

STRICTLY CONFIDENTIAL

Summary of preliminary analyses of data collected from Gosport War Memorial Hospital.

This report updates the information outlined in the report of 11.11.02. In that report, an initial review of the Nerfoils of MCCDs issued by doctors at Gosport War Memorial Hospital (GWMH) from 1987 gave cause for concern about the numbers issued by Dr Barton, and the frequent use by her of bronchopneumonia as the cause of death. However, there were several potential legitimate explanations for these findings, and it was not possible from the data available to draw a reliable conclusion. Since the completion of that report, further information has been obtained. This includes:

- The deaths certified by doctors at GWMH in 2001 (from Nerfoils)
- Information on the numbers of beds at GWMH from 1980-1993
- Data from the admissions register for Dryad Ward, 1993-2001.

In addition, information contained in the controlled drugs registers is currently under analysis.

1. Do changes in numbers of beds and bed use explain the numbers of deaths certified by Dr Barton?

The information analysed thus far tends to indicate a relatively high number of deaths associated with Dr Barton's period at the hospital, although there were changes in the types of cases admitted that could explain this finding. Table 1 shows that the mean number of deaths per year up to 1992 was 104. Between 1993 and 1999 the mean was 175. Dr Barton ceased work as a clinical assistant in July 2000, and the mean number of deaths per year 2000-2001 was 110.

Dr Barton began work at the hospital in 1988. At that time, she had responsibility for patients in Redclyffe Annexe, which has been reported by GWMH staff as having 20 beds classified as continuing care. Many of the certificates issued by Dr Barton for patients in Redclyffe Annexe 1988-1993 indicate that many were mentally infirm.

Until 1993/4, there were also two wards (male and female) at the hospital, having a total of approximately 37 beds, of which 19 were GP beds and 7 as GP day surgery beds. Dr Barton was responsible for the care of patients in the remaining 11 beds. (Note: the precise number of beds on the female ward is uncertain since the information is derived from the memories of staff. It is believed to have been 20 or 21.) The total number of beds under the supervision of Dr Barton was therefore 31 until 1993/4.

From 1993/4, Dr Barton appears to have been responsible for a greater number of beds, and for a different group of patients. Dr Barton appears to have ceased responsibility for Redclyffe Annexe, and taken on responsibility for the new Dryad and Daedalus wards in the new hospital building, the male and female wards being closed. This gives a total of 44 beds under Dr Barton's care, with a mix of continuing care and rehabilitation. The increase in numbers of certificates from 1993 could very well be explained by these changes at the hospital.

Table 1. Numbers of MCCD Nerfoils each year, 1987-2001, completed by Dr Barton or other doctors at GWMH.

YEAR	Other docs	Dr B	Total
1987	105	2	107
	98.1	1.9	
1988	85	29	114
	74.6	25.4	
1989	71	31	102
	69.6	30.4	
1990	72	38	110
	65.5	34.5	
1991	59	31	90
	65.6	34.4	
1992	68	32	100
	68.0	32.0	
1993	57	99	156
	36.5	63.5	
1994	56	106	162
	34.6	65.4	
1995	74	81	155
	47.7	52.3	
1996	100	84	184
	54.3	45.7	
1997	106	86	192
	55.2	44.8	
1998	107	107	214
	50.0	50.0	
1999	71	92	163
	43.6	56.4	
2000	80	34	114
	70.2	29.8	
2001	103	2	105
	98.1	1.9	
Column	1214	854	2068
Total	58.7	41.3	100.0

Tables 2 and 3 show the certificates issued by the other doctors at the hospital and Dr Barton for deaths on different wards. These data support the case that Dr Barton ceased responsibility for patients in Redclyffe Annexe and took on the new Dryad and Daedalus wards 1993/4.

The numbers of deaths fell in 2000-2001. Caution is required in drawing conclusions since clinical practice is likely to have been influenced by the concerns raised by the complaints first voiced in 1999, and the associated investigations. On the basis of the evidence available about the numbers of deaths, it is therefore not appropriate to infer that criminal behaviour explains the patterns observed – changes to the numbers of beds and case mix are a highly plausible explanation.

Box 1. Reported bed usage at the hospital:

1980-1993:

Northcott house, 11-12 continuing care beds

Redclyffe annexe 20 continuing care beds

Male ward - 17 beds (9 continuing care, 8 GP beds)

Female ward – 20 beds (2 continuing care, 7 GP day surgery, 11 GP beds)

Total beds 1980-1993=69

From 1994:

Redclyffe annex was still used;

Sultan ward – 24 GP beds

Dryad ward – 20 continuing care beds

Daedalus – 24 beds in total (8 slow stream stroke from April 1994,, 16 continuing care [24 prior to April\94]); from 2000, the Daedalus beds were used for intermediate care, comprising 8 fast stream stroke, 8 slow stream stroke, 8 general rehabilitation.

Dr Barton appears to have been responsible for Redclyffe annex until 1993/4, when she took charge of Dryad and Daedalus wards.

Table 2. Deaths certified by the other doctors on wards at GWMH (only 7 M CCD Nerfoils from 1986 available; GWMH=Gosport war memorial hospital, ward not stated; Northcote, Mulberry and Collingwood are other wards at GWMH; the other wards are mentioned above, or are not in the hospital).

	place of death												Total
	GWMH	Redcliffe	male ward, GWMH	female ward, GWMH	Northcott Annexe, GWMH	Daedalus ward	Dryad Ward	Sultan Ward	Mulberry	Coldeart hospital	Collingwood	ark royal	
1986	7												7
1987	66	9	9	11	10								105
1988	61	3	13	5	3								85
1989	52	3	3	10	3								71
1990	52	2	9	9									72
1991	37	1	10	11									59
1992	35	1	16	15									67
1993	34	2	3	6		3		8					56
1994	15	5				2		33					55
1995	12					12	5	35	10				74
1996	28	7				10	6	37	11	1			100
1997	10	3				8	7	45	33				106
1998	23	5				12	11	35	18				104
1999	12	7				6	9	27	10				71
2000	20	5				13	12	22	3		5	1	81
2001	59	8				1	4	25	2		4		103
	523	61	63	67	16	67	54	267	87	1	9	1	1216

Table 3. Deaths certified by Dr Barton on different wards at GWMH.

	year of death	place of death							Total	
		GWMH	Redcliffe	male ward, GWMH	female ward, GWMH	Northcott Annexe, GWMH	Daedalus ward	Dryad Ward		Sultan Ward
	1987	1	1							2
	1988	2	6	11	1	9				29
	1989	1	19	8	1	2				31
	1990		23	13	2					38
	1991		18	11	2					31
	1992		23	8	1					32
	1993		51	7	6		35			99
	1994		58	1			42		4	105
	1995	1	4				42	33	1	81
	1996						48	32	3	83
	1997						39	47		86
	1998						51	51	5	107
	1999						42	49	1	92
	2000						15	17	2	34
	2001							1	1	2
	Total	5	203	59	13	11	314	230	17	852

Is there a difference between Dr Barton and other doctors in the use of different causes of death?

Table 4. Cause of death in groups, according to whether Dr B (2) or other doctors (1) signed the certificate.

		Other doctors	Barton	Total
cause of death code	cancer	464	50	514
	heart	170	100	270
	stroke	112	139	251
	bronchopneumonia plus another	247	367	614
	bronchopneumonia only	35	163	198
	other	180	31	211
Total		1208	850	2058

Dr Barton was more likely to give bronchopneumonia or stroke as the cause of death (Chi 0.000, Table 4). A potential explanation is case mix – patients with dementia or stroke would have been admitted to Redclyffe, Dryad and Daedalus wards. A possibility that must be borne in mind is the excess use of diamorphine, leading to development of bronchopneumonia.

Table 5 Mean length of stay on Dryad ward, days, 1993-2001.

	N	Mean	Std. D	95% CI for Mean		Minimum	Maximum
				Lower	Upper		
1993	37	148.57	182.72	87.64	209.49	4	652
1994	68	41.66	70.18	24.67	58.65	1	326
1995	52	88.75	168.35	41.88	135.62	1	856
1996	43	55.98	72.59	33.64	78.32	1	345
1997	67	33.94	60.02	19.30	48.58	1	365

1998	103	36.02	40.47	28.11	43.93	0	195
1999	131	42.50	58.63	32.37	52.64	0	406
2000	90	65.83	87.80	47.44	84.22	1	487
2001	85	67.47	88.05	48.48	86.46	4	409
Total	676	57.05	93.42	49.99	64.10	0	856

ANOVA

duration of stay in days

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	503527.310	8	62940.914	7.792	.000
Within Groups	5387701.175	667	8077.513		
Total	5891228.485	675			

These data are taken from the admissions book for Dryad ward, the information being available from 1993. The length of stay was lowest in 1998 and 1999, a period associated with the highest numbers of deaths at GWMH.

Table 6, Deaths on Dryad ward certified by Dr Barton

year of death * cause of death code Crosstabulation

N

		cause of death						Total
		cancer	heart	stroke	bronchopneumonia plus another	bronchopneumonia only	other	
year of death	1995	2	4	2	15	8	1	32
	1996	1	3	5	17	5	1	32
	1997	2	11	4	23	6	1	47
	1998	3	4	6	15	18	5	51
	1999	7	6	5	12	15	4	49
	2000	3	2	3	2	6	1	17
	2001					1		1

Total	18	30	25	84	59	13	229
-------	----	----	----	----	----	----	-----

These data have been obtained from Nerfoils. Almost all the Nerfoils completed by Dr Barton indicate place of death, although the other doctors do not record this information consistently.

Table 7. Mean age (yrs)at admission to Dryad ward, 1993-2001.

	N	Mean	Std. Deviation	95% CI for Mean		Minimum	Maximum
				Lower	Upper		
1993	38	82.1	7.2	79.7	84.4	66.0	97.0
1994	75	83.7	7.2	82.0	85.3	64.4	100.0
1995	56	82.6	7.2	80.6	84.5	66.9	99.0
1996	45	83.0	6.5	81.0	84.9	69.8	95.2
1997	71	81.8	8.3	79.9	83.8	66.3	98.0
1998	105	83.2	7.5	81.7	84.6	67.1	100.0
1999	133	83.6	7.1	82.3	84.8	65.0	98.2
2000	89	82.7	7.1	81.2	84.2	67.0	100.0
2001	96	80.9	8.4	79.2	82.6	61.0	100.0
Total	708	82.7	7.5	82.1	83.21	61.0	100.0

ANOVA

age at admission

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	562.585	8	70.323	1.265	.258
Within Groups	38843.742	699	55.570		
Total	39406.328	707			

According to data in the admissions book, there is no difference between years in the mean age of admitted patients (the admissions book does not record patient sex).

Table 8. Numbers (%) of admissions followed by death or discharge, Dryad ward, 1993-2001.

year of admission * outcome Crosstabulation

		outcome		Total
		died	discharged	
year of admission	1993	N 29	7	36
		% 80.6%	19.4%	100.0%
	1994	Nt 59	11	70
		% 84.3%	15.7%	100.0%
	1995	N 42	10	52
		% 80.8%	19.2%	100.0%
	1996	N 31	13	44
		% 70.5%	29.5%	100.0%
	1997	N 48	21	69
		% 69.6%	30.4%	100.0%
	1998	N 64	40	104
		% 61.5%	38.5%	100.0%
	1999	N 58	74	132
		% 43.9%	56.1%	100.0%
	2000	N 35	56	91
		% 38.5%	61.5%	100.0%
	2001	N 39	47	86
		% 45.3%	54.7%	100.0%
Total		N 405	279	684
		% 59.2%	40.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	76.431	8	.000
Likelihood Ratio	80.029	8	.000

Linear-by-Linear Association	67.094	1	.000
N of Valid Cases	684		

a 0 cells (.0%) have expected N less than 5. The minimum expected N is 14.68.

The Dryad ward admissions book records whether the patient died or was discharged. Table 8 indicates that the proportion of patients who were discharged alive was less than 50% until 1999. Between 1993-5, 80% of admitted patients died on the ward.

Table 9. Category of cases admitted to Dryad ward, 1993-2001.

Crosstab

		DIAGCODE							Total
		cv	general medical problems	medical/mental problems	heart problems	cancer	post op eg ~nof	respite care/social admission	
1993	N	9	19	6	2	2			38
	%	23.7%	50.0%	15.8%	5.3%	5.3%			100.0%
1994	N	10	31	14	2	3	14		74
	%	13.5%	41.9%	18.9%	2.7%	4.1%	18.9%		100.0%
1995	N	7	23	13		7	5	1	56
	%	12.5%	41.1%	23.2%		12.5%	8.9%	1.8%	100.0%
1996	N	1	20	10		7	2		40
	%	2.5%	50.0%	25.0%		17.5%	5.0%		100.0%
1997	N	4	29	16	5	8	8		70
	%	5.7%	41.4%	22.9%	7.1%	11.4%	11.4%		100.0%
1998	N	6	42	11	3	9	23	10	104
	%	5.8%	40.4%	10.6%	2.9%	8.7%	22.1%	9.6%	100.0%
1999	N	10	47	10	6	11	38	9	131
	%	7.6%	35.9%	7.6%	4.6%	8.4%	29.0%	6.9%	100.0%
2000	N	8	38	8	2	10	20	3	89
	%	9.0%	42.7%	9.0%	2.2%	11.2%	22.5%	3.4%	100.0%
2001	N	11	30	16	1	8	9	14	89
	%	12.4%	33.7%	18.0%	1.1%	9.0%	10.1%	15.7%	100.0%

	N	66	279	104	21	65	119	37	691
	%	9.6%	40.4%	15.1%	3.0%	9.4%	17.2%	5.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	119.338	48	.000
Likelihood Ratio	132.936	48	.000
Linear-by-Linear Association	23.931	1	.000
N of Valid Cases	691		

a. 20 cells (31.7%) have expected N less than 5. The minimum expected N is 1.15.

The admissions book records brief information about the reasons for admission. The data indicate that stroke was more common as the reason for admission in 1993/4, dementia with or without other medical problems was more common 1995-7, and patients recovering from fractures etc more common from 1998. Social admissions/respice care was also a more common reason from 1998.

Table 10. Sources of admission to Dryad Ward, 1993-2001.

	ADCODE						Total
--	--------	--	--	--	--	--	-------

		home	rest/nursi ng home	acute hospital	sultan ward	a ward at GWMH	dolphin day hospital	
1993	N	4	2	23	8	1		38
	%	10.5%	5.3%	60.5%	21.1%	2.6%		100.0%
1994	N	8	2	56	8	1		75
	%	10.7%	2.7%	74.7%	10.7%	1.3%		100.0%
1995	N	6	2	42	3	1	1	55
	%	10.9%	3.6%	76.4%	5.5%	1.8%	1.8%	100.0%
1996	N	2	4	36	2	1		45
	%	4.4%	8.9%	80.0%	4.4%	2.2%		100.0%
1997	N	3		56	7	3	2	71
	%	4.2%		78.9%	9.9%	4.2%	2.8%	100.0%
1998	N	13		82	4	5	1	105
	%	12.4%		78.1%	3.8%	4.8%	1.0%	100.0%
1999	N	19	2	103	1	4	3	132
	%	14.4%	1.5%	78.0%	.8%	3.0%	2.3%	100.0%
2000	N	8	1	76	1	4	1	91
	%	8.8%	1.1%	83.5%	1.1%	4.4%	1.1%	100.0%
2001	N	23	2	49	8	12		94
	%	24.5%	2.1%	52.1%	8.5%	12.8%		100.0%
	N	86	15	523	42	32	8	706
	%	12.2%	2.1%	74.1%	5.9%	4.5%	1.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	100.334	40	.000
Likelihood Ratio	96.585	40	.000
Linear-by-Linear Association	.789	1	.374
N of Valid Cases	706		

a. 32 cells (59.3%) have expected N less than 5. The minimum expected N is .43.

Most patients admitted to Dryad ward had been discharged from acute hospitals (Table 10). Only in 2001 did the proportion of admissions from home approach 25%.

Table 11. Time of death (data only recorded in 260 cases).

		year of admission									Total
		1993	1994	1995	1996	1997	1998	1999	2000	2001	
0	N	1	4		1	1			4		11
	%	5.0%	11.4%		5.9%	3.3%			15.4%		4.2%
1	N	1	2	2	1		1			1	8
	%	5.0%	5.7%	6.7%	5.9%		2.3%			4.3%	3.1%
2	N	1	1	3		1	2	1	1		10
	%	5.0%	2.9%	10.0%		3.3%	4.5%	2.9%	3.8%		3.8%
3	N	1	1			1	2	5	1		11
	%	5.0%	2.9%			3.3%	4.5%	14.3%	3.8%		4.2%
4	N		3	2		2	1	3	1	1	13
	%		8.6%	6.7%		6.7%	2.3%	8.6%	3.8%	4.3%	5.0%
5	N	1		1	1	2	2		2	1	10
	%	5.0%		3.3%	5.9%	6.7%	4.5%		7.7%	4.3%	3.8%
6	N			1		2	3			1	7
	%			3.3%		6.7%	6.8%			4.3%	2.7%
7	N	1	2	2	1	3		1	1		11
	%	5.0%	5.7%	6.7%	5.9%	10.0%		2.9%	3.8%		4.2%
8	N		2	1	2	1				3	9
	%		5.7%	3.3%	11.8%	3.3%				13.0%	3.5%
9	N	1				1	3	1		1	7
	%	5.0%				3.3%	6.8%	2.9%		4.3%	2.7%
10	N	1	3	1		2	5	2		1	15
	%	5.0%	8.6%	3.3%		6.7%	11.4%	5.7%		4.3%	5.8%
11	N	2		1	1	1	1	1		1	8
	%	10.0%		3.3%	5.9%	3.3%	2.3%	2.9%		4.3%	3.1%
12	N			2	2	4	2		2	1	13
	%			6.7%	11.8%	13.3%	4.5%		7.7%	4.3%	5.0%
13	N		3		2	1	2				8

	%		8.6%		11.8%	3.3%	4.5%				3.1%
14	N	2	1			1	3	1	3	1	12
	%	10.0%	2.9%			3.3%	6.8%	2.9%	11.5%	4.3%	4.6%
15	N		1	1		2		2	1		7
	%		2.9%	3.3%		6.7%		5.7%	3.8%		2.7%
16	N						1	2	2	2	7
	%						2.3%	5.7%	7.7%	8.7%	2.7%
17	N	1	1	2	1	1	2	2	1	2	13
	%	5.0%	2.9%	6.7%	5.9%	3.3%	4.5%	5.7%	3.8%	8.7%	5.0%
18	N		2	2	2		1	3	2		12
	%		5.7%	6.7%	11.8%		2.3%	8.6%	7.7%		4.6%
19	N	4	1	2	1		1	3		1	13
	%	20.0%	2.9%	6.7%	5.9%		2.3%	8.6%		4.3%	5.0%
20	N	1	2	3	2		1	3	3	3	18
	%	5.0%	5.7%	10.0%	11.8%		2.3%	8.6%	11.5%	13.0%	6.9%
21	N		1			2	3	2		2	10
	%		2.9%			6.7%	6.8%	5.7%		8.7%	3.8%
22	N	1	2	2		1	3	1	1		11
	%	5.0%	5.7%	6.7%		3.3%	6.8%	2.9%	3.8%		4.2%
23	N	1	3	2		1	5	2	1	1	16
	%	5.0%	8.6%	6.7%		3.3%	11.4%	5.7%	3.8%	4.3%	6.2%
	N	20	35	30	17	30	44	35	26	23	260
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	186.433	184	.436
Likelihood Ratio	220.079	184	.036
Linear-by-Linear Association	.855	1	.355
N of Valid Cases	260		

a. 216 cells (100.0%) have expected N less than 5. The minimum expected N is .46.

The time of death had been recorded in the admissions book in 260 cases (64.2% of deaths on the ward). Deaths are reasonably equally distributed among hours of the day.