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Cauldshiels and Melburn Lodge Bed and Capacity Model
Summary of findings

Summary

An Alzheimer Scotland and Scottish Government national report identified that too many people with dementia were being cared for in hospital beds and recommended reduction of inpatient beds and development of alternatives. NHS Borders currently has

- Cauldshiels Dementia Assessment Unit – 14 beds
- Melburn Lodge Dementia continuing care facility – 12 beds

The national report recommended NHS Borders should have 15 beds.

A project to develop alternative models of care has been established and is based on:

1. Establishment of a support team for Community Hospitals and Care Homes (CHAT team)
2. Provision of 5 additional specialist dementia beds

A modelling exercise was commissioned to assess the impact of these changes on numbers of inpatient beds required and the resource requirements for the alternative services.

The outputs of the modelling exercise indicate the following;

- The current admissions and discharges are in balance
- Demand for beds since January 2019 has reduced to a steady requirement of 14-16 beds
- The impact of CHAT team will reduce this requirement by 5.6 beds
- The additional specialist dementia care home beds will reduce this requirement by 5 beds
- Therefore, residual inpatients beds required are 5 beds

Methodology

The model has been developed based on the following:

1. Review of Cauldshiels and Melburn Lodge activity data for the last 3 years. During this period, the services moved from capturing data on EPEX to TrakCare. Most analysis was carried out on EPEX dataset as it was the largest data run (2 years). A sample analysis of TrakCare data showed similar activity data to the EPEX data, so confirmed this approach was valid. Data on Delayed Discharges was taken from TrakCare as EPEX did not record this data in a robust manner.
2. Development of a predictor model for future bed requirements. The model was based on activity and percentage split of admissions and discharges by source and allows these numbers to be adjusted according to predicted future admission levels and length of stay. Assumptions on the impact of the proposed new service model were provided by Dr Lucy Calvert, Consultant Psychiatrist for Older People and Irene Thomson, Service Manager and reviewed by Peter Lerpiniere, Associate Director of Nursing, Lisa Clark, Clinical Nurse Manager and Christine Proudfoot, Dementia Nurse Consultant.

3. Development of predicted resource requirements for alternative care models. Only limited work on this aspect of model has been undertaken, based on advice from clinicians and managers. Further work can be carried out once the output of the current model has been reviewed.

Analysis

Detailed data tables are attached as appendices. The bed model based on current assumptions is also included.

The summary of findings is as follows:

Review of Cauldshiels and Melburn Lodge activity data for the last 3 years.

1. The current system is in balance:
 - Numbers of patients within Cauldshiels and Melburn Lodge have been relatively stable over the past 3 years (up to January 2019), with an average of 11 patients in Cauldshiels and 10 in Melburn Lodge
 - The average occupancy in Cauldshiels is around 80%, indicating that there is not a waiting list of patients for Cauldshiels (otherwise occupancy would be closer to 100%)
 - The average admissions to Cauldshiels are 4 per month. Discharges are also 4 per month
 - There is some flow between Cauldshiels and Lindean (Elderly Functionally Mentally Ill facility) representing overflow when the ward is full. However, the clinical view was that there was similar overflow from Lindean to Cauldshiels and these two cancelled each other out
 - There is a predicted increase in demand, based on demographic data adjusted for age and sex, of 1 additional admission per year each year until 2022.
2. There has been a reduction of around 8 patients across Cauldshiels and Melburn Lodge since January 2019. (Average 23 beds (previous 3 years) falling to approximately 15 beds to date (14 on 19th July)). Professional advice indicates that this is related to the purchase of 7 Specialist Dementia beds opening in Dec 2018/Jan 2019 and some improvements in social care and social work support. Given that the data suggests a steady state, this occupancy is unlikely to change (i.e. increase) unless there are system changes.
3. Admissions to Cauldshiels split into three groups
 - Approximately 40% from home – (27% direct, 12% BGH (BGH admissions are assumed to be 50% home and 50% care home))
 - 40% from care/nursing homes (including above assumptions around source of BGH admissions)
 - Remainder from other sources
 - All Melburn Lodge admissions come from Cauldshiels
4. Current discharge pattern is
 - 50% discharged to care homes
 - 7% discharged home
 - 11% died
 - 16% transferred to Melburn Lodge
5. The split between types of care homes is difficult to calculate but estimated to be;
 - 74% to 'specialist' dementia homes (this includes Knowe South, Riverside etc)
 - 24% to care homes

6. 50% of patients in Cauldshiels stayed for less than 60 days and 66% for less than 90 days. Melburn length of stay is not reliably calculable due to the small numbers and very long lengths of stay.

Development of a predictor model for future bed requirements

1. The CHAT team is assumed to achieve the following;
 - a. No impact on admissions from home
 - b. Reducing admissions from care and nursing homes by 50%
 - c. Reducing admissions for physical presentations at BGH (e.g. fractured NOF) by 50% due to improved support and education within care homes
 - d. Reducing length of stay for patient discharged to care homes by 20%
 - e. Reducing occupied beddays for patients who die by 50% (better support for care homes would reduce admissions of patients in terminal stages by 50%)

There would also be a 50% reduction in length of wait for Melburn Lodge beds because the two units will be combined (assumes 50% of wait was delay to access Melburn bed).

2. Modelling indicates that, based on these assumptions, the CHAT team will reduce demand for hospital beds by 2059 occupied beddays (OBDs) or the equivalent of 5.6 beds (1318 OBDs/ 3.6 beds through admission avoidance and 741 OBDs/2 beds through reduced length of stay)
3. There has been no modelling of the potential impact of the team on the level of care home required. However, professional judgement indicates that more patients could be supported in non-specialist care and nursing homes and even in residential homes.

Development of predicted resource requirements for alternative care models

1. Modelling of demand and capacity required for the new CHAT team has not been undertaken as yet. As the team has not yet commenced, the level of resource required is not fully known. At the moment, the CHAT team establishment is based on professional judgement regarding the level of staffing required to maintain a sustainable locality based model.
2. A separate modelling exercise has been undertaken to determine the demand and turnover within specialist dementia care home beds. Further work is required to firm up assumptions around likely numbers of patients requiring specialist dementia beds.

Bed Modelling summary

The bed model as outlined above indicates the following:

		Total expected bed requirements in Melburn Lodge
<i>Average occupancy Cauldshiels/Melburn Lodge to Jan 2019</i>	<i>21 patients</i>	<i>21 beds</i>
<i>Murray House beds open Jan 2019</i>	<i>7 patients</i>	<i>14 beds</i>
CHAT team	5.6 patients	9 beds
Additional specialist dementia beds to be opened	5 patients	4 beds

Appendices

- Admissions / Discharges
- Length of stay
- OBD 2017-18
- Age/Sex Mix and Population projections
- Pathways

Time period: Admissions between January 2015 to March 2018 (39 months)

Admissions / Discharges

Cauldshiels

Source of admission	BGH	BGH A&E	Care Home	Community Hospital	Home	Huntlyburn	Lindean	Melburn Lodge	Nursing Home	Grand Total
% of Admissions	20	5	16	5	27	3	11	3	10	100
Total admissions	30	7	24	8	40	4	16	5	15	149
Average per month	0.77	0.18	0.62	0.21	1.03	0.10	0.41	0.13	0.38	3.82
Min-Max	0-2	0-2	0-5	0-1	0-4	0-3	0-2	0-2	0-3	0-9

Melburn Lodge

Source of admission	Cauldshiels	Lindean	Nursing Home	Grand Total
% of Admissions	93	4	4	100
Total admissions	25	1	1	27
Average per month	0.64	0.03	0.03	0.69
Min-Max	0-4	0-1	0-1	0-5

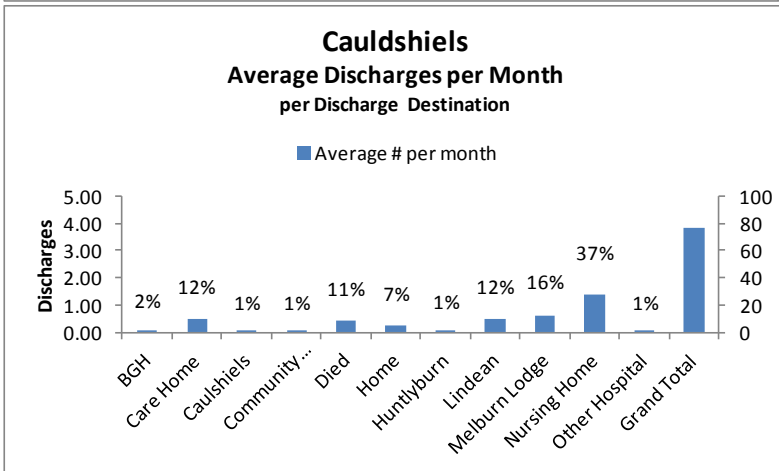
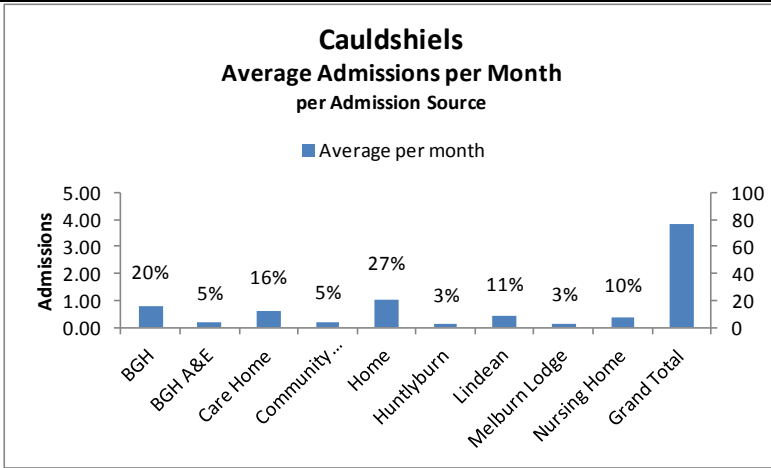
Discharge Destinations

Destination	Patients	%	Average per month
BGH	3	2	0.08
Care Home	18	12	0.46
Cauldshiels	1	1	0.03
Community Hospital	1	1	0.03
Died	16	11	0.41
Home	10	7	0.26
Huntlyburn	2	1	0.05
Lindean	18	12	0.46
Melburn Lodge	24	16	0.62
Nursing Home	55	37	1.41
Other Hospital	1	1	0.03
Grand Total	149		3.82

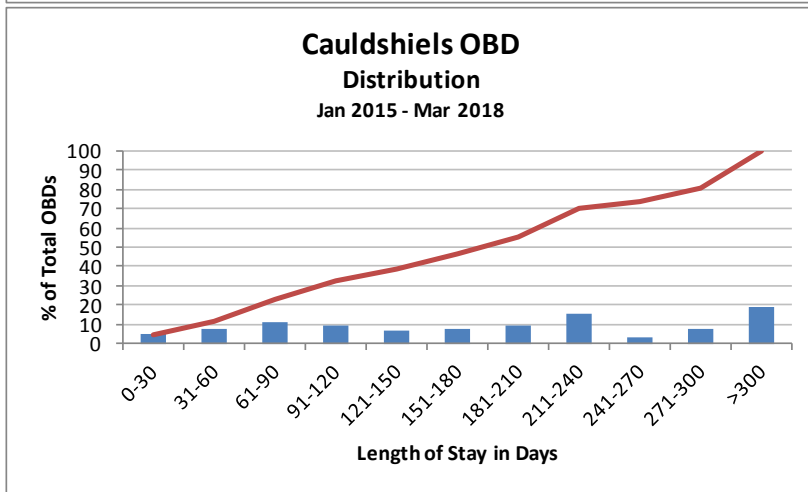
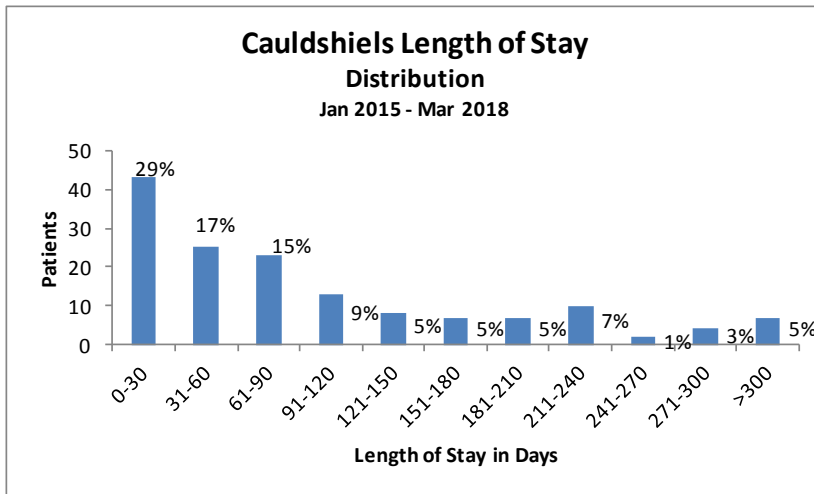
Melburn Lodge Discharge Destinations

Destination	Patients	%	Average per month
Care Home	7	28	0.18
Cauldshiels	3	12	0.08
Died	11	44	0.28
Home	1	4	0.03
Lindean	2	8	0.05
Nursing Home	1	4	0.03

Grand Total	25		0.64
<i>Not discharged Yet</i>	2		



Length of Stay

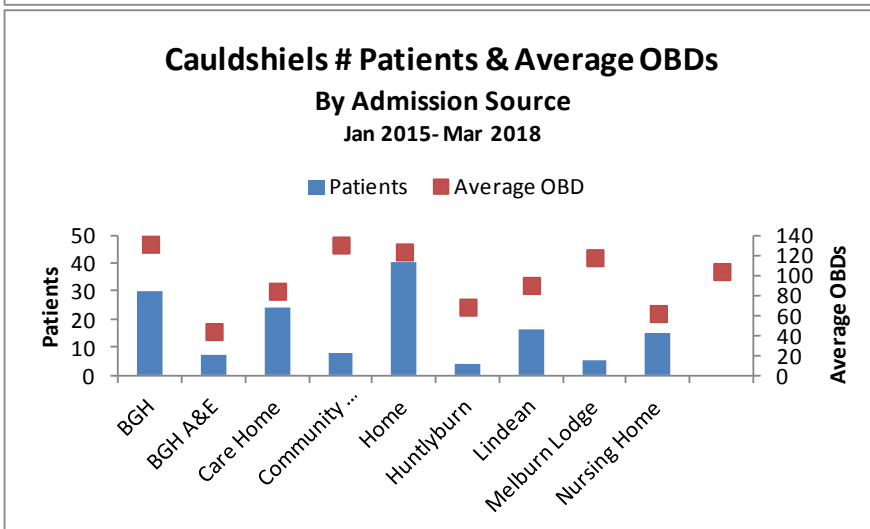
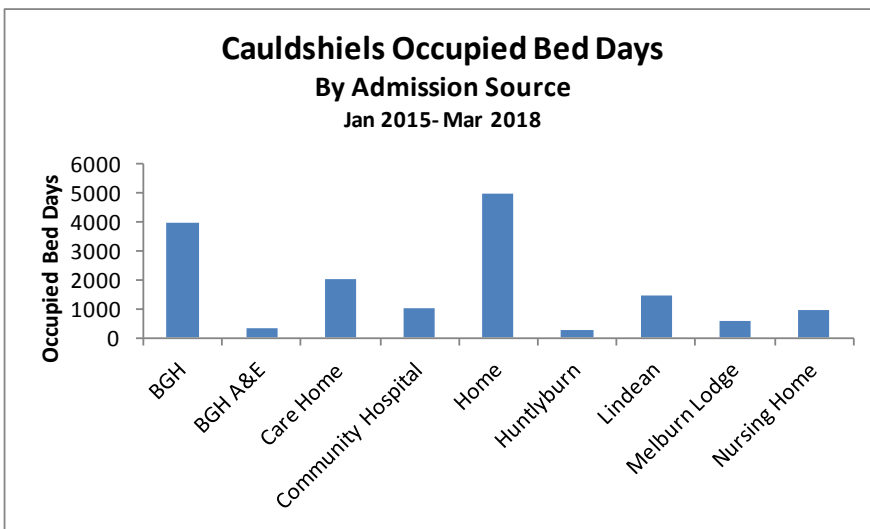


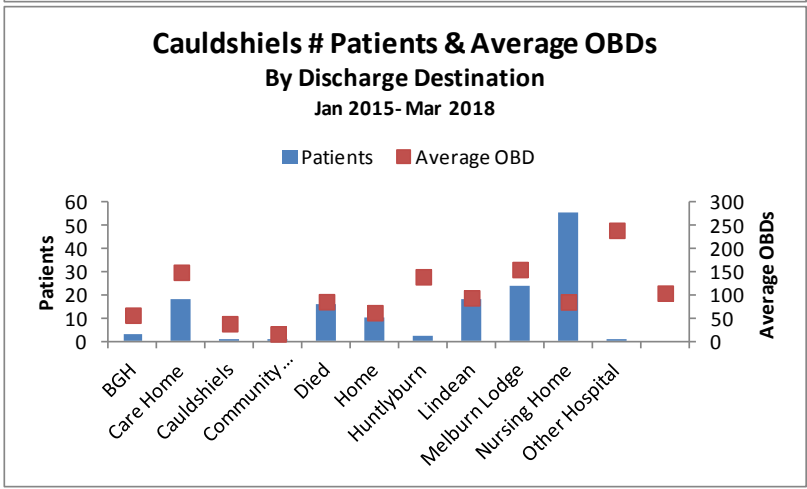
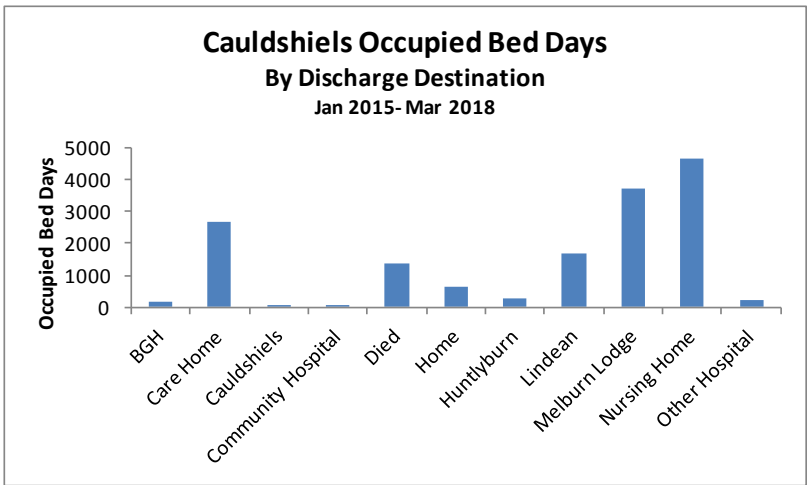
Cauldshiels Total Length of Stay by Admission Source (All 2015-2018 admissions)

LoS by Admission Group	Patients	OBDs	Average LoS
BGH	30	3931	131
BGH A&E	7	307	44
Care Home	24	2019	84
Community Hospital	8	1042	130
Home	40	4934	123
Huntlyburn	4	273	68
Lindean	16	1439	90
Melburn Lodge	5	588	118
Nursing Home	15	928	62
Grand Total	149	15461	104

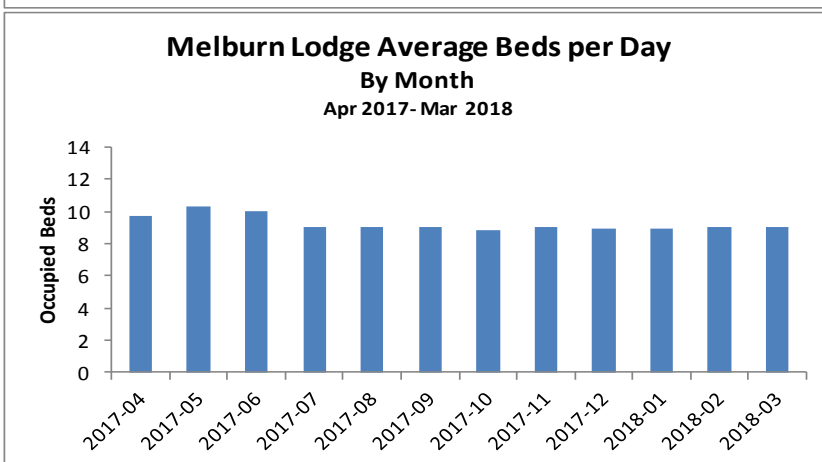
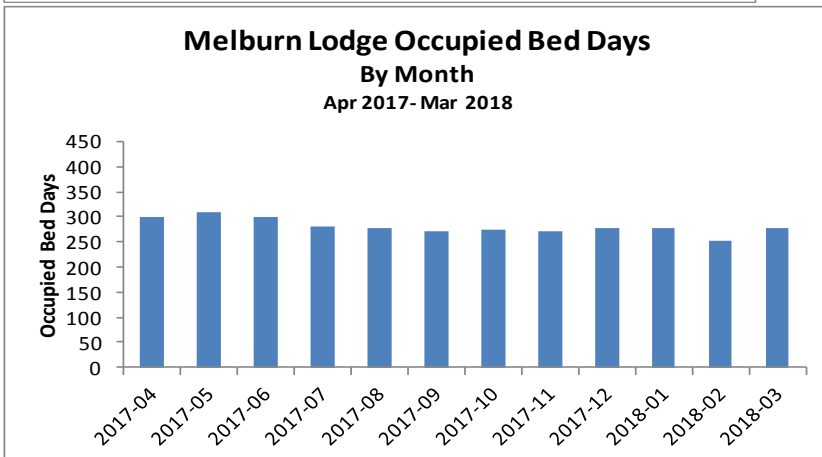
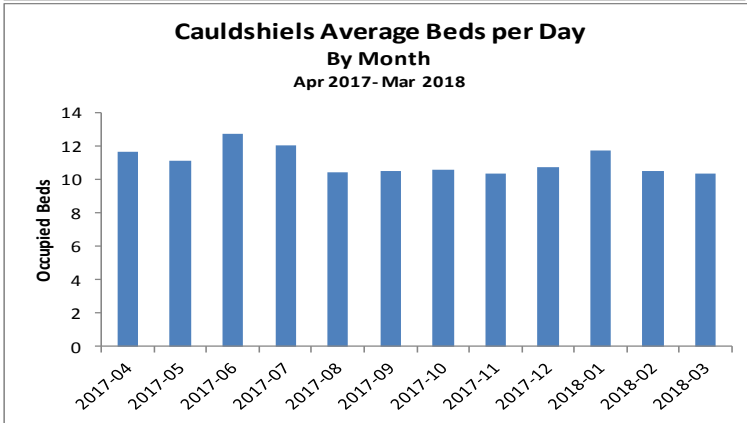
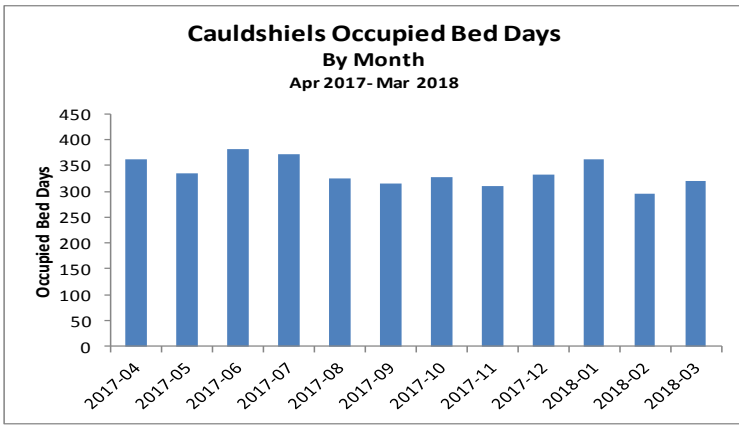
Cauldshiels Total Length of Stay by Discharge Destination (All 2015-2018 admissions)

LoS by Discharge Group	Patients	OBDs	Average LoS
BGH	3	169	56
Care Home	18	2676	149
Cauldshiels	1	38	38
Community Hospital	1	16	16
Died	16	1366	85
Home	10	617	62
Huntlyburn	2	278	139
Lindean	18	1686	94
Melburn Lodge	24	3710	155
Nursing Home	55	4666	85
Other Hospital	1	239	239
Grand Total	149	15461	104





OBD 2017-18
Actual beds Occupied during each month



Age/Sex Mix and Population projections

Cauldshiels Age Group / LoS

Age Group	LoS	0-30	31-60	61-90	91-120	121-150	151-180	181-210	211-240	241-270	271-300	>300	Grand Total
Under 65		3	2			1		1	1			1	9
65-74		5	2	3	3	2	1		2		1	4	23
75-84		25	14	12	8	1	4	5	3	1	2	2	77
85+		10	7	8	2	4	2	1	4	1	1		40
Grand Total		43	25	23	13	8	7	7	10	2	4	7	149

Cauldshiels Age Group / LoS

Age Group	LoS	0-30	31-60	61-90	91-120	121-150	151-180	181-210	211-240	241-270	271-300	>300	Grand Total
Female		25	14	11	4	4	5	4	3	0	0	1	71
Female Under 65		3	1					1	1			1	7
Female 65-74		3	1			1							5
Female 75-84		12	9	7	3	1	3	2	1				38
Female 85+		7	3	4	1	2	2	1	1				21
Male		18	11	12	9	4	2	3	7	2	4	6	78
Male Under 65			1			1							2
Male 65-74		2	1	3	3	1	1		2		1	4	18
Male 75-84		13	5	5	5		1	3	2	1	2	2	39
Male 85+		3	4	4	1	2			3	1	1		19
Grand Total		43	25	23	13	8	7	7	10	2	4	7	149

Population Projections (based on Age / Gender Mix)

Patients Admitted

	Population 2017	Population 2018	Population 2019	Population 2020	Population 2021	Population 2030	Population 2040
All Patients Admitted 2015-18	149	152	155	158	162	202	243
%increase on 2017	0	2	4	6	8	35	63
Average per year	46	47	48	49	50	62	75

Projected Average Beds per day

	Population 2017	Population 2018	Population 2019	Population 2020	Population 2021	Population 2030	Population 2040
2017/18 OBD	4039	4115	4202	4273	4365	5403	6413
%increase on 2017	0	2	4	6	8	34	59
Beds per day	11	11	12	12	12	15	18

Pathways

Cauldshiels Top 13 Pathways by %

Source	Destination	%
Home	Nursing Home	11
Care Home	Nursing Home	7
BGH	Care Home	5
BGH	Died	5
BGH	Nursing Home	5
Home	Lindean	5
Nursing Home	Nursing Home	5
BGH	Melburn Lodge	3
Care Home	Melburn Lodge	3
Home	Home	3
Home	Melburn Lodge	3
Lindean	Lindean	3
Lindean	Nursing Home	3
		61%

Impact of Community Hospital and Care Home Team on occupied beddays (predicted)

