The Breast (2001) **10**, 55–57

doi:10.1054/brst.2000.0210, available online at http://www.idealibrary.com on IDEAL

ORIGINAL ARTICLE

Has Calman-Hine succeeded? Analysis of breast cancer procedure loads per consultant firm before and after the Calman-Hine report

A. M. Rouse, K. Jolly and A. J. Stevens

Department of Public Health and Epidemiology, The University of Birmingham, Birmingham, UK

SUMMARY. The Calman-Hine report was published in the UK in April 1995. It recommended the reorganization of cancer services into high-volume specialist units. This study analyzes Health Episode Statistics from the West Midlands Region of the UK NHS in order to establish whether – for breast cancer – specialization is occurring. We believe it is. Each year since the start of our analysis (1992) the proportion of procedures performed by 'high-volume' firms increased. The number of firms undertaking breast cancer procedures fell. © 2000 Harcourt Publishers Ltd

INTRODUCTION

In April 1995, the Calman-Hine report recommended that for the UK diagnosis and treatment of common cancers should be concentrated in 'Cancer Units'. It recommended that these units should undertake a sufficient volume of work to maintain sub-specialization skills.[1] Evidence that surgeons who treat more than 30 new cases of breast cancer each year have better survival rates supports this recommendation.[2] It was also supported by other studies that reported higher quality treatment in high-volume units, and a report which recommended that breast units should see at least 150 new cases of breast cancer annually.[2–4]

A predictable consequence of adopting the Calman-Hine recommendation is that fewer consultant firms will manage breast cancer patients. Another consequence is that these firms will perform more procedures, i.e. become high volume firms. This study examines whether – concerning breast cancer procedures – the anticipated trend towards fewer but higher volume consultants is occurring.

Address correspondence to: A. M. Rouse, Department of Public Health and Epidemiology, The University of Birmingham, Edgebaston, Birmingham B15 2TT, UK. Tel.: +44 (0) 121 414 7869; Fax: +44 (0) 121 414 7878; E-mail: a.m. rouse@bham.ac.uk
Published online: 10 November 2000

METHODS

Our target sample was the West Midlands, a representative 10% sample of the UK. The West Midlands Hospital Episode Statistics database (HES) stores data on procedures performed in NHS hospitals in the region (population 5.1 million). We searched this database and obtained details of breast procedures (OPCS procedure codes B27–B289) performed between 1 April 1992 and 31 March 1997. (These include mastectomy and removal of breast lumps, but exclude biopsy.) Each year about 8000 of these procedures are performed. We calculated the annual average number of procedures carried out by consultant firms.

We also obtained data on breast cancer incidence from the West Midlands Cancer Intelligence Unit. About 3200 breast cancers occur annually in residents of the West Midlands Region of the NHS. We surmised that most newly diagnosed cases of breast cancer would have undergone a surgical procedure. Therefore it appears that the ratio of new cases of cancer to breast procedures is approximately 1 : 2.5 (3200 : 8000). We would therefore expect a surgeon treating 30 new cases of breast cancer each year to undertake 75 (2.5×30) breast procedures. For the rest of this paper we refer to consultant firms undertaking at least 75 breast procedures as 'high volume firms' in the belief that it is likely that they carried out 30 or more breast procedures annually for breast cancer.[2]

RESULTS

Over 40,000 breast procedures were carried out in the period; 29,005 (72.5%) had sufficient detail for further analysis. (Records with insufficient data generally had date or consultant code data missing.) In 1992–1993, high-volume firms carried out 59% of all breast procedures. This increased by an average of 6% each year (range 3–12%), until in 1996–1997 high-volume firms carried out 83% of all breast procedures (Table 1). In 1992–1993 only one in four firms (29/124) were 'high-volume': by 1996–1997, this had increased to 1 in 3 firms (33/96). Thus 28 fewer firms undertook breast procedures in 1996–1997 than in 1992–1993.

As shown in Table 2, we identified three operationally distinct consultant cohorts: 34 generally senior consultants who stopped operating before April 1995, 25 newly appointed consultants who took up posts after April 1995 and 102 who operated both before and after the Calman-Hine recommendation.

Of the 34 firms who ceased operating before publication of the report, only one (3%) was a high volume operator. This consultant firm undertook 28% of the breast cancer procedures done by this group of consultants. In contrast, of the 25 consultants who only operated after publication of the report, 5 (20%) were high-volume firms. They undertook 72% of the breast cancer procedures undertaken by this group of consultants.

Amongst the 102 firms operating both before and after the Calman-Hine recommendation, the number of high-volume firms changed little during the period. Prior to publication of the report 29 (28%) were high-volume firms; the figure was 28 (27%) after publication. The proportion of procedures undertaken by these high-volume firms increased — from 72% to 82%.

DISCUSSION

The evidence presented here suggests that since 1992 high-volume firms (i.e. who perform at least 75 breast procedures in total and probably treat 30 new cases of breast cancer annually) have operated upon an increasing proportion of women with breast cancer. The proportion of high-volume firms increased from 1 in 4 to 1 in 3 during this time. Research evidence suggests that this should result in an improvement in outcome.[2]

Over half of the trend towards high volume can be accounted for by changing practice amongst established consultant firms (i.e. the 102 already performing breast procedures prior to publication of the report). Amongst these firms there was no change in the proportion who were high-volume (28% before and 27% after), but the high-volume firms did treat a greater proportion of the women. Despite their much lower numbers, a major mechanism accounting for this high-volume trend is the

Table 1 Changing pattern of care: high-volume consultant firms 1992–1997

	1992–1993	1993–1994	1994–1995	1995–1996	1996–1997
% women having breast procedure by high-volume operator*	59.0	63.9	76.3	79.3	83.1
Number of high-volume operators n/N (%)	29/124 (23%)	27/118 (23%)	33/118 (28%)	31/123 (25%)	33/96 (34%)

*High-volume = 75 or more OPCS B27–B289 procedures annually.

Table 2 Proportions of high volume consultant firms undertaking breast cancer procedures and the proportion of procedures carried out by high-volume consultant firms, 1992–1997

	Firms only operating before April 1995	Firms only operating after April 1995	Consultant firms working throughout the period (Calman-Hine report published April 1995)	
			1/4/92–31/3/95	1/4/96–31/3/97
High-volume* operators (%)	1 (3%)	5 (20%)	29 (28.4%)	28 (27.4)
Average annual number of procedures carried out by high-volume firms (%)	237(28%)	662 (72%)	3696 (72%)	4568 (82%)
Total number of consultant firms	34	25	102	102
Average annual number of procedures	24	37	56.6	58.2

*High-volume = 75 or more OPCS B27–B289 procedures annually.

retirement of low-volume consultants, and their replacement by fewer, but higher-volume firms. If this observation is correct it gives credence to the view that a consultant retirement is a major opportunity for change in a health service.

We also believe that this is the first evidence since the Calman-Hine report in the UK was published which suggests that there is a clear trend towards fewer but higher-volume firms operating on a higher proportion of women with breast cancer. This trend appears to have been well established before publication of the Calman-Hine report and raises the spectre that other changes in the configuration of breast cancer services may have arisen despite and not because of Calman-Hine.

Acknowledgements

We acknowledge Richard Wilson's contribution to this work in extracting the data from the HES database.

REFERENCES

1. Expert Advisory Group on Cancer to the Chief Medical Officers of England and Wales. A policy framework for commissioning cancer services. Department of Health, April 1995.
2. Sainsbury R, Haward B, Rider L, Johnston C, Round C. Influence of clinician workload and patterns of treatment on survival from breast cancer. Lancet 1995; 345: 1265–1270.
3. Ma M, Bell J, Campbell S, Basnett I, Pollock A, Taylor I. Breast cancer management: is volume related to quality? Br J Cancer 1997; 75: 1652–1659.
4. Guidelines for the management of symptomatic breast disease in the United Kingdom. Eur J Surg Oncol 1995; 21 (A).