

**THE BRITISH ASSOCIATION OF
UROLOGICAL SURGEONS
Section of Endourology**

**Analyses of PCNL's performed between
January 1st 2017 and December 31st 2019**

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Please contact Mrs Sarah Fowler (E-mail: sarahfowler99@gmail.com)

AUDIT RESULTS SUMMARY – PCNL dataset

All the data presented here are a summary of the data extracted from the web-based database on 26th May 2020 and relate to operations performed during the whole of 2017, 2018 and 2019. Once extracted the data was transferred to an AccessTM database for validation before being imported into TableauTM for generation of the analyses. The validation mainly comprised checks for duplicate and / or empty entries and invalid / inappropriate dates.

The data collection period was from 1 January 2017 to 31 December 2019.

5,984 procedures were recorded from 189 consultants at 121 centres in the United Kingdom, including 210 private patients from 46 consultants. Ten of the consultants returning data are not BAUS members.

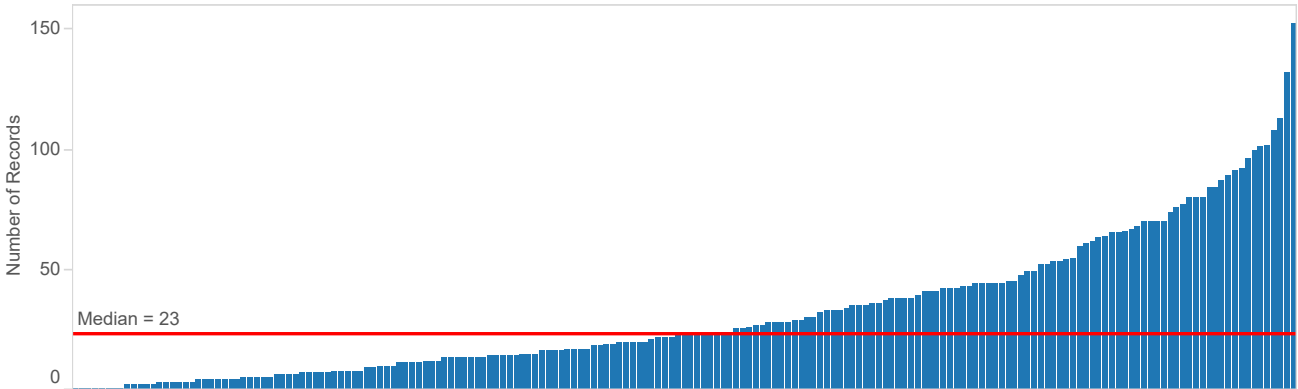
- Median number of cases per consultant: 23 (range 1 - 152)
- Median number of cases per centre: 33 (range 1 - 258)
- All data were entered by hand; there was no bulk uploading of data from other systems.
- Hospital Episode Statistics (HES) for 2017 to 2019 indicate that there were 5,949 PCNL cases in England. We do not believe that HES data accurately record the total number of procedures undertaken, as we are aware there are differences in the way this procedure is coded by different units. However, we do think we have received a very good response from the surgeons undertaking this procedure, and we estimate that we have collected data on about 85 - 90% of the procedures undertaken in England during time period 2017 to 2019 inclusively.

It is important to note that, as a result of the COVID-19 crisis some surgeons and units may have been unable to submit all or any of their 2019 data.

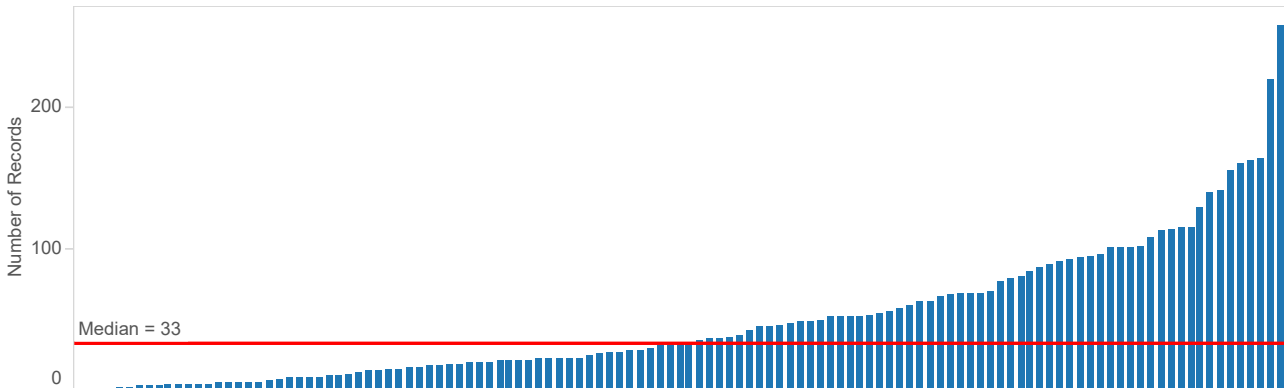
PCNL's performed between 01/01/2017 and 31/12/2019

5984 procedures from 189 consultants at 121 centres in the United Kingdom, including 210 private patients from 46 consultants

Total by Surgeon



Total by Centre



Gender

Gender	Number of Records	% of Total Number of Recor..
Female	2,740	45.8%
Male	3,244	54.2%
Grand Total	5,984	100.0%

Age

Number of Records	% of Total Number of Recor..	Median Age
5,919	100.0%	57

Side

Side Of Stones	Number of Records	% of Total Number of Recor..
Left	3,205	53.6%
Right	2,685	44.9%
Bilateral	94	1.6%
Grand Total	5,984	100.0%

BMI

BMI	Number of Records	% of Total Number of Recor..
Underweight	83	1.4%
Normal	929	15.5%
Obese	1,497	25.0%
Overweight	1,321	22.1%
Not recorded	2,154	36.0%
Grand Total	5,984	100.0%

Complexity

Stone Complexity	Number of Records	% of Total Number of Recor..
I	1,364	22.8%
II	1,852	30.9%
III	1,501	25.1%
IV	1,047	17.5%
Not recorded	220	3.7%
Grand Total	5,984	100.0%

Stone Dimensions

Stone Dimensions ..	Stone Dimensions	Yearofop							
		2017		2018		2019		Grand Total	
		Number of Records	% of Total Number ..	Number of Records	% of Total Number ..	Number of Records	% of Total Number ..	Number of Records	% of Total Number ..
0-2cm	0-1 cm	104	4.2%	74	3.7%	57	3.8%	235	3.9%
	1-2 cm	759	31.0%	557	27.6%	479	31.7%	1,795	30.0%
>2cm	2-4 cm	1,029	42.0%	811	40.1%	665	44.0%	2,505	41.9%
	>4 cm	533	21.8%	407	20.1%	289	19.1%	1,229	20.5%
Not recorded	N/A	25	1.0%	172	8.5%	23	1.5%	220	3.7%
Grand Total		2,450	100.0%	2,021	100.0%	1,513	100.0%	5,984	100.0%

LOS by Complexity

Stone Complexity	Number of Records	% of Total Number of Recor..	Median Post Operative..	Min. Post Operative Stay	Max. Post Operative Stay
I	1,364	22.8%	2	0	107
II	1,852	30.9%	2	0	125
III	1,501	25.1%	2	0	66
IV	1,047	17.5%	3	0	238
Not recorded	220	3.7%	2	0	16
Grand Total	5,984	100.0%	2	0	238

LOS by Size

Stone Dimensions (group)	Number of Records	% of Total Number of Recor..	Median Post Operative..	Min. Post Operative Stay	Max. Post Operative Stay
0-2cm	2,030	33.9%	2	0	50
>2cm	3,734	62.4%	2	0	238
Not recorded	220	3.7%	2	0	16
Grand Total	5,984	100.0%	2	0	238

LOS by Comorbidities

Co-Morbidities	Number of Records	% of Total Numbe..	Median Post Operati..	Min. Post Operati ve Stay	Max. Post Operati ve Stay
Spina Bifida, Spinal Injury, Kyphoscoliosis	346	5.8%	4	0	50
Other Co-morbidity	5,603	93.6%	2	0	238
Not recorded	35	0.6%	3	1	5
Grand Total	5,984	100.0%	2	0	238

Transfusion Rate by Complexity

Stone Complexity	Blood Transfusion					
	Yes		No		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
I	16	1.2%	1,314	98.8%	1,330	100.0%
II	18	1.0%	1,785	99.0%	1,803	100.0%
III	26	1.8%	1,430	98.2%	1,456	100.0%
IV	39	3.8%	975	96.2%	1,014	100.0%
Not recorded	3	1.8%	160	98.2%	163	100.0%
Grand Total	102	1.8%	5,664	98.2%	5,766	100.0%

Transfusion Rate by Size

Stone Dimensions (group)	Blood Transfusion					
	Yes		No		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
0-2cm	18	0.9%	1,957	99.1%	1,975	100.0%
>2cm	81	2.2%	3,547	97.8%	3,628	100.0%
Not recorded	3	1.8%	160	98.2%	163	100.0%
Grand Total	102	1.8%	5,664	98.2%	5,766	100.0%

Transfusion Rate by Comorbidities

Co-Morbidities	Blood Transfusion					
	Yes		No		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
Spina Bifida, Spinal Injury, Kyphoscoliosis	12	3.6%	322	96.4%	334	100.0%
Other Co-morbidity	90	1.7%	5,340	98.3%	5,430	100.0%
Not recorded			2	100.0%	2	100.0%
Grand Total	102	1.8%	5,664	98.2%	5,766	100.0%

Sepsis by Complexity

Post Operative Infection (group)										
Stone Complexity	Sepsis		Fever		None		Not recorded		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
I	18	1.3%	68	5.0%	1,110	81.4%	168	12.3%	1,364	100.0%
II	33	1.8%	92	5.0%	1,515	81.8%	212	11.4%	1,852	100.0%
III	29	1.9%	125	8.3%	1,168	77.8%	179	11.9%	1,501	100.0%
IV	51	4.9%	115	11.0%	756	72.2%	125	11.9%	1,047	100.0%
Not recorded	1	0.5%	8	3.6%	135	61.4%	76	34.5%	220	100.0%
Grand Total	132	2.2%	408	6.8%	4,684	78.3%	760	12.7%	5,984	100.0%

Sepsis by Size

Post Operative Infection (group)										
Stone Dimensions (group)	Sepsis		Fever		None		Not recorded		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
0-2cm	30	1.5%	99	4.9%	1,621	79.9%	280	13.8%	2,030	100.0%
>2cm	101	2.7%	301	8.1%	2,928	78.4%	404	10.8%	3,734	100.0%
Not recorded	1	0.5%	8	3.6%	135	61.4%	76	34.5%	220	100.0%
Grand Total	132	2.2%	408	6.8%	4,684	78.3%	760	12.7%	5,984	100.0%

Sepsis by Comorbidities

Post Operative Infection (group)											
Co-Morbidities	Sepsis		Fever		None		Not recorded		Grand Total		
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	
Spina Bifida, Spinal Injury, Kyphoscoliosi..	20	5.8%	46	13.3%	242	69.9%	38	11.0%	346	100.0%	
Other Co-morbidity	112	2.0%	362	6.5%	4,440	79.2%	689	12.3%	5,603	100.0%	
Not recorded					2	5.7%	33	94.3%	35	100.0%	
Grand Total	132	2.2%	408	6.8%	4,684	78.3%	760	12.7%	5,984	100.0%	

Clearance on Post operative radiological imaging by Complexity

Clearance On Post Operative Radiological Imaging During A

Stone Complexity	Yes		No		Not done		Deferred		Null		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
I	703	51.5%	118	8.7%	291	21.3%	113	8.3%	139	10.2%	1,364	100.0%
II	925	49.9%	256	13.8%	352	19.0%	166	9.0%	153	8.3%	1,852	100.0%
III	624	41.6%	339	22.6%	259	17.3%	156	10.4%	123	8.2%	1,501	100.0%
IV	322	30.8%	378	36.1%	153	14.6%	96	9.2%	98	9.4%	1,047	100.0%
Not recorded	2	0.9%							218	99.1%	220	100.0%
Grand Total	2,576	43.0%	1,091	18.2%	1,055	17.6%	531	8.9%	731	12.2%	5,984	100.0%

Clearance on Post operative radiological imaging by Stone Size

Clearance On Post Operative Radiological Imaging During A

Stone Dimensions (group)	Yes		No		Not done		Deferred		Null		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
0-2cm	949	46.7%	247	12.2%	429	21.1%	184	9.1%	221	10.9%	2,030	100.0%
>2cm	1,625	43.5%	844	22.6%	626	16.8%	347	9.3%	292	7.8%	3,734	100.0%
Not recorded	2	0.9%							218	99.1%	220	100.0%
Grand Total	2,576	43.0%	1,091	18.2%	1,055	17.6%	531	8.9%	731	12.2%	5,984	100.0%

Clearance on Post operative radiological imaging by Comorbidities

Clearance On Post Operative Radiological Imaging During A

Co-Morbidities	Yes		No		Not done		Deferred		Null		Grand Total	
	Number ..	% of Tot..	Number ..	% of Tot..	Number ..	% of Tot..	Number ..	% of Tot..	Number ..	% of Tot..	Number ..	% of Tot..
Spina Bifida, Spinal Injury, Kyphoscoliosis	144	41.6%	84	24.3%	50	14.5%	31	9.0%	37	10.7%	346	100.0%
Other Co-morbidity	2,430	43.4%	1,007	18.0%	1,005	17.9%	500	8.9%	661	11.8%	5,603	100.0%
Not recorded	2	5.7%							33	94.3%	35	100.0%
Grand Total	2,576	43.0%	1,091	18.2%	1,055	17.6%	531	8.9%	731	12.2%	5,984	100.0%

Intra-Operative Complications

Intraop Complications	Number of Records	% of Total Number of Recor..
Yes	116	1.9%
No	5,212	87.1%
Not recorded	656	11.0%
Grand Total	5,984	100.0%

Post-Operative Complications

Postop Complications	Number of Records	% of Total Number of Recor..
Yes	675	11.3%
No	4,630	77.4%
Not recorded	679	11.3%
Grand Total	5,984	100.0%

CD Grade of Post Operative Complications

Preprocedure ClavienDindo Gra..	Number of Records	% of Total Number of Recor..
Grade I	234	34.7%
Grade II	273	40.4%
Grade IIIa	78	11.6%
Grade IIIb	56	8.3%
Grade IVa	22	3.3%
Grade IVb	3	0.4%
Grade V	7	1.0%
Not recorded	2	0.3%
Grand Total	675	100.0%

CD by complexity

Preprocedure ClavienDindoGradeOfComplications																		
Stone Complexity	Grade I		Grade II		Grade IIIa		Grade IIIb		Grade IVa		Grade IVb		Grade V		Not recorded		Grand Total	
	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..	Number of Rec..	% of Total N..
I	65	48.5%	45	33.6%	10	7.5%	10	7.5%	2	1.5%			2	1.5%			134	100.0%
II	52	31.9%	68	41.7%	25	15.3%	14	8.6%	3	1.8%			1	0.6%			163	100.0%
III	59	32.1%	79	42.9%	20	10.9%	20	10.9%	2	1.1%	1	0.5%	2	1.1%	1	0.5%	184	100.0%
IV	52	29.4%	77	43.5%	19	10.7%	10	5.6%	14	7.9%	2	1.1%	2	1.1%	1	0.6%	177	100.0%
Not recorded	6	35.3%	4	23.5%	4	23.5%	2	11.8%	1	5.9%							17	100.0%
Grand Total	234	34.7%	273	40.4%	78	11.6%	56	8.3%	22	3.3%	3	0.4%	7	1.0%	2	0.3%	675	100.0%

CD by Size

Preprocedure ClavienDindoGradeOfComplications																		
Stone Dimensions (group)	Grade I		Grade II		Grade IIIa		Grade IIIb		Grade IVa		Grade IVb		Grade V		Not recorded		Grand Total	
	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..
0-2cm	74	39.8%	69	37.1%	18	9.7%	17	9.1%	5	2.7%			2	1.1%	1	0.5%	186	100.0%
>2cm	154	32.6%	200	42.4%	56	11.9%	37	7.8%	16	3.4%	3	0.6%	5	1.1%	1	0.2%	472	100.0%
Not recorded	6	35.3%	4	23.5%	4	23.5%	2	11.8%	1	5.9%							17	100.0%
Grand Total	234	34.7%	273	40.4%	78	11.6%	56	8.3%	22	3.3%	3	0.4%	7	1.0%	2	0.3%	675	100.0%

CD by Comorbidities

Preprocedure ClavienDindoGradeOfComplications																		
Co-Morbidities	Grade I		Grade II		Grade IIIa		Grade IIIb		Grade IVa		Grade IVb		Grade V		Not recorded		Grand Total	
	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..	Number of Records	% of Total Number..
Spina Bifida, Spinal Injury, Kyphoscoliosis	13	23.2%	27	48.2%	6	10.7%	3	5.4%	5	8.9%	2	3.6%					56	100.0%
Other Co-morbidity	221	35.7%	246	39.7%	72	11.6%	53	8.6%	17	2.7%	1	0.2%	7	1.1%	2	0.3%	619	100.0%
Grand Total	234	34.7%	273	40.4%	78	11.6%	56	8.3%	22	3.3%	3	0.4%	7	1.0%	2	0.3%	675	100.0%

Clearance on Post operative radiological imaging by Complexity

Clearance On Post Operative Radiological Imaging During A

Stone Complexity	Yes		No		Not done		Deferred		Null		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
I	703	51.5%	118	8.7%	291	21.3%	113	8.3%	139	10.2%	1,364	100.0%
II	925	49.9%	256	13.8%	352	19.0%	166	9.0%	153	8.3%	1,852	100.0%
III	624	41.6%	339	22.6%	259	17.3%	156	10.4%	123	8.2%	1,501	100.0%
IV	322	30.8%	378	36.1%	153	14.6%	96	9.2%	98	9.4%	1,047	100.0%
Not recorded	2	0.9%							218	99.1%	220	100.0%
Grand Total	2,576	43.0%	1,091	18.2%	1,055	17.6%	531	8.9%	731	12.2%	5,984	100.0%

Clearance on Post operative radiological imaging by Stone Size

Clearance On Post Operative Radiological Imaging During A

Stone Dimensions (group)	Yes		No		Not done		Deferred		Null		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
0-2cm	949	46.7%	247	12.2%	429	21.1%	184	9.1%	221	10.9%	2,030	100.0%
>2cm	1,625	43.5%	844	22.6%	626	16.8%	347	9.3%	292	7.8%	3,734	100.0%
Not recorded	2	0.9%							218	99.1%	220	100.0%
Grand Total	2,576	43.0%	1,091	18.2%	1,055	17.6%	531	8.9%	731	12.2%	5,984	100.0%

Patients with Follow up

Follow up	Number of Records	% of Total Number of Records
Follow-up	908	15.2%
No Follow up	5,076	84.8%
Grand Total	5,984	100.0%

Stone Free at Follow up

Stone Free At Follow Up

Stone Complexity	No		Yes		Null		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
I	25	11.7%	181	85.0%	7	3.3%	213	100.0%
II	63	21.8%	218	75.4%	8	2.8%	289	100.0%
III	73	30.2%	159	65.7%	10	4.1%	242	100.0%
IV	71	48.0%	64	43.2%	13	8.8%	148	100.0%
Not recorded	7	43.8%	9	56.3%			16	100.0%
Grand Total	239	26.3%	631	69.5%	38	4.2%	908	100.0%

Stone Free by Size

Stone Free At Follow Up

Stone Dimensions (group)	No		Yes		Null		Grand Total	
	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..	Number of Records	% of Total Number of Records ..
0-2cm	60	21.4%	210	75.0%	10	3.6%	280	100.0%
>2cm	172	28.1%	412	67.3%	28	4.6%	612	100.0%
Not recorded	7	43.8%	9	56.3%			16	100.0%
Grand Total	239	26.3%	631	69.5%	38	4.2%	908	100.0%

Participating Hospital Centres 2017, 2018 and 2019

We are grateful to consultants from the following Centres / trusts who returned data for these analyses:

Addenbrooke's Hospital, Cambridge
Aintree University Hospital, Liverpool
Alexandra Hospital, Redditch
Arrowe Park Hospital, Wirral
Barking, Havering & Redbridge
University Hospital
Basildon University Hospital, Essex
Basingstoke and North Hampshire
Hospital
Bedford Hospital
Blackpool Victoria Hospital
Bradford Royal Infirmary
Broadgreen Hospital, Liverpool
Broomfield Hospital, Chelmsford
Castle Hill Hospital, Hull
Chelsea & Westminster Hospital,
London
Cheltenham General Hospital
Chesterfield Royal Hospital
Churchill Hospital, Oxford
City Hospital Birmingham
Colchester General Hospital
Countess of Chester Hospital
Cumberland Infirmary, Carlisle
Darent Valley Hospital, Kent
Derriford Hospital, Plymouth

Diana, Princess of Wales Hospital,
Grimsby
Doncaster Royal Infirmary
Dorset County Hospital, Dorchester
Ealing Hospital
East Surrey Hospital, Redhill
Eastbourne District General Hospital
Epsom General Hospital, Surrey
Forth Valley Royal Hospital, Larbert
Freeman Hospital, Newcastle
Frimley Park Hospital
Glasgow Royal Infirmary
Good Hope Hospital, Sutton Coldfield
Guy's & Thomas's Hospital
Hairmyres Hospital, East Kilbride
Heartlands Hospital, Birmingham
Huddersfield Royal Infirmary
Ipswich Hospital, Suffolk
James Cook University Hospital,
Middlesbrough
Kent & Canterbury Hospital
King's College Hospital, London
Leicester General Hospital
Leighton Hospital, Cheshire
Lincoln County Hospital
Lister Hospital, Stevenage

Luton & Dunstable University Hospital
Maidstone Hospital
Manchester Royal Infirmary
Milton Keynes Hospital
Monklands District General Hospital,
Airdrie
Morrison Hospital, Swansea
Musgrove Park Hospital, Taunton
New Cross Hospital, Wolverhampton
Norfolk & Norwich University Hospital
North Manchester General Hospital
North Middlesex Hospital, London
Northampton General Hospital
Northwick Park Hospital
Nottingham City Hospital
Pilgrim Hospital, Boston
Pinderfields General Hospital,
Wakefield
Queen Alexandra Hospital, Portsmouth
Queen Elizabeth Hospital, Birmingham
Raigmore Hospital, Inverness
Rotherham Hospital
Royal Albert Edward Infirmary, Wigan
Royal Berkshire Hospital, Reading
Royal Blackburn Hospital
Royal Bolton Hospital

Royal Bournemouth General Hospital
Royal Cornwall Hospital, Truro
Royal Derby Hospital
Royal Devon & Exeter Hospital
Royal Free Hospital, London
Royal Gwent Hospital
Royal Hallamshire Hospital, Sheffield
Royal Hampshire County Hospital,
Winchester
Royal Liverpool University Hospital
Royal Preston Hospital
Royal Stoke University Hospital
Royal Sussex County Hospital, Brighton
Royal United Hospital, Bath
Russells Hall Hospital, Dudley

Salford Royal Hospital
Salisbury District Hospital
Scunthorpe General Hospital
Southampton General Hospital
Southmead Hospital, Bristol
St George's Hospital, London
St James's University Hospital, Leeds
St Peter's Hospital, Chertsey
St Richard's Hospital, Chichester
Stepping Hill Hospital, Stockport
Sunderland Royal Hospital
The Queen Elizabeth Hospital, King's
Lynn
Torbay Hospital, Torquay
University College Hospital, London

University Hospital of Wales, Cardiff
Walsgrave Hospital, Coventry
West Suffolk Hospital, Bury St Edmunds
Western General Hospital, Edinburgh
Wexham Park Hospital, Slough
Whipps Cross University Hospital,
London
Whiston Hospital, Prescot
Whittington Hospital, London
Worthing Hospital
Wycombe Hospital, High Wycombe
Wythenshawe Hospital, Manchester
York Hospital