yes.

MAM Right. Have you any other ... although you can pull them out of the hat?

WH I think those are the, I suppose probably the major...

MAM The nationally significant studies.

WH Yes.

MAM Just, we've got a little, a few seconds before we have a break. Would you like to make a start on studies of international significance?

WH Yes, I suppose the... The two studies, the two or three studies of international significance were, first of all, on air pollution. The first of these was the study in Europe which was not as, which actually was not as successful as we had hoped, where we, through the fact that Europe obviously has a very wide variety of environments, we selected a series of areas with widely differing levels of pollution. And we studied the incidence of respiratory illness and of lung function in children, in these different areas, in the hope that we would be able to disentangle which of the pollutants was important. Thus we took an area with high SO₂ and low particulates, with low SO₂ and high particulates and so on to try to disentangle the relative effects...

MAM And this was on children?

WH On children. We...

MAM Was that to exclude smoking?

WH It was two-fold. Firstly because children don't smoke so we didn't have the contamination by that; secondly because children live near a school, usually their primary school, thus it was much easier to identify the level of pollution to which they were exposed; and thirdly because their mobility is relatively less. They usually live in the same place ... that they were born in, by that age, I mean families don't move all that much in Europe.

MAM So that's a rather neat trick of...

WH That's really why we did that, designed it in that way. But the results were not clear enough.

MAM Were these done, sorry, in the UK? Or were they...

WH No, they were, the areas were picked in the UK as well as in each of the member countries – Germany, the Netherlands, Belgium, Spain, Italy, and so on. We had co-operative... France – we had co-operative...

MAM Were you the design and data handling centre, or was there...

WH Yes. The major lead was taken by Charles Florey who was the, my deputy and he, he was the, if you like, the co-ordinator for those studies. Yes, we were responsible for the design, we were responsible for the analysis and we had, we used the same method as we had used on the other studies. We had one or two standard, standard people to go round each area to act as...

MAM A sort of quality control.

WH Quality control. And they came from Thomas'.

MAM And what was the outcome of the...

WH Well, it was a very messy outcome. It, it showed pollution was bad...

MAM It did affect the respiratory function?

WH It influenced respiratory function, influenced respiratory illness, but we were unable to disentangle the relative contributions to the development of disease by SO₂ and particulates, the variations...

MAM Or one could say, as polluted areas are bad...

WH Pollution is bad. Which, which bit of the pollution is bad, I don't know, I'm afraid.

MAM Now, I know you've got at least one more international study, so shall we break at this point and come back to the rest of the international studies. Thank you very much indeed.

**Professor Walter Holland CBE in interview with Dr Michael Ashley-Miller
Oxford, 25 May 1996, Interview II, Part Two**

MAM First of all, I wonder if we could continue with the international studies which you felt were of import. So, I think there were two more that you mentioned to me.

WH Well, I think probably the ... the important ones were the studies in the European Community. The first of these was on the validity of death certification. What we did there was with co-operation from each of the member countries, we took ten standard case histories, translated them into the appropriate languages and then asked doctors, fifty doctors, or at least seventy-five doctors in each member country to complete a death certificate on the basis of the history, case history and signs that were recorded as if he was certifying deaths. The doctors were paid the normal fee that they were, they would have got if it had been a real death certificate. The certificates were coded both locally, nationally and at an international centre. And from that we had some idea of the variability of certification practice within the member countries. And we showed that there was usually a variation of between twenty and thirty percent in the ... validity of coding between countries and about three to five percent within countries.

MAM That's a rather curious finding.

WH What I mean by that is that the countries from the northern part of Europe agreed rather more than those from the southern part of Europe. The northern part of Europe for example would be more likely to record respiratory disease; the southern would be more likely to record things like cardiac failure, or conditions that were similar. But the variability – we had some measure of the variability for the ten categories of disease that we looked at. We then used this in the next study which is where we took conditions where we know that we have effective forms of treatment, where there should always ... there will always be deaths but in restricted age groups. There are, there should not ... if methods of treatment and access were perfect, there should not be a very great variation. And we showed between the member countries a variation of somewhere around tenfold for some causes of death, for every one of the fourteen causes of death that we originally chose. Things like acute appendicitis; there was a tenfold variation between countries, between areas of countries. Even within countries there was usually between a three and six-fold variation in mortality for these causes. That has been continued for some years and has certainly been used by member countries both in decisions on their health policies as well as in developing appropriate information systems, as well as in changing practice. Perhaps one of the best examples of that is acute appendicitis. Germany we had one of the worst records in deaths from acute appendicitis. This by, previous work had suggested that this was partly associated with a very much higher operation rate for suspected appendicitis in Germany compared to the other community countries. Now, that difference is rapidly disappearing, partly because of changes, partly because of changes in the frequency of such operations. And it may be that our findings helped

to influence practice in Germany to that course.

MAM Which is more important... I mean obviously they're both important but in your view which is more important – the inter-country variation or the intra-country variation?

WH I think, I think that, in terms of decisions on ... influencing policies between countries, the variation between countries is more important. I know that it was used in certain health decisions in some member countries in their method of organisation of practice. The within country variation is obviously far more important in terms of being able to do something practical to reduce that variation. Certainly in the UK there has been a change in mortality rates from – the two conditions that we particularly studied were carcinoma of the cervix and hypertension between areas – in areas that had very high rates of mortality for these, because the local doctors realised that their practice had to change.

MAM There is an assumption from that study that the death certification was probably correct as the cause of death, because you are using the data as I understand it to show up variations in, in deaths from certain conditions. But could it not be that there was a fair element of misdiagnosis or missed causes?

WH Without any question though there is bound to be, but the death certification study had shown that the degree of variation was of the order of ten to twenty percent, whereas we were seeing differences of six hundred to a thousand per cent. And it is very unlikely that these orders of magnitude could be explained by errors or misdiagnosis, or missed by... I don't think it's a major factor.

MAM So that study really was of use, very much so, in changing particular treatment policies between countries.

WH Yes, yes.

MAM Yes. That leads on really to your study of avoidable causes, doesn't it? Because did the idea, I mean, I'll ask you to explain what it was, but did the idea stem from that, that study?

WH No, the avoidable causes mortality study was ... really we did [one] first in the UK. We started in about '81/'82 and... But I think we published our first paper, I think, about thirteen or fourteen years ago. We were already engaged in the study of death certification in the European Community at that time, and so really the, we transferred our findings of avoidable causes from the UK study to the European scene. So the two were really, one followed the other. The death certification study had really been started for a different purpose altogether, but we realised that it...

MAM It all links in, yes.

WH ... it, it linked in very nicely.

MAM What were the main outcome findings of the avoidable deaths?

WH The main, I suppose the main finding was the very large variations in avoidable mortality which however were not associated with poverty and with deprivation, in particular in the United Kingdom, in individual, within countries. In the UK for example, some of the best areas were in the most deprived parts of the country. Such as, for example, Tyneside and Sheffield had very good rates of avoidable mortality, whereas relatively well off parts of the country like London had relatively poor rates. We then did further studies showing that, in fact, in the UK certainly the failures were largely associated with failures of one or other sorts, failures of practice, or failures of administration. For example in one area, it was that individuals with abnormalities [who] were never notified that they had such abnormalities. In another area it was because in fact they weren't receiving any, any treatment at all, so there were different reasons. And in the third area it was because there was a lack of continuity of care, and care gradually got worse and worse. I think the variation between countries cannot be explained quite so simply. And certainly in some of the countries such as for example France in particular, the largest proportion of avoidable deaths were in the poorer parts of France such as in Pas de Calais and in northern France, rather than in the southern areas which were well doctored.

MAM What were the, remind me, the actual conditions that you chose, as ... that should be avoided, if you like?

WH The original conditions were tuberculosis, cancer of the cervix, asthma, rheumatic heart disease, acute respiratory infection in children, Hodgkin's disease, raised blood pressure and cerebrovascular accidents, hernia, appendicitis, cholecystectomy, and maternal mortality.

MAM There's quite a range of conditions there.

WH Yes, they were deliberately chosen to reflect different types of disease and conditions.

MAM Now, some of those are, it seems to me, very much the responsibility of primary care in the first instance. So one would expect say in countries with a rather poorly developed primary care system to have a rather bad record with, with some of these conditions. Hypertension, for example, might be very poorly treated?

WH Yes. Certainly, the difficulty about, the difficulty about that of course is that the incidence of these conditions is, varies between member countries. So it is quite difficult to make those sorts of intranational, international comparisons because you have to make allowances for incidence, and in the majority of instances we have poor information about incidence, we never really looked at it in that, that way. I think the encouraging thing is that for all except for asthma there has been a decline in avoidable mortality in all the countries.

MAM Is that because the study was well publicised within countries?

WH I don't, I don't know. It certainly, several, I'm, I believe that at least one hundred to two hundred publications have resulted from these studies within member countries, yes.

MAM Oh, so there's been an enormous interest?

WH There've been, there has been... Yes, it developed into an industry!

MAM Have disparaging tables been, been produced between countries?

WH Yes, there have to some extent, but I've not taken part in any if there have! But certainly they were, I am told, used in some of the ministerial discussions.

MAM But didn't you help produce, in fact, an atlas?

WH Yes, we produced three editions, three atlases over, between 1983/84 and now.¹ Yes.

MAM Because, I seem to recall I've seen some of the pictures and there are astounding differences in, in some conditions which really require some explanation of the countries concerned.

WH Yes, that is correct. And it has been taken up in other countries as well, such as Australia, Sweden before it joined the Community. It has been taken up in a variety of countries.

MAM Is it, is that the first time that an approach to treatment and ill-health has been recorded in, in that way?

WH Well, the original idea was from a list of causes, which was published by Rutstein and Chalmers,² and a group in the United States who classified causes of death as being avoidable by a variety of different activities. We then took it up and made it into, if you like, a health service tool rather than a purely descriptive tool. They'd used it for saying, for example, a death from cholera in Chicago should lead to investigation of where the individual had been in, for his holidays and things like that. We used it rather more as a management tool and as far as I know that was the first time, yes.

MAM And what particular, if any, impact have the studies given rise to in the UK?

WH I think that after a rather slow start, there is now a, an annual publication which is called *Population Health Indicators* which is part of the common data set which is used to, if you like, assess the performance of individual districts and regions.

MAM So there is, it's being used as an audit tool?

WH It is being, it is being used as an audit tool and has been taken further.

MAM I asked that because throughout the research we have been talking about it's

¹ Walter W Holland, *European Community atlas of avoidable death.*, Oxford: Oxford University Press, 1st edition 1988, 2nd edition 1991, 3rd edition 1997.

² DD Rutstein, W Berenberg, TC Chalmers. CG Child 3d, AP Fishman, EB Perrin, 'Measuring the quality of medical care. A clinical method.', *New England Journal of Medicine*, 1976, 294:11, 582-8.

interesting how much of your research, health service research has actually got into the system. I agree, [it's] not necessarily always adopted.

WH Yes.

MAM But you must have a higher hit rate in affecting medical and management policy than a great number of health service research workers?

WH I, I'm not sure. I always think that I have a very low hit rate! But I don't know.

MAM Yes, but it is, I mean there's a gulf, isn't there, between research findings and getting it into the system? It seems to me that with the way we have been talking through these studies, that so much of your stuff actually has, has had a significant impact which is something you must be very proud of. Because there are lots of people who've done a lot of work but actually have had little influence.

WH Yes, but I think that our principle has always been as to what actually you would do with the data once you've got it, and we didn't do studies where we really could see that there was no practical use.

MAM But there are still a lot of people, aren't there, who are not necessarily in the Health Service whose object is to do research and [who do] not get it implemented? And it seems to me in health service research, would you agree, the researcher has a responsibility to go one further and try and get his research implemented?

WH I have absolutely no doubt about that, that it is, that is one of the major problems, and I think that many of the discussions about what I would call dissemination and application of research is somewhat half-baked. People don't appear to appreciate the complexity of actually getting a piece of work recognised as well as applied. And it isn't enough merely to publish a paper, neither is it enough to talk at conferences about it. I think that the, I don't know the solution, but I think that certainly one way that is, that I have found effective is through short courses and of really education, as well as of individuals that you have trained actually working in other places including the service side. I would have thought that that was much more important.

MAM Yes, you've, you've got to seed out the receptors.

WH Yes, yes.

MAM Yes. I mean one criticism, perhaps, is the Department of Health has not had so many of those receptors on their staff.

WH No.

MAM Which is unfortunate.

WH That has been... Yes, yes.

MAM Fine. Could we go on to some other aspects – I think we've covered this extraordinary range, but also perseverance because that's what a lot of the studies required in the research sense – and talk about other aspects? And the first aspect is teaching. Someone of particularly your growing eminence in your career must have had a lot of demands for, for teaching, either routinely of undergraduates or postgraduates or at conferences?

WH Well, I think that the, I mean I think that I had always been taught that, to put teaching at a lower priority to my research. And I, I have to admit that certainly we did not concentrate on the development of teaching of our subject at Thomas' in the way that some departments have. I think that we started off trying to teach through what I would call the ward ... the classical medical model of the ward round. We discovered that that was reasonably successful for people like me while we were still able to maintain our clinical credibility. But very rapidly that went because medicine advances and one can't keep up knowledge in all fields. We then turned to trying what was certainly extremely popular in the United States and in some parts of this country; community teaching – that is of attaching students to families, and making the student follow that family through over a period of time and then, for them learning about it through one to one tutorials and so on. We actually did a randomised control trial of that, of trying to see whether that was a better method of getting students to appreciate what was then known as social medicine, and we tested them. We actually showed there was no difference between those who were taught through lectures and those who were taught through community attachments. Since the latter was so much more resource intensive we gave it up, and really because we then had a general practice unit they took on the teaching of medicine within the community. We then really changed to what I would call small group teaching, where we had a series of formal lectures followed by small group teaching of perhaps between eight to twelve students who each had to solve some problems and discuss it and so on. And we found that that was actually a very effective way of teaching. I think the bit of teaching that I think was probably more important in terms of the application of research though was the courses that we started to run at the beginning of the seventies to teach the, both the young as well as the older public health medical officers and individuals who took on roles as community physicians or public health physicians, about public health medicine, community medicine or whatever it was called at the time. I think those were actually quite important courses because what we did was to try to make them relevant to the work that they were doing by asking them to bring their own problems, and then we would teach on those. I think we've, I think that that is probably the most successful way to transmit both methods as well as ideas. And I've done that on a number of international occasions – most, most recently we've had, held a course on British epidemiology and public health in Japan, where we've, each of the students brings along his... We have the formal courses, formal lectures in the mornings, and in the afternoons we discussed, on a one, on a five to one basis, the problems that they have and what they are trying to do. That I think is quite a successful way of teaching the rather nebulous concepts of epidemiology, public health or community medicine.

MAM That of course is a different stream, the practitioner teaching a practitioner who brings real problems, and students, which is slightly different.

WH Yes, yes.

MAM Yes. These courses would be what? A week, two weeks?

WH Usually a week or two weeks, yes.

MAM A week, yes. And they were mainly at Thomas'?

WH Yes, yes.

MAM What about... Did you do any other postgraduate teaching, or not?

WH Not really, not really, I mean I've...

MAM How did you meet – because this happens to all great scientists – how did you meet the demand, because it is a demand, for conference attendance? I mean, you presumably must have turned down a lot of invitations one way or the other?

WH Yes. I mean I think the, I think the simple answer is that there were a variety of questions which were, that were entered in the equation. The first was were they going to pay your expenses – they're not in any order of importance – the second was was it a nice part of the world one had not been to, and could your wife come along with you? But far more importantly I think was, was the meeting was in direct relationship to the pieces of research that I was doing, or were the individuals that one would be talking to going to become involved in co-operative studies. Those, those were really the major criteria that I used.

MAM So you're looking, I mean that's, that's rather a good index for anyone, apart from, as you say, where were they... In fact, it's not all giving, it's also taking.

WH No, I mean I think it was very important that one, that I... I mean I think that right from the start I tried to go only to meetings where a) there were other individuals working in the same field from whom I could learn methods, but also whether there were other individuals with whom we could develop joint studies. And I think that we built up knowledge of each other that way.

MAM But you must have still turned down quite a lot?

WH Oh yes. Oh I think, in spite of what my family says, I think that I turned down three times as many invitations as I accepted.

MAM Just before we go onto the next bit, we might talk about the family, that someone who's had such a busy career as yourself must rely enormously on the wife, if you like, as the, because I think you have the three boys, to hold the family together. Because you must inevitably be doing teaching and travelling in the UK but also overseas. That's quite a...

WH Well, I don't think it would have been possible if I hadn't had a wife who was willing to look after the family.

MAM A good(?) woman was she?

WH In some... To, just to look after the family. I mean that's, there's no question about that.

MAM Because you really need someone with that sort of life?

WH Yes, yes.

MAM I mean, some of the studies alone you've described involve travelling, you just have to...

WH Yes, yes.

MAM In later years has she travelled with you more?

WH Very, very much. I mean, obviously there's been...

MAM She enjoys that, does she?

WH Yes, yes.

MAM Do you have, does she suggest that a nice part of the world may be the key to nominating it?

WH Oh, of course!

MAM So, that's a nice tribute to her anyway.

WH Yes, yes.

MAM Can we go on to talk about another aspect of being a leading figure, a leading international figure in the field, which is the sort of advisory role that you're bound to play? You must have been involved in a number of United Kingdom advisory committees, either to government or quasi-government like the Medical Research Council. But also you must have been involved, as any head of department, with your local university, and I suppose you also got caught up with the international advisory, presumably WHO [World Health Organisation] and things like this. Could you tell us a bit about, say your role first of all in the St Thomas' world? Because the whole of this period you were at St Thomas' so I assume you had a role on various committees. Now, a lot of them are just ones that one would have to do anyway, but are there any that are particularly significant?

WH I think that probably the most significant ones were the, in the late sixties, before the amalgamation of the three parts of the health service. We were able to create a joint community committee between the local authority, social services, local public health department, the hospital and the general practitioners to decide on policies between the hospital and community. That was the forerunner of the ultimate, the amalgamation of it and I chaired that. I then served on the DMT [District Management Team] as the sub-dean of the medical school.

MAM Just going back to the first one which strikes me as extremely important – to whom did you pass your advice? You've got the three parts of the service coming together unusually, because in a lot of areas they didn't speak to each other at all. Was your advice to the authorities concerned or was there a formal channel?

WH Obviously since the committee was a committee of the hospital, and of the medical school, the clout was really only within the hospital and medical school. Nonetheless we did report to the local authority, social services and the local public health department. I can't say that that had much of an effect. It did have an effect on local general practice – who were then also separate – but it had a major effect on the hospital, and on the policies of the hospital at that time.

MAM Towards the other agencies?

WH Towards the other agencies. There was no question about that.

MAM And in many ways surely in, in Lambeth, I mean, if you like the power base, the influence base, probably now but certainly at that time must have been really St Thomas' rather than the health authority or the local authority...

WH Yes, it was, yes.

MAM In the sense of leadership?

WH Yes, yes.

MAM Right sorry, I interrupted you.

WH That was, that was one. That led then on to naturally to what became known as the district management team on, which I served for three or four years, and then ultimately I went on to the health authority, West Lambeth Health Authority, eventually ending up as vice-chairman until the late eighties.

MAM Presumably that was, the hospital had a certain number of places on that committee anyway?

WH Yes, I was always the medical school...

MAM Right.

WH ...I was the medical school representative on that committee.

MAM Never a clinician?

WH I was never there as the clinician. I was always there as the medical school. There was always another clinician as well.

MAM Oh I see, yes.

WH There were always two of us. There was always a hospital clinician and a

medical school.

MAM I see, there is a distinction here between the NHS consultant and the...

WH Yes, yes.

MAM That must have been quite an important committee too?

WH Yes, it was, it was... Yes, I mean, I would not have said that the, certainly the health authority was a remarkably frustrating committee because of the politics both within and without, Labour *versus* Conservative, management *versus* doctors. It was a remarkably frustrating period of time.

MAM Well, in one sense you were frustrated because you were finding it very difficult to make progress. But I would imagine equally without that committee, life would have been even more difficult because there was no forum?

WH Yes, I think we, we prevented too much damage being done. That is as far as I would go.

MAM Do you think that situation of, you know, the two sides and the difficulties, because one has heard of that in, in other London areas... Is that true of, throughout England and Wales? Do you think there were always these difficulties?

WH Having served on another health authority, on a more modern health authority where there aren't these, shall we say these vested interests, I think that the, a different problem arises and that is a problem of sheer ignorance. I think that the current authorities are dominated by lay-managerial interests, and I think although they have certain strengths, they also have major weaknesses in not really appreciating what health services are about.

MAM These are non-execs?

WH These are non-execs, yes.

MAM It always was a risk wasn't it to produce, say we want industrial managers without really asking were they interested and knowledgeable about the health service...

WH Yes. I mean, they did contribute something. For example, one of them who was a top finance director said 'We're not interested in equality, we're interested in equity.' And by that he meant that we should give more services to the deprived parts of our district.

MAM ... Sorry, I was stunned in the sense that, I'd say the semantic difference is quite difficult!

WH Yes, but he made it, he made it quite clear. Equality does not mean equity. Equity means that you give to those in need.

MAM I see, yes. Well that actually is not the translation of the tripartite structure that the health service was set up with...

WH But, it's very, it was very interesting that a top finance director from a highly prestigious background made, was quite adamant that we should be doing more for the inner city.

MAM I think you should have given him a copy of the 1945 Act!³ Right, well, I mean what you are really saying is that health and committees are extremely difficult unless they are uni-disciplinary, and then they can be difficult as well, aren't you?

WH Yes, yes.

MAM I mean, we are trying, in a sort of democratic process, to mix oil and water and it doesn't work easily, shall we say it that way? Right, those were more of your local ones...

WH Yes, I suppose local ones... Also I was very much involved in the, in the coming together of Guy's and Thomas' and I chaired the committee which drew up the constitution which now governs the two institutions.

MAM That was a major ... task and achievement, was it?

WH Yes, it was quite interesting. As one member, one lay-member of our council of governors described it, 'One institution believed in freehold and the other institution believed in leasehold!' He was a property developer! It was not easy to marry these two different cultures.

MAM No, they, I mean they were two great institutions – great in the sense of achievement and reputation, and history. And it was never going, it was a shotgun marriage, which was the other thing, not a marriage of convenience at all, and it must have been extremely difficult to chair that.

WH It was, it was interesting.

MAM You earned your retirement! Well, I should think it was very difficult because there must have been tremendous deep feelings running.

WH Oh yes.

MAM I mean, there was a base saying 'We don't want to do this anyway', which is no way really to start. How big was that committee?

WH It was only about eight people.

MAM Four from...

WH Four from each, yes, and it was one lay governor.

³ Dr Michael Ashley Miller might mean the 1948 Health Service Act here.

MAM It must have been very difficult.

WH It, it was not easy.

MAM Has it worked in fact?

WH Oh yes, it's still, it's still...

MAM It's held tight?

WH Yes, I mean I think the junction of these two schools has worked. I think part of it was because we did not attempt to do radical changes fast. We made the changes gradually so that no individual really lost out. I mean I think that was very important. We started off by saying we would join, but it would be a gradual union.

MAM Yes. I think we've seen, have we not, the problems caused by an unrealistic timetable? If it's not, unrealistic, a timetable which doesn't give people time to, to adjust and look around...

WH I mean, only in the last year or two have we had a joint rugger club!

MAM Shame on you! Well, that's...

WH But I mean, you know...

MAM ...welded together.

WH What I meant by that was as an example of the depth of institutional feelings that we had to get around.

MAM Well, the fact that you've even got it is, must be an achievement.

WH Yes.

MAM Can we move on to, to national committees because you must have been in much demand. After all, you owned, I say owned, but ran a very big Department of Health unit so that they would look to you probably more than anyone else and automatically ask you to join certain committees?

WH Yes, I suppose the, two or three interesting, two or three I suppose... I suppose probably the most important influential committee was the Resource Allocation Working Party in the mid-seventies, on the decisions as to how to distribute resources between different parts of the country. That was a very interesting committee, where I learnt an awful lot. It, it showed me where power lay and where the obstructions lay. I mean, I don't think many people appreciate that the individuals who least wanted a redistribution of resource by formula were the three individuals responsible for the finance of the Department of Health and who'd been sitting in that office since 1948, because it took away all their power since the allocation would be made by formula rather than by pleading to them. That was the

fiercest resistance, much, much fiercer than any resistance from any of the interest groups such as London teaching hospitals or anybody like that. So that was an interesting...

MAM (?)

WH That was interesting. I think the, another one that was interesting was the...

MAM Can we just stay with RAWP [Resource Allocation Working Party] for a minute because RAWP did cause great concern. The formula was not done on morbidity burden, it was essentially mortality, and there was, I think it's fair to say, no way around [that], and yet there was criticisms that the formula was a reasonable one in the circumstances. But the criticism I heard was that it didn't say we must work very hard at producing a better formula, say in four years time.

WH The unfortunate thing about that was that people didn't read the research evidence, or didn't look at it. The...

MAM You're looking at me!

WH No, no, no! It was, it was a very real criticism particularly that it didn't reflect morbidity, and they pointed out the differences in varicose veins or hernia and so on. However, that was an unfair criticism because there is almost no variation by geography on the frequency of need for varicose vein or hernia or operations such as that. And actually the mortality rates mimicked the morbidity information that we had available. I think it was very unlikely that we would ever be able to afford a proper method of measurement of morbidity, nationally, that was capable of being used for a redistribution formula, largely because the sample would be, have to be far too large. For example, the general household survey, which costs an awful lot of money and interviews around ten to twenty thousand people, is far too small for making decisions on a regional basis. Furthermore, mortality is robust and does not change wide, within wide bounds from year to year. Any resource allocation formula has to be robust. It cannot change by large amounts from year to year as it would cause far too great uncertainty. We deliberately avoided the use of any of the social indicators such as deprivation, housing and what have you, quite deliberately. Because these have been used by, these are used by every government for the rate support grant, and the way that they are manipulated depends upon which party is in power. If the Conservatives are in power, it favours the country areas, if the Labour, if Labour is in power, it favours the inner cities. We were given evidence of this and we even had the wife of a cabinet minister who agreed to this particular statement. That is why we refused to use them and used only mortality. Finally, and most importantly, we avoided the use of social indicators because governments would use the allocation to health as an excuse for correcting social inequalities. And that's, spending money on health is far, far cheaper than spending money on housing, on employment and social security. And we did not wish governments in the future to use the allocation, health allocation formula as a way to say 'We're doing something about social inequalities.' And, and one of the disappointing things is that subsequent administrations have not followed this up, but now use a deprivation index and now even say that we can help to reduce social inequalities through health services.

MAM So, your anticipated concerns are now coming home?

WH Yes.

MAM Well, well I can see this is a very convenient, cheaper surrogate formula for social deprivation.

WH We did then, I mean we did do quite a lot of research on trying to develop better indices. We actually did not find any better indices. There were, there were ways you could improve it at the margins by different age groups, by weighting different things slightly differently and so on. Yes. But I don't accept, I've never accepted the criticism that we used mortality rather than morbidity because I could not see how we could ever use the morbidity in this.

MAM No, I think you've made a reasonable case against that. Idealistically, one, one should do that.

WH Oh yes, obviously, yes, yes.

MAM Right, RAWP obviously was tremendously important, and had a terrific impact?

WH Yes, it was, it was an extremely uncomfortable committee, but it was a very, very, very good committee and the people...

MAM Did you have any other epidemiological allies or work colleagues on that committee or were you rather a bit on your own?

WH I was, I was the only one on the main committee, but I also had my nominees on each of the sub-committees. So my deputy, Ted Bennett, was on one, a man called Alan Snaith, whom I'd worked with closely before was on another, and I can't remember who the third one was but we did have...

MAM You weren't out there on your own, I assume?

WH No.

MAM Right, well I mean, one couldn't ask for a more influential group. Have you other advisory committees of similar stature?

WH Well, there were two where I think I was less successful in getting epidemiological ideas accepted. One was on laboratory automation and screening, where ... the, which was concerned with the introduction of laboratory computers and things like that. That was, there were two of us on that committee who always lost out - Tom Whitehead, very eminent, from Birmingham, very eminent chemical pathologist, and I. Invariably the committee took a different, took a different route and particularly the Department of Health took a different, a different route. And invariably we were found to be correct about which computers we should have used and which machines we should have used! But that was quite amusing.

MAM This was a committee to advise on laboratory automation which, of course, was linked to the development of computing equipment?

WH To, to screening, yes.

MAM I'm very surprised that Professor Whitehead's advice wasn't taken because he had been in, if I understand it right, the cutting edge of laboratory automation for many years.

WH I think the problem was that we felt that the machines and particularly computers produced by companies outside the United Kingdom were far more cost-efficient than machines produced within this country.

MAM You need say no more! Yes, yes. I used to sit on the computer board. You and I know what we are talking about. Yes, particularly laboratory computing, the States were miles ahead.

WH Miles ahead.

MAM But again, that's government policy, and in, yes in some ways it does pull an industry up. But I can see why you, you didn't get too far!

WH We didn't get very far!

MAM Right, that was...

WH The other one was the Körner Committee, which was concerned with the alteration of, of hospital, medical records and hospital records. And again that was not a particularly successful committee, even though it did introduce some changes in hospital records, or health service records. I think the major disappointment was that, in spite of incessant demands, those concerned with finance were separated from those concerned with activity, so that the finance officers made their decisions, their recommendations about the finance system quite independently of those who were concerned with measurements of outcome or of health service activity.

MAM You mean the recommendations came up to the main committee, but there were no, sort of, preliminary discussions between the two? And was the main committee unable to meld those?

WH The finance committee was completely, adamantly opposed to any method of linking the individual activity records to finance information, so that we are still left with finance information that is concerned essentially with services rather than ... with accounting for services rather than accounting for activities performed on individuals.

MAM I mean, Körner obviously was a very, very important committee. I think it's been criticised that in fact it didn't deliver as it should have. I don't know whether you'd agree with that?

WH Absolutely.

MAM And the, most people, the opinions I've heard, say that it was a great pity that they tried to meld clinical medical with management information, that the time was not ripe to do that and they should have stuck, probably in the beginning, to management. Would you agree with that?

WH Yes, completely, because in fact the medical information was dominated by process so it completely avoided any mention of outcome. And that is why it actually failed. The reason that management information and medical information was joined together was because people couldn't see how they were different since both of them were concerned with just process, were trying to find, which was wrong.

MAM Did you develop, afterwards, more work on outcome, or...

WH Yes, I mean that, that...

MAM I mean you've, you've been more interested as time has gone on?

WH Yes, I mean we did actually do quite a lot of work on outcome, and certainly the avoidable mortality and the performance indicators showed that.

MAM Were they – remind me of dates – were they post-Körner?

WH They were simultaneous. It was round about the same time.

MAM So, you even then, you were beginning to get very concerned with this?

WH Yes, yes.

MAM Right, well you seem to have hit some blockbuster committees. Any others?

WH Well, I suppose its things like the Air and Soil Committee, which was concerned with things like lead in the environment.

MAM Was that the M6 petrol lead scare?

WH Yes, yes, where we had to be concerned with the evidence of the harmful effect of lead as the, in petrol and what have you. And we showed that the evidence of the, we showed that much of the evidence that was being propagated by the various groups as to the harm done to children from lead was not very sound. Studies now that were commissioned at the time have shown that there is some, but it is trivial compared to the effect of, for example, deprivation. However, what was far more important was that the lead burden to individuals from petrol was trivial compared to the lead burden from food, and soil ... and water. And, I mean, one of the things that, for example in the west of Scotland the lead burden from the lead pipes in the very soft water areas was very great. And in, I think it was in Greenock, in fact, pregnant mothers had to be advised not to use the tap water in their houses because we discovered that it was so high. But nonetheless, politically, it was petrol that was important.

MAM And still is.

WH Absolutely, yes.

MAM I mean, the companies have spent a great deal of time persuading us that buying 'green' petrol is a good thing.

WH Yes.

MAM That's never really been publicised, this. Okay, it's an element, but compared with the lead burden from other causes, is a very small one.

WH I'm afraid that is absolutely correct. But...

MAM It's really one of the mysteries, isn't it, that some things are pushed by government and others not?

WH Well, I think that governments tend... Yes, remember that the removal of lead from petrol was, for governments, a relatively small cost. It was a cost to the industry, but it was not a cost to the public purse, whereas removal of lead pipes from the houses in the west of Scotland ... is many, many billions of pounds. The one thing that we did do which was effective, [was] that we stopped one area, one area in southern England from having a municipal soft water plant to change their hard water to soft water, because we reckoned that that was far more dangerous than what they had.

MAM Really? That was actually a proposed, despite...?

WH Oh yes, one particular borough in Surrey wished to introduce...

MAM Soft water?

WH ...soft water, and we were able to prevent that.

MAM Extraordinary. Any other nice juicy committees, if I can put it that way?

WH ... You mean national ones?

MAM Yes.

WH I suppose, I suppose those were the most, most interesting ones.

MAM Did you have anything to do with COMA [Committee on Medical Aspects of Food Policy], the food committee?

WH I was only on the panel that was concerned with school, school health and surveillance. No, I was not on any of the main... Oh, I suppose if you mean now the wider health, the health of the nation working party, yes. I mean, in that...

MAM You, you were an adviser to the health of the nation working party, before

publication and after? Or...

WH Yes, yes, I have been on it right since the start. I... Yes, I mean yes we did warn the Secretary of State that if cigarette advertising was not banned, then her policy was not likely to be as credible as if it was. And that was a unanimous decision of the whole committee, lay as well as medical, and when the paper was published, we objected very strongly.⁴

MAM Well, it, it is an extraordinary anomaly, isn't it, that Health of the Nation, which is a brave attempt and a sensible attempt to, to bring public health targets in, misses out what I think we could all agree is the, or if not one of the top three, risk factors? It really does put the whole thing in disrepute. But, you're still concerned with the committee following up health of the nation?

WH Yes, I'm still on it.

MAM Does that meet very often, or...

WH It meets between two and three times a year.

MAM And you are reviewing...

WH We are reviewing how the...

MAM ...progress and...

WH Yes, yes.

MAM Right, yes. And does the secretary of state still, still take an interest, or...

WH The secretary of state chaired it until the present secretary of state. Now, now it's chaired by Lady Cumberlege,⁵ but the secretary of state has been along to meetings and apparently still takes an interest.

MAM Oh good. Now, I do remember ... you sat, or were an adviser, to a Lords' select committee. Is that right?

WH Ah, yes, yes, that's true.

MAM I didn't want to leave that one out.

WH I'm sorry. Well, that was, yes that was a very fine, that was a very interesting committee. This was, this was on priorities for medical research and the, as an adviser to that committee, one never opens one's mouth in public.

MAM You presumably do a lot of advising...

WH Yes.

⁴ *The health of the nation: a strategy for health in England*, London, HMSO, 1992.

⁵ Baroness Cumberlege.

MAM ...of a formal nature(?).

WH Yes, you have to, you have to brief the members what questions to ask and you can pass them notes as to what questions to ask in relationship to the answers, but you don't open your mouth. Certainly, that was a very interesting committee and it certainly had a very, a very important outcome. I think that the Lords were ... appalled, and I think that I'm choosing my words very carefully, appalled by the state of dissatisfaction in the scientific community with the methods of support, funding, and application and dissemination of scientific findings, particularly in the applied sector. They thought that the MRC was good, they had no problems with that, but they thought that the NHS and the Department of Health was not very good. In fact, the wording that the advisers and the clerks had drafted was altered by the Lords in a final stage to be made far more explosive than it had been, would have been if it had, if the advisers' words had been used. And that was to say that the methods and amounts spent on health services research and operational research was quite inadequate. The Lords did suggest the creation of an authority which would, which would administer the funds for health services research, and they made the suggestion that at least one percent of the expenditure on service should be spent on operational and health services research, because they reckoned that that was the least that any good industry has spent. Unfortunately, the Department of Health did not quite apply what was said. They did create an R&D directorate – they did create a director of research and development. The Lords certainly intervened making certain that that individual had permanent secretary rank and was not only of a second-rate rank, and was independent within the department and sat at the top table. The Lords committee had recommended a separate authority, but that's not what the department agreed to. I think my disappointment has been in the way that the health department has really ... funded the research. They first of all started off by collecting all the information about how much research cost, and obviously they were very rapidly able to show that they were already spending 1.5% of their budget on research. I think that they did not quite agree with what, how we'd accounted what needed to be spent.

MAM Nonetheless, that committee had an extraordinary influence in, I think, taking forward health service research. Now, we've only a few minutes left. I know there must have been WHO [World Health Organisation] advisory committees and various things like that. I wanted a very quick word with you because you've had a number of honours, one of which is president of the International Epidemiological Association, which in many ways is a very nice international recognition. You've also been president of the Faculty of Community Medicine.⁶ But, apart from those honours... And in many ways they are honours – you not only have to serve a long stint before you get elected, they are very hard work – in some ways all one can say is they are a recognition. I suspect you would say that you would see it as a duty to, to the subject to have accepted those, but I know also that you've won one or two prizes of an international rank, and you have been honoured by the country as well. Could you look back and tell us what has been the greatest honour you've received, or is that very difficult?

WH I think that's very, I think that's very difficult. I think ... if I were to pick the

⁶ Faculty of Community Medicine, now Faculty of Public Health, at the Royal College of Physicians.

individual, I think there are three or four. I think the presidencies are irrelevant. I think that the first was being elected to the Society of Scholars at Johns Hopkins University as one of its first members. Hopkins decided in the, in 1970 to create a society of individuals who'd worked at Hopkins who they reckoned had, were making a contribution to the development of knowledge. I was the first English person to be so elected and also the, one of the first doctors, and that I think pleased me greatly.

MAM That's a marvellous honour.

WH That was nice. I think that the, I think I was obviously extremely pleased to be, to be awarded a prize called Europe et Médecine.

MAM I hate to say, but I've never heard of it!

WH It was, it's a prize awarded by the Institute des Sciences de la Santé in Paris and it is supposed to recognise, it has an international jury and it is supposed to recognise contributions to the development of one science within Europe, and one person is elected every year.

MAM So, you get only one for one discipline? So, I mean you were, there is a range of...

WH Yes. And again I got that in 1994, I think it was. And that was very nice. I think part, I think those were the two, the two that really pleased me most. I suppose the other one was my own institution has now made me a fellow, which is apparently quite, which very few people get.

MAM That's St Thomas'?

WH That's UMDS [United Medical and Dental Schools].

MAM Oh, sorry.

WH Yes, and...

MAM This is not necessarily annual or anything, is it?

WH No, no.

MAM And that was just recently?

WH I will be inducted in October, I suppose. That, I mean those three, I suppose, and I suppose getting a CBE and things like that, but I mean, they come, I think they come with the rations.

MAM Not necessarily, but the... The footballers always say there are, there are two awards to footballers in this country; one is the Sports Writers' Footballer of the Year and the other is the Players' Player of the Year. And the one that the footballers like is the Players' [Player] of the Year, because their, their peers if you like, and it seems to me that you've received honours from the players as much as from the writers, if

you like. I think, firstly, thank you very much for this interview. I have to congratulate you on an extraordinary career, and I have to congratulate your wife for putting up with you throughout this career! But I think looking back you must be very proud of your achievements, and I know that there are still one or two irons in the fire and let's hope that they are successful. This has been a truly remarkable career and thank you very much indeed.

WH Thank you.