SIGHT TEST TIMES, DOMICILIARIES AND CHILD VISION CARE

Table 1: Distribution of sight test

IN THE 1985 Owen Aves Memorial Lecture entitled 'Optometry—progress or decline' the late Professor Gerald Dunn expressed concern over possible trends in the quality of vision care—particularly in the last 10 years. He felt the new technology imposed upon optometrists greater responsibilities—the need to devote more time to patients and not less.

The time that different practitioners take to carry out a sight test and eye examination has always been a matter of some fascination. (I will use the term 'sight test' for brevity and because this is the term used in official statistics. Nothing else should be read into this action.) As the number of sight tests carried out by OOs each year has increased, the average time for a sight test has decreased. Professor Dunn reported figures for successive decades since 1955 (see Table 1)—each sample reported as covering a similar range of practitioner ages and geographical distribution. According to his figures, there was a modest decrease in central tendency between 1955 and 1975. There was little change in the median, the middle statistic, which remained between 40 and 45 minutes while there was a small shift in the mode from between 40 and 45 minutes to 35 and 40 minutes.

What disturbed Professor Dunn, however, was the change between 1975 and 1985. Whilst the median time only decreased to 35-40 minutes the distribution became bimodal with 29 per cent of his sample reporting average times for a routine optometric examination of less than 20 minutes. Professor Dunn was concerned that the profession might be dividing itself into two separate camps but was unable to

a anti	Dunn 1955	Dunn 1965	Dunn 1975	Dunn 1985	French et al 1980	French 1986
minutes						
0-5	0%	0%	0%	0%	0%	0%
6-10	0%	0%	0%	0%	0%	0%
11-15	0%	0%	1%	14%	5%	3%
16-20	2%	1%	3%	15%	27%	39%
21-25	3%	4%	5%	6%	11%	22%
26-30	6%	4%	6%	2%	52%	30%
31-35	13%	14%	13%	11%	0%	3%
36-40	15%	16%	16%	13%	2%	2%
41-45	16%	15%	14%	13%	1%	1%
46-50	15%	15%	14%	13%	0%	0%
51-55	14%	13%	13%	6%	0%	0%
56-60	13%	13%	13%	7%	0%	0%
61-65	3%	5%	1%	1%	0%	0%
66-70	0%	1%	0%	0%	0%	0%
71-75	0%	0%	0%	0%	1%	0%
76-80	0%	0%	0%	0%	0%	0%
81-85	0%	0%	0%	0%	0%	0%
86-90	0%	0%	0%	0%	0%	0%
total	100%	100%	100%	100%	100%	100%

Dunn—'time for routine optometric examination'

French-'time set aside on average for sight test and eye examination'

Dunn 1955-1985—representative samples (n = 320) French 1980 *et al*—graduate only (n = 84)

French 1986—responses weighted (n = 1929)

establish on what basis this might be.

It is not entirely clear which questions Professor Dunn asked to obtain his data. Obviously, wording can be very important. Before I turned to the present survey I looked at some data I obtained had for graduate optometrists in 1980-five years before his last figures (French et al, 1981). These too showed a bimodal distribution with a similar proportion of optometrists (32 per cent) reporting less than 20 minute sight test and eye examinations. However, this is where the similarity ends. The median sight test time was shorter at between 25 and 30 minutes and there were very few practitioners who took more than 30 minutes and only five per cent who took less than 15.

Graduate optometrists (largely those joining the profession since the mid to late 1960s) are a relatively young group compared with the rest of the proof the differences between the two studies.

There were 2,070 replies to our questionnaire which was sent to all optometrists on the GOC Register in the middle of 1986. Based on a total of 6,176 this gives a response rate of 34 per cent. This present study again returned bimodal results. The median time was lower still at 25 minutes and even more practitioners (42 per cent) reported times less than 20 minutes, but once again there were very few (three per cent) reporting times of 15 minutes or less, and relatively few reporting times of more than 30 minutes.

Table 2 shows the arithmetic mean of the average sight test time and the proportion of practitioners setting aside 20 minutes or less as a function of the optometrist's age and sex. The mean here is probably an unsatisfactory statistic because of the overall trend towards bimodality. Between the ages of 25 and

This article is based upon part of the FIBO Professor G M Dunn Memorial Lecture given at The City University on April 301987. Chris French lectures at the Ophthalmic Optics Department of the University of Manchester Institute of Science and Technology and is conducting a survey on 'Optometric manpower and the need for vision care'. More results from This survey will be published in future issues of OPTICIAN

Table 2: Average time for sight test alone as a function of age and sex

	male				female	Contraction of the local division of the loc
	mean time in minutes	per cent of times 20 minutes or less	sample size	mean time in minutes	per cent of times 20 minutes or less	sample size
age	-	1.414.41	0.000	1507	woman.	
24	26	28%	72	25	32%	68
25-29	24	50%	221	24	49%	194
30-34	24	48%	207	24	48%	176
35-39	24	50%	157	24	47%	73
40-44	24	51%	146	24	56%	41
45-49	24	47%	111	25	50%	38
50-54	26	36%	101	26	42%	12
55-59	27	31%	86	28	23%	13
60-64	27	32%	73			0
65-69	27	26%	57			0
70-74	29	36%	47			3
75-79	26	26%	19			0
total	25	41%	1,301	24	45%	618

minimum sample size of n = 10

arithmetic mean is a dubious statistic due to tendency towards bimodality

49 there is little variation due to either age or sex. Outside of this range there is a small tendency to report longer sight test times and this is reflected in slightly higher mean times and a smaller proportion of times less than 20 minutes.

In Table 3 the data for men and women has been combined and we see the percentage of sight test times less than 15, 20, 25 and 30 minutes as a function of age. It shows the same pattern as before—slightly longer

er Table 3: Average time set aside for sight test alone as a function of age

			•			U
	mean time in minutes	per cent of times 15 minutes or less	per cent of times 20 minutes or less	per cent of times 25 minutes or less	per cent of times 30 minutes or less	sample size
age						
24	26	1%	30%	60%	99%	140
25-29	24	4%	49%	75%	98%	415
30-34	24	5%	48%	72%	97%	383
35-39	24	4%	49%	73%	97%	230
40-44	24	4%	52%	68%	95%	187
45-49	24	4%	48%	71%	96%	150
50-54	26	7%	36%	58%	89%	113
55-59	27	3%	30%	45%	89%	100
60-64	27	1%	32%	48%	88%	73
65-69	27	0%	26%	43%	97%	58
70-74	29	0%	34%	44%	76%	50
75-79	26	0%	26%	53%	100%	19
total	25	3%	42%	63%	94%	1,923

Table 4: Average ideal time set aside for sight test alone as a function of age

arithmetic mean is a dubious statistic due to tendency towards bimodality total gives population statistics based upon 1923 weighted responses

	mean ideal time in minutes	per cent of times 15 minutes or less	per cent of times 20 minutes or less	per cent of times 25 minutes or less	per cent of times 30 minutes or less	sample size
age	40,000	S route all	tern lines a	AR INCOM		
24	26	1%	30%	57%	93%	141
25-29	25	2%	36%	61%	97%	419
30-34	26	496	36%	58%	95%	393
35-39	25	3%	38%	61%	94%	238
40-44	25	3%	43%	58%	95%	191
45-49	26	3%	34%	59%	92%	154
50-54	27	496	27%	46%	89%	114
55-59	28	2%	25%	41%	87%	105
60-64	29	3%	26%	36%	85%	72
65-69	28	2%	20%	37%	86%	59
70-74	29	0%	34%	38%	80%	50
75-79	26	0%	28%	56%	94%	18
total	26	* 3%	33%	53%	92%	1,958

arithmetic mean is a dubious statistic due to tendency towards bimodality total gives population statistics based upon 1958 weighted responses

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In our questionnaire we also asked about the ideal time for sight tests. It had been suggested to me that people might ideally want to put a different time aside for their patients—perhaps more or perhaps even less than they actually do.

Ideal times show a similar pattern as Table 4 reveals. It is interesting to note that the proportions suggesting ideal times should be less than 20 minutes and 30 minutes are both 10 per cent high indicating that a sizeable number of practitioners feel they should take longer over sight testing than they normally do.

Table 5 shows the main sight test

statistics as a function of type of employment which may be a little more interesting than age and sex. Of course, we must remember that age, sex and type of employment are interlinkedwomen have a greater tendency to be locums and older optometrists are more likely to have their own practice. Although there is a suggestion that self-employed OOs take longer over sight tests, the variation is not very large with similarities being greater than differences. The averages vary from 23 to 25 minutes for the groups with reasonable size samples. The proportions of those setting aside 15 minutes or less vary from three to six

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per cent and those setting aside 20 minutes or less vary from 39 to 52 per cent. There is little sign here that the previously discussed bimodality can be accounted for by a practitioner's type of employment any more than it could be by their age or sex.

If we examine ideal sight test times as a function of type of employment (see Table 6) we find again a similar pattern with marginally longer ideal times for all groups compared with the previous actual times.

Recently there has been a case before the GOG disciplinary committee which has resulted in some little controversy (OPTICIAN, 1987a; Charman and Jennings, 1987; OPTICIAN, 1987b). An optometrist was suspended by the GOG after his FPC had reported him for carrying out an 'excessive number of tests'. He had carried out 536 sight tests in 18 days giving an average of 29 tests per day. The average time taken

Table 5: Average time set aside for sight test alone as a function of type of work

	mean time in minutes	per cent of times 15 minutes or less	per cent of times 20 minutes or less	per cent of times 25 minutes or less	sample size
major type of employment					
self-employed locum	23	6%	52%	73%	90
own practice	25	3%	39%	61%	636
employee managing OO	24	4%	45%	73%	207
employee consultant OO	23	5%	51%	78%	310
teacher or research worker	27	4%	39%	6196	23
total	25	3%	42%	63%	1,286
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arithmetic mean is a dubious statistic due to tendency towards bimodality total gives population statistics based upon 1,286 weighted responses hospital OO and administrator groups too small

to do 48 tests was calculated at a fraction over 10 minutes. In his defence he was reported as saying, 'I can perform a sight test easily in 10 minutes ... 10 minutes is more than sufficient'. Figure 1 shows the estimated distribution of actual sight times in more

detail for those on the Register. This predicts that of the order of eight practising optometrists carry out 10 minute tests. It should be emphasised that those numbers are only estimates and the actual number of practitioners may differ.

Table 6: Average ideal time set aside for sight test alone as a function of work

	mean ideal time in minutes	per cent of times 15 minutes or less	per cent of times 20 minutes or less	per cent of times 25 minutes or less	sample size
major type of employment	26	104	9504	5404	01
self-employed/partner in	20	170	3390	0470	31
own practice	27	2%	29%	50%	641
employee managing OO	25	4%	36%	64%	208
employee consultant OO	24	5%	44%	67%	310
teacher or research worker	27	0%	23%	50%	30
total	26	3%	33%	53%	1,312

arithmetic mean is a dubious statistic due to tendency towards bimodality total gives population statistics based upon 1,312 weighted responses hospital OO and administrator groups too small

These results emphasise that 10 minute average sight tests by OOs are a great rarity and that 15 average minute sight tests are not perhaps as frequent as Professor Dunn's most recent survey may have suggested. Of course, this questionnaire was asking about the 'time set aside' and the average sight test time will be less than the time between tests, but it should be emphasised that the full question was:

'How much of your own time (in minutes) did you set aside for a *sight test alone?* The time for some people



will he less than that between appointments as thev may be interspersing their sight tests with other activities-for supervising example pre-reg-while for others it will be longer if they habitually over-run at the end of the morning or afternoon.

It is, of course, quite possible that a different form of words would lead to a different result. Unfortunately, it is a fundamental principal of psychology that human behaviour is often apparently changed hv whether measurementthat measurement takes the form of observation (time and motion studies) as in the Whitley Scale timings or self-report as with the present questionnaire.

I would not say that practitioners who do long tests necessarily provide a better service than those who do short tests—and take some of Neil Charman and Adrian Jennings points which include (i) the difficulty of setting a lower limit to sight testing times and (ii) that one ought to look for actual shortcomings in the sight test and eye examination themselves. But I do feel it is important to establish what the profession's norms are.

I would guess that if a survey was conducted it would show that, irrespective of the quality of the actual care, there is a tendency for longer test times to give patients a greater confidence in the 00 or OMP and for very short tests to be self-defeating. But I would also guess that this relationship would break down for very long times. There is likely to be an upper limit beyond which many patients become restless and the feeling that they are being given good care and attention diminishes.

The full question for the ideal sight test time was—

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'Ideally, in the interests of the patient, how much time on average ought a 00 set aside for *sight test* atone? If in doubt ... how much time *ought you* set aside?'

The histogram for the distribution of ideal sight test times is given in Figure 2. Only an estimated 11 Registered optometrists (out of 6,176) consider 10 minutes an ideal sight test time.

Children

Professor Dunn had a great enthusiasm for paediatric optometry. Apart from the question of the time for a sight test, he was also concerned about the willingness of practitioners to see children.

There have been suggestions of over-prescribing for children (Stewart-Brown, 1985) and this was commented upon by several OMPs in a related survey. But relatively few children appear to be seen by OOs (French, 1985). Professor Dunn (1986) proportion of reported on the practitioners who stated that they provided eye examination services for children under nine years of age'. In 1955 this was 67 per cent, in 1965 it was 72 per cent and 1975-77 per cent (see Table 7). Thus there was a modest increase over two decades. This is what one would expect from a health care as well as from a

profit motive. Relatively few children wear spectacles but family visits to the optician would seem to be an excellent way of establishing loyalty and good lifetime habits in much the same way as they are with dentists.

Unfortunately, in 1985 the proportion of Professor Dunn's sample offering these services fell drastically to only 31 per cent. The present survey appears to provide data more similar to the trend in his data over the early period 1955 to 1975. An estimated 75 per cent of practitioners were willing to see children under three years of age for a sight test. This figure was arrived at by weighting the responses of the 1,985 practitioners who answered this question and assuming that the 85 who declined had similar opinions. Even if we make the radical assumption that all the non-repliers to this question would not be willing to see children at all, this only reduces the percentage believing

Of course, the difference in findings between this and Professor Dunn's survey may lie in the wording of the questions put to practitioners and it is quite possible that opticians who state they do not provide 'eye examination services for children under nine years of age' may well themselves still see a few much younger children under the GOS. Also, it is possible that the difference may in part be accounted for by sampling error.

Domiciliary visits

An important facet of eyecare which one would suspect is under stress is the domiciliary visit. Professor Dunn was also concerned about the frequency with which domiciliaries were carried out. A detailed study of visits by OOs with particular reference to Scotland is currently being carried out by Roger Ackerley and Andrew King at Glasgow College of Technology and this report is eagerly awaited. If we look at the table we see the proportion of optometrists providing domiciliary visit services increasing between the two decades from 1955 to 1975 and then declining.

Table 8 shows the number of visits as a function of age and sex found in our 1986 survey. Women carry out fewer visits but this is only to be expected as they tend to work fewer hours. For the Register as a whole 25 per cent of practitioners carry out more than 30 visits per year, five per cent more than 100 and one per cent more than 250. The peak activity appears to be amongst men in their late 40s and early 50s where 25 per cent carry out 50 or more visits. An estimated 35 per cent of active OOs carried out no visits at all.

only reduces the percentage believing Returning to Professor Dunn's that OOs ought to be ready to test those figures, our estimates of 65 per cent of three years of age over to 71 per cent. optometrists doing one or more visits

Table 7: Eye examination for children under 9 years of age and domiciliary visits (Dunn, 1986)

	Enquiry date					
	1954-1955	1964-1965	1965-1975	1975-1985		
Eye examination for children under 9 years of age	67%	72%	77%	31%		
Domiciliary visit services	73%	79%	87%	14%		
Dunn (1986) n = 320	Section Sector			-		

per year is close to his 1955 figure of 73 per cent rather than 14 per cent in 1985. Of course, it could be argued that one visit per annum is insignificant and a higher threshold for the 'provision of domiciliary visit services' (Professor Dunn's words) ought to be set. The figure of 14 per cent which Professor Dunn provides is, for the present sample, equivalent to 50 or more domiciliaries per annum-close to one or more per week. These differing wavs of looking at the question of domiciliaries may well account for the between difference the present findings and Professor survey's Dunn's. Again we do not know what precise words were used in Gerald's survey. It is quite easy to imagine someone saying that they do not provide a service for domiciliary visits but still carrying out several such tests per year. The survey suggests a national total of the order of 140,000 per annum by OOs.

Conclusions

The present study provides a detailed 'snapshot' of the current situation on sight test times, domiciliaries and child vision care. Unfortunately, these questions do not appear to have been asked in this present form before and in contrast to Professor Dunn's data they provide little information on temporal changes. Although the bimodality in the time for a sight test and eve examination revealed by Professor Dunn is confirmed, neither age, sex nor type of employment would appear to provide a simple explanation for this distribution. Very short average sight tests appear to be in the minority. Practitioners appear more ready to see young children than might first be thought. Regarding domiciliaries, it appears that only one in seven UK optometrists does one or more per week.

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Table 8: Number of domiciliary visits in year

male										
	Number of domiciliaries									
	Median	Percentile for 75.00	Percentile for 95.00	Percentile for 99.00	Valid N					
age		2000								
24	8	20	150	300	74					
25-29	12	40	100	200	223					
30-34	10	40	100	250	215					
35-39	20	50	120	320	165					
40-44	20	50	200	300	149					
45-49	10	36	150	200	118					
50-54	10	30	80	103	104					
55-59	10	22	60	200	94					
60-64	8	30	120	350	73					
65-69	0	20	150	300	62					
70-74	2	20	150		56					
75-79	0	12	25		23					
total	10	35	120	260	1,362					

Female

11	Number of domiciliaries							
	Median	Percentile for 75.00	Percentile for 95.00	Percentile for 99.00	Valid N			
age			2000	100000	in and			
24	4	14	40	200	68			
25-29	1	15	60	180	197			
30-34	0	12	50	150	182			
35-39	3	20	50	75	77			
40-44	0	18	100		44			
45-49	1	12	90	-	40			
50-54	0	40	100		15			
55-59	2	12	23		13			
total	1	15	54	150	639			

Both male and female

	Number of domiciliaries							
	Median	Percentile for 75.00	Percentile for 95.00	Percentile for 99.00	Valid N			
total*	6	30	100	250	2,001			

this total* gives population estimates based upon 2,001 weighted responses

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