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Staffing and facilities in cardiology in England and Wales July 1982

Second biennial survey

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The first survey on career prospects in cardiology in England and Wales was started in 1979 and published in 1981.[1] The purpose was twofold: to obtain accurate information on the appropriate ratio between the number of consultant posts and senior registrars in training and to identify districts which might be poorly endowed with expertise and facilities in the specialty. In both respects the survey identified serious deficiencies. Recognition of the problems has already influenced attitudes both within the profession and among those responsible for its administration.

A decision was made by the cardiology committee of the Royal College of Physicians and by the council of the British Cardiac Society that the situation should be monitored biennially at least until adequate provision for cardiology becomes more generally available. A second survey has therefore been conducted of both staffing and facilities available in the health districts of England and Wales relating to 1 July 1982. We report a summary of our findings together with additional information made available to us by colleagues in Scotland and Northern Ireland.

Methods of inquiry

A cardiologist in each health region of England and Wales was sent a list of districts in his locality and asked to suggest a physician in each who might be willing to complete a questionnaire. Some districts are large with hospitals which operate autonomously; in such cases two contacts were approached.

The questionnaire was substantial and comprised 19 sections relating to consultant staff, senior registrars, technical staff, referral patterns, facilities, and equipment. Cardiovascular physicians (cardiologists) were defined as physicians who have both a special interest and an appropriate training in the specialty, though these criteria were not specified further. We made a distinction between those who spend virtually all of their professional time in cardiology and those with a major commitment to the specialty (occupying more than 40% of their time) but with additional responsibilities in general medicine.

As in our previous survey, about half our questionnaires were returned promptly. When necessary, second and third reminders were sent and finally telephone contact was made until all information had been received for each health district. The level of cooperation was generally excellent.

The complete data were stored in a main frame computer (Vax III) to facilitate analysis and subsequent comparisons. They were then assembled for each region and submitted under confidential cover to our original regional advisors for scrutiny as a guard against inadvertent errors. Disagreements between regional advisors and our district contacts were resolved by further inquiries. We believe that the data we have collected are as complete and as accurate as can reasonably be expected without the availability of first hand local knowledge.

Similar surveys were conducted at about the same time by colleagues both in Scotland and Northern Ireland. Some of the data they have made available to us are presented as an appendix so that a comprehensive picture is available on consultant staffing for the whole of the United Kingdom. Additional information on senior registrars was requested by the chairman of the specialty subcommittee for higher medical training. We therefore sent a supplementary questionnaire to senior registrars identified as being in post in July 1982 and to those appointed between that date and 18 April 1983, but these data are not complete and are not included in this report.

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A summary of the data collected is presented in Tables 1 to 8 and in Appendices I and II. In addition, analyses which have been compiled under individual health districts can be made available to those with a legitimate interest in the provision of cardiological services. Some information, notably individual names of consultants and senior registrars with associated retirement or contract expiry dates, is regarded as confidential and will not be divulged except as composite data in tables.

Comment

This present survey is more comprehensive than the first[1] in that details are provided not only of medical staff at consultant and senior registrar level but also of technicians and facilities available in all the regions of England and Wales. The format of tables has also been changed; while this makes direct comparison more difficult, they now provide more information and will form a useful basis for identifying trends from subsequent surveys.

We consider the use of an index date (July 1982) to be essential. Much confusion arose when forms were sent for checking because new information was added. While our data are not strictly current they do represent the situation in July 1982 with, we believe, the best accuracy which can be achieved in a survey of this type.

Table 1 shows the total numbers of cardiovascular physicians in each region. The identification of physicians spending virtually all of their time in cardiology was—as before—readily achieved. It is more difficult to identify physicians with a major interest in the specialty because an arbitrary division has to be made. The questionnaire asked for the names of physicians within each health district "who have special experience and a major interest in cardiology which occupies more than 40% of their time." We do not believe that this was interpreted differently from the corresponding question in our 1980 survey. Broadly, therefore, differences are real rather than methodological. The number of consultant posts has increased overall by 27 in England and Wales (223 to 250). We have identified seven additional posts in full time adult or paediatric cardiology and 20 more posts for cardiovascular physicians with a major interest. We are aware of four districts in which cardiovascular physicians with a major interest have been replaced by physicians with other skills; but, overall, the creation of new posts and the changed designation of new appointments into existing posts have produced a favourable balance for cardiology. When Scotland and Northern Ireland are included, the total number of posts for cardiovascular physicians (as defined in the survey) was 308.

Table 2 shows the anticipated dates of retirements. In the 1980 survey we assumed that retirement would occur at the age of 65, but on this occasion we took into account any expressed intention to retire early.

Table 1 *Number of cardiovascular physicians in post (1 July 1982) for each health region in England and Wales*

Region and population	*No of health districts*	*Major centres*	*Physicians Full time cardiology*			*Physicians Major interest*			*No of physicians engaged in cardiology*
			Adult	*Paediatric*	*Both*	*Adult*	*Paediatric*	*Both*	
East Anglia 1 863 100	8	1	0	0	3	6	0	0	9
Mersey 2 458 000	10	1	4	2	0	2	1	0	9
Northern 3 078 000	16	1	7	2	0	8	0	0	17
North East Thames 3 772 000	16	3	7	0	4	9	0	1	21
North West Thames 3 460 000	15	4	9	2	3	7	1	1	23
North Western 4 063 000	19	3	5	1	3	14	0	0	23
Oxford 2 340 000	8	1	3	0	0	5	1	0	9
South East Thames 3 544 000	15	4	11	2	0	7	0	1	21
South West Thames 2 879 000	13	1	3	0	2	4	0	0	8
South Western 3 029 000	11	1	2	1	1	10	0	0	14
Trent 4 517 000	12	2	0	0	5	9	1	1	16
Wessex 2 744 000	10	1	2	1	0	6	0	0	9
West Midlands 5 161 000	22	3	7	1	4	10	0	1	23
Yorkshire 3 577 000	17	3	7	2	1	9	0	0	19
Wales 2 808 200	9	1	3	0	1	6	0	0	10
National Heart and Chest and Great Ormond Street Hospitals* 0	5	4	12	4	2	0	0	0	18
Total	206	34	82	18	29	112	4	5	250

*The National Heart and Chest Hospitals and Great Ormond Street do not comprise a region with districts. They are administered separately as independent special health authorities.

Table 2 *Number of retirements expected each year for cardiovascular physicians in post at 1 July 1982*

Year	*Full time cardiology*				*Major interest cardiology*				*Grand total*
	A	*P*	*B*	*Total*	*A*	*P*	*B*	*Total*	
1983	1	0	0	1	2	0	0	2	3
1984	1	1	3	5	3	0	0	3	8
1985	3	1	0	4	1	0	0	1	5
1986	6	1	1	8	2	0	1	3	11
1987	2	0	1	3	3	0	0	3	6
1988	3	1	2	6	3	0	0	3	9
1989	1	1	3	5	1	0	0	1	6
1990	2	0	1	3	2	0	0	2	5
1991	2	0	0	2	1	0	0	1	3
1992	1	0	1	2	4	0	0	4	6
1993	2	0	0	2	2	0	0	2	4
1994	1	0	0	1	4	0	0	4	5
1995	3	1	1	5	1	1	0	2	7
1996	1	0	2	3	3	0	0	3	6
1997	2	0	1	3	3	0	0	3	6
1998	4	0	2	6	5	0	0	5	11
1999	1	1	1	3	9	0	0	9	12
2000	4	1	1	6	4	0	1	5	11
2001	4	1	0	5	5	0	0	5	10
2002	3	0	2	5	8	1	0	9	14
2003	3	1	0	4	4	0	1	5	9
2004	4	2	0	6	4	0	0	4	10
2005	5	3	0	8	4	0	0	4	12
2006	1	0	1	2	1	0	0	1	3
2007	2	0	1	3	6	0	0	6	9
2008	4	1	1	6	6	0	2	8	14
2009	2	0	2	4	3	1	0	4	8
2010	4	1	0	5	7	1	0	8	13
2011	2	1	0	3	0	0	0	0	3
2012	4	0	2	6	5	0	0	5	11
2013	4	0	0	4	0	0	0	0	4
2014	0	0	0	0	1	0	0	1	1
2015	0	0	0	0	3	0	0	3	3
Total	82	18	29	129	110	4	5	119	248*

A, adult cardiology; P, paediatric cardiology; B, undertaking both adult and paediatric cardiology.
*The grand total of 248 physicians shown in the last column does not include two who retired between the index date of the survey and the end of 1982.

Neither method is accurate because the future cannot be known with certainty and intentions do change, but we believe the present method is probably a more useful estimate, at least as it applies to the next two or three years. The change in method accounts for small discrepancies compared with the 1981 publication but the pattern is very similar. The prospects for 1984 to 1987 are somewhat better for senior registrars, especially if posts new for the specialty become available at a rate similar to that since the original survey.

Table 3 shows the number of health districts without a cardiovascular physician. In this analysis, Wales created a minor anomaly in that it has twice as many major district general hospitals as health districts. The data are more comparable with those of England if the hospitals rather than districts are counted for the principality. A total of 63 "districts" serving a population of nearly 12 million evidently have no consultants meeting the definition of cardiovascular physicians made in this survey. We know from further inquiries that a few are well covered by visits from major centres; a few others have physicians well trained in the specialty but with commitments which preclude their spending 40% of their time in cardiology. But other health districts may well have inadequate provision for patients with heart disease which calls for specialist evaluation or treatment.

The number of senior registrars or equivalents (Table 4) available for consultant posts within the four years from our index date has decreased from 71 in the previous survey to 63 in this one. The distribution of these throughout the regions is shown in Table 5. In 1980, eight of the senior registrars were working in paediatric cardiology compared with seven in 1982. We know of one academic appointment which has been left vacant for economic reasons when the incumbent emigrated, but the major part of the fall must be due to the change in the number who are "time expired" or to a reduction in the number of posts funded from non-NHS or university sources with honorary senior registrar status. The ratio of consultants in post to senior registrars and equivalents (4:1) is now more favourable for those in training.

Table 3 *Number of health districts and populations without cardiovascular physicians working full time in specialty or with a major interest as defined for the survey*

Region and population	*No of health districts in region*	*No of health districts without cardiovascular physicians*	*Total health district population not served by cardiovascular physicians*
East Anglia 1 863 100	8	3	708 100
Mersey 2 458 000	10	7	1 645 000
Northern 3 078 000	16	7	1 198 000
North East Thames 3 772 000	16	0	—
North West Thames 3 460 000	15	3	697 000
North Western 4 063 000	19	4	738 000
Oxford 2 340 000	8	2	390 000
South East Thames 3 544 000	15	3	758 000
South West Thames 2 879 000	13	5	1 066 000
South Western 3 029 000	11	1	204 000
Trent 4 517 000	12	3	603 000
Wessex 2 744 000	10	3	637 000
West Midlands 5 161 000	22	6	882 000
Yorkshire 3 577 000	17	5	799 000
Wales 2 808 200	9 (18)	3 (11)	1 399 500
National Heart and Chest and Great Ormond Street Hospitals* 0	5	0	—
Total	206 (215)	55 (63)	11 704 500

1 Wales has nine health districts and 18 district general hospitals, the figures in brackets refer to the district general hospitals.
2 Some health districts without cardiovascular physicians do have frequent visits from nearby cardiac centres.
*The National Heart and Chest Hospitals and Great Ormond Street do not comprise a region with districts. They are administered separately as independent special health authorities.

The data shown in Table 6 may give rise to some anxiety, but this information makes no allowance for appointments new to cardiology. It is reasonable to expect that some at least of the many health districts without cardiological expertise immediately available will seek to correct this deficiency. Moreover, some expansion in the consultant grade has occurred since these data were collected so that the excess of senior registrars may already have been reduced.

Technical support is very uneven through the regions (Table 7). East Anglia, Oxford, South East Thames, South West Thames, South Western, Wessex, and West Midlands regions are in the lower half of the ranking order, with Oxford and Wessex having the worst provision with only 0·55 technicians per 100 000 population. Since physiological measurement technicians may be less willing than medical staff to move from one region to another, it must be a matter for concern that the most poorly endowed regions also tend to have least student technicians. The apparently large discrepancies in the numbers of cardiographers must be due in part to local variation in the extent to which physiological measurement technicians are expected to take electrocardiograms as part of their duties.

Few surprises emerged from the review of facilities by region shown in Table 8. Major haemodynamic investigations were restricted, with a few exceptions, to centres with cardiac surgery—a policy supported by the joint report from the colleges of physicians and surgeons.[2] Four regions (including Wales) had only one centre undertaking permanent pacemaker

Table 4 *Senior registrars: contract expiry dates, type of appointment, and career intentions*

Year	*Number*	*Type of appointment*			*Career intentions*				
		NHS	*Academic*	*Other*	*WT*	*MI*	*GM*	*CA*	*UD*
1982	8	5	1	2	4	2	—	1	1
1983	15	10	3	2	11	3	—	1	—
1984	15	10	5	—	14	1	—	—	—
1985	9	6	3	—	6	—	1	1	1
1986	6	5	1	1	6	—	—	—	—
No expiry date	10	—	7	3	4	1	2	1	2
Total	63†	36	20	8*	45	7	3	4	4

WT, whole time cardiology; MI, major interest cardiology; GM, general medicine (no special interest in cardiology); CA, career abroad; UD, undecided.
*One senior registrar, whose contract expires in 1986, has both an "academic" and "other" appointment.
†Seven of the 63 senior registrars have already had their contracts renewed; two of these are now listed as having no contract expiry dates. Both of these have academic appointments.

Table 5 *Number of full time cardiovascular physicians and senior registrars in post in each region at 1 July 1982*

Region	*No of health districts*	*Full time physicians in cardiology*	*Senior registrars*
East Anglia	8	3	2
Mersey	10	6	2
Northern	16	9	3
North East Thames	16	11	9
North West Thames	15	14	11
North Western	19	9	2
Oxford	8	3	3
South East Thames	15	13	4
South West Thames	13	5	1
South Western	11	4	3
Trent	12	5	3
Wessex	10	3	0
West Midlands	22	12	5
Yorkshire	17	10	6
Wales*	18	4	2
National Heart and Chest Hospitals and Great Ormond Street Hospital	5	18	7
Totals	215	129	63

*Figure recorded for Wales=18 district general hospitals.

Table 6 *Comparison between senior registrars' contract expiry dates and cardiovascular physicians' retirement dates*

Year	*No of contracts expiring*	*No of anticipated retirements*	*Balance*
1983	15	3	−12
1984	15	8	− 7
1985	9	5	− 4
1986	6	11	+ 5
No expiry date	10	—	−10
Total	55	27	−28

The above figures take no account of posts new to the specialty that may be created over the next four years or of nine senior registrars who have obtained consultant posts since the survey. Of these, two had contracts that were due to expire in 1983, one in 1984, one in 1986, and two had no contract expiry dates. The remaining three had contracts that expired in 1982.

implantation. Inevitably this implies that many old and frail patients have to travel considerable distances either with temporary wires in situ or with the continuing risk of Adams-Stokes attacks. Of much greater concern, 42 health districts do not have facilities for temporary pacing (counting each major district hospital in Wales as a district for the reasons given above). This seems inappropriate since some forms of heart block constitute a grave emergency with a rewarding success rate only if facilities for treatment are immediately available. We also consider it disturbing that seven *major* centres were without a cross sectional echocardiograph in July 1982.

Facilities for stress testing were available in 185 of 215 districts, but 46 of these have only a bicycle

Table 7 *Technical support in health regions in England and Wales*

Region and population	*Physiological measurement technicians*				*Cardiographers*
	Qualified	*Students*	*Total*	*per 100 000*	
East Anglia 1 863 100	16·5	3·0	19·5	1·05	23·0
Mersey 2 458 000	48·2	12·0	60·2	2·45	3·2
Northern 3 078 000	34·5	9·5	44·0	1·43	39·5
North East Thames 3 772 000	44·8	14·0	58·8	1·56	35·8
North West Thames 3 460 000	32·5	15·5	48·0	1·39	41·8
North Western 4 063 000	85·0	28·0	113·0	2·78	32·5
Oxford 2 340 000	12·8	0·0	12·8	0·55	23·2
South East Thames 3 544 000	34·1	8·0	42·1	1·19	47·9
South West Thames 2 879 000	25·5	8·0	33·5	1·16	24·6
South Western 3 029 000	26·3	6·0	32·3	1·07	30·7
Trent 4 517 000	62·6	14·5	77·1	1·71	25·0
Wessex 2 744 000	12·0	3·0	15·0	0·55	24·0
West Midlands 5 161 000	50·7	10·0	60·7	1·18	43·4
Yorkshire 3 577 000	54·1	18·3	72·4	2·02	27·0
Wales 2 808 200	50·1	21·5	71·6	2·55	45·2
National Heart and Chest and Great Ormond Street Hospitals 0	38·6	8·0	46·6	0·00	2·0
Total	628·3	179·3	807·6	—	468·8

Table 8 *Summary of facilities in regions in England and Wales at 1 July 1982*

Region and population	No of health districts	Cardiac surgery	Haemodynamic investigation		Permanent pacing	Temporary pacing	Scans	
			Major	Minor			M mode	Cross sectio
East Anglia 1 863 100	8	1	2	4	2	8	8	3
Mersey 2 458 000	10	1	1	2	1	9	3	0
Northern 3 078 000	16	1	1	4	1	14	12	4
North East Thames 3 772 000	16	3	4	9	4	15	14	7
North West Thames 3 460 000	15	4	5	11	6	15	10	6
North Western 4 063 000	19	3	3	10	4	17	13	7
Oxford 2 340 000	8	1	1	4	1	6	6	2
South East Thames 3 544 000	15	4	3	8	5	14	10	4
South West Thames 2 879 000	13	1	2	5	3	13	7	2
South Western 3 029 000	11	1	1	5	5	10	9	4
Trent 4 517 000	12	2	3	5	2	11	9	4
Wessex 2 744 000	10	1	1	1	2	10	6	3
West Midlands 5 161 000	22	3	8	13	8	21	13	4
Yorkshire 3 577 000	17	3	3	4	5	15	10	4
Wales 2 808 200	18	1	1	3	1	16	9	1
National Heart and Chest and Great Ormond Street Hospitals 0	5	4	4	4	4	4	4	4
Total	215	34	43	92	54	198	143	59

The figure that appears for Wales records district general hospitals; there are nine health districts.
*Monitored beds with a central console and immediate access to an image intensifier on the same floor.
†Without immediate access to an image intensifier.

ergometer (usually, we believe, without any means of setting a work load in a reproducible fashion). Excluding the postgraduate institutions in London, 76 districts had no cardiac care units—using the strict definition[3] of monitored beds with immediate access to image intensification facilities. Most of these, however, did have monitored beds without an image intensifier. Coronary or resuscitation ambulances are available in only 21 districts.

The previous report drew attention to the relative underprovision for cardiology in England and Wales: most EEC countries at that time had two to 10 times more cardiologists, in relation to population figures, than we had. A little progress has been made since then though not enough materially to influence this ratio. The expertise of fully trained senior registrars

Appendix I *Number of cardiovascular physicians in health boards of Scotland*

Health board	Physicians Full time cardiology			Physicians Major interest			No of physicians engaged in cardiology
	Adult	Paediatric	Both	Adult	Paediatric	Both	
Argyll and Clyde	—	—	—	—	—	—	—
Ayrshire and Arran	—	—	—	2	—	—	2
Borders	—	—	—	—	—	—	—
Dumfries and Galloway	—	—	—	2	—	—	2
Fife	—	—	—	1	—	—	1
Forth Valley	—	—	—	—	—	—	—
Grampian	1	—	—	1	—	1	3
Greater Glasgow	9	—	—	9	2	—	20
Highland	—	—	—	—	—	1	1
Lanarkshire	—	—	—	2	—	—	2
Lothian	4	1	—	1	—	—	6
Orkney	—	—	—	—	—	—	—
Shetland	—	—	—	—	—	—	—
Tayside	—	—	1	2	—	—	3
Western Isles	—	—	—	—	—	—	—
Total	14	1	1	20	2	2	40

ntigraphy	*Invasive electrophysiology*	*Ambulatory monitoring*		*Stress test (treadmill or bicycle)*	*Cardiac care unit**	*Monitored beds†*	*Coronary ambulance*
		Recording facilities only	*Recording facilities and analysis*				
	0	7	3	7	5	3	0
	1	6	1	7	5	4	1
	2	15	6	14	12	3	1
	4	15	12	16	11	5	1
	5	14	11	11	13	3	0
	4	16	15	16	17	3	2
	1	7	6	7	3	4	1
	4	13	11	15	13	5	2
	2	11	8	13	10	3	4
	3	11	8	10	10	1	3
	3	10	9	11	14	2	1
	1	10	5	10	8	4	2
	5	22	13	17	20	3	2
	2	14	11	14	10	6	1
	1	13	10	12	9	8	0
	4	4	4	4	2	2	0
	42	188	133	185	162	59	21

who have not found consultant appointments represents an asset which is being wasted while many districts have pressing need for their service.

Conclusion

Large numbers of people in Britain do not readily have access to the many new techniques for investigation and up to date treatment which can improve the quality and increase the duration of life. We do not believe that the uneven provision for heart disease can be justified; we hope that the data provided in this report will not only be of interest to physicians within the specialty but will also assist those with responsibility of planning resources for health care.

We thank Dr Martin Daniels for the time and effort he has devoted to writing very complex computer programs to enable us to complete this survey and monitor future trends. We also thank Dr David Ballantyne and Dr Dennis Boyle for providing us with data relating to Scotland and Northern Ireland for inclusion in the appendices.

Appendix II *Number of cardiovascular physicians in Northern Ireland*

Health and social service districts	*Physicians Full time cardiology*			*Physicians Major interest*			*No of physicians engaged in cardiology*
	Adult	*Paediatric*	*Both*	*Adult*	*Paediatric*	*Both*	
North and West Belfast	5	1	—	—	—	—	6
South Belfast	2	—	1	—	—	—	3
East Belfast and Castlereagh	2†	—	—	—	—	—	2
North Down and Ards	—	—	—	—	—	—	—
Magharafelt and Cookstown	—	—	—	1	—	—	1
Antrim and Ballymena	—	—	1	—	—	—	1
Armagh and Dungannon	—	—	—	1	—	—	1
Newry and Mourne	—	—	—	1	—	—	1
Londonderry, Limavady, and Strabane	—	—	—	1	—	—	1
Omagh	—	—	—	2	—	—	2
Total	9	1	2	6	—	—	18

†Both also work in another district: one in North Down and Ards and the other in North and West Belfast.

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