



**GIG**  
CYMRU  
**NHS**  
WALES

Bwrdd Iechyd Prifysgol  
Hywel Dda  
University Health Board

**Canolbarth  
a Gorllewin  
Iachach**

Cenedlaethau'r  
dyfodol yn byw  
bywydau iach

Date: January 2022 **DRAFT**

SAFE, SUSTAINABLE, ACCESSIBLE AND KIND



# Hywel Dda University Health Board's A Healthier Mid and West Wales Programme Business Case

## Appendix 8A: Design Assumptions



## Document History

### Document Location

This document is stored electronically in:

S:\H DUHB\PPIC\Health Analytics\Projects\01\_Active\HA\_2021\_001 - Programme Business Case\02\_Project\_Docs\Design Assumptions - v0.1.docx

S:\H DUHB\Planning\AHMWW PBC New Hospital\Activity Modelling Workstream\Design Assumptions - v0.2.docx

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### Version Control

Version	Current Revision Date	Summary of Changes	Author
0.1	28/04/2021	First Issue	Gareth Jenkins
0.2	12/07/2021	To match assumptions to Consultation Proposal (B+) for Most Likely, Minimum and Maximum	Eldeg Rosser
0.3	21/07/2021	Acute to community step-down outpatients assumption clarified. Min, Likely, Max not required here.	Gareth Jenkins
04	12/08/2021	Removal of narrative re virtual consultation as the model does not currently transact any of this Note added to Design Assumption 2 that manual adjustments have been made outside of the model	Eldeg Rosser

### Approvals

This document requires the following approvals.

Name	Title	Date of Issue	Version
Anthony Tracey	Assistant Director of Digital Services	28/04/2021	

### Distribution

This document has been distributed to:

No.	Name	Title	Date of Issue	Version
	Anthony Tracey	Assistant Director of Digital Services	28/04/2021	0.1
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	Gareth Thomas	Information Development Manager	28/04/2021	0.1
	Gareth Jenkins	Advanced Analyst	28/04/2021	0.1
	Mark Berford	Director – Perfectly Data	28/04/2021	0.1
	Matt Hill	Director – MH Insight Ltd	28/04/2021	0.1
	Anthony Tracey	Assistant Director of Digital Services	12/07/2021	0.2
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	Gareth Thomas	Information Development Manager	12/07/2021	0.2
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	Mark Berford	Director – Perfectly Data	12/07/2021	0.2
	Matt Hill	Director – MH Insight Ltd	12/07/2021	0.2
	Paul Williams	Assistant Director of Strategic Planning	12/07/2021	0.2
	Eldeg Rosser	Head of capital Planning	12/07/2021	0.2
	Anthony Tracey	Assistant Director of Digital Services	12/07/2021	0.3
	Gareth Beynon	Head of Information Services	12/07/2021	0.3
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	Gareth Thomas	Information Development Manager	12/08/2021	0.4

	Gareth Jenkins	Advanced Analyst	12/08/2021	0.4
	Eldeg Rosser	Head of Capital Planning	12/08/2021	0.4
	Rhian Davies	Assistant Finance Director	12/08/2021	0.4

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## 1 Purpose of Document

The purpose of this document is to provide the latest Health Board design assumptions currently being pursued by the Programme Business Case (PBC).

The design assumptions in v0.2 are taken from the design assumptions used





Likely scenario – based on the Consultation Design Assumptions

Minimum and Maximum scenarios taken from PBC working papers from the period 2018-2020








The levels of these targets are detailed in the following table and Appendices.

## 2 Design Assumptions

The design assumption and the proposed level of Minimum/Likely/Maximum ambitions are:

<b>Population</b>  Impact of increase in the population over 7 years (to 2024/25)	<ul style="list-style-type: none"> <li>Agreed as is, but note original power bi horizon model has a ten year projection.</li> </ul>
<b>Site changes</b>  Flow of patients to nearest site providing required service*	<ul style="list-style-type: none"> <li>Agreed as is.</li> <li>Manual adjustments made outside of the model</li> </ul>
<b>Admission avoidance</b>  Reduction to existing levels of emergency admissions for ACS conditions	<ul style="list-style-type: none"> <li>Minimum 30%</li> <li>Likely 40%</li> <li>Maximum 50%</li> <li>As per Appendix 1</li> </ul>
<b>Bed discharge</b>  Reduction in lengths of stay to the median of the peer group	<ul style="list-style-type: none"> <li>Assumption is applied in original Horizon model.</li> <li>As per Assumptions in Appendix 2</li> </ul>



<p><b>Outpatient change</b></p> <p> <b>25%</b></p> <p>Reduction in follow-up outpatient appointments</p>	<ul style="list-style-type: none"> <li>• Minimum - 15% reduction</li> <li>• Likely - 25% reduction</li> <li>• Maximum - 35% reduction</li> <li>• As per Appendix 3</li> </ul>
<p><b>A&amp;E/MIU change</b></p> <p> <b>4.3%</b></p> <p></p> <p>Reduction in overall level of A&amp;E &amp; MIU attendance (net 0% change against demographic growth over 7 years)</p>	<ul style="list-style-type: none"> <li>• Agreed as is.</li> <li>• Assumption is applied in original Horizon model.</li> <li>• As per Assumptions in Appendix 4</li> </ul>
<p><b>A&amp;E/MIU proportions</b></p> <p> <b>30%</b></p> <p>Attendances currently presenting at A&amp;E will present at MIUs instead</p>	<ul style="list-style-type: none"> <li>• Agreed as is.</li> <li>• Assumption is applied in original Horizon model</li> <li>• As per Assumptions in Appendix 4</li> </ul>
<p><b>Acute to community step-down – beds</b></p> <p><b>50%</b> </p> <p>Patients in an acute bed will step down to a community bed within 72 hours of admission</p>	<ul style="list-style-type: none"> <li>• Minimum - 40%</li> <li>• Likely - 50%</li> <li>• Maximum - 60%</li> <li>• As per Assumptions in Appendix 5</li> </ul>
<p><b>Acute to community step-down – outpatients</b></p> <p><b>90%</b> </p> <p>New and follow-up appointments will take place in a community setting</p>	<ul style="list-style-type: none"> <li>• 90% of remainder of the onsite OP's to be done in Community setting.</li> <li>• As per Appendix 3</li> </ul>
<p><b>Daycase community hub shift</b></p> <p><b>50%</b> </p> <p>Daycases for medical specialties will take place in a community setting</p>	<ul style="list-style-type: none"> <li>• Assumption is applied in original Horizon model</li> <li>• Minimum 40%</li> <li>• Likely 50%</li> <li>• Maximum 60%</li> <li>• As per Appendix 6</li> </ul>



### Level 1 - Primary care networks

Document Name: Appendix 8A - Design Assumptions2  
S:\Hywel Dda\Corporate Services Directorate\LHB Board & Stat  
Committee\Public Board\13. 2022\1. 27 January 2022\Web  
papers\Item 3.1.3 PBC\Appendix 8\Appendix 8A - Design  
Assumptions.docx  
Author: Gareth Jenkins

Approximately 11,000 admissions and 125,000 bed days are attributable to emergency admissions for either chronic or acute ACS conditions that should not usually require hospital admission across Hywel Dda sites each year. This is approximately 40% of all bed days.

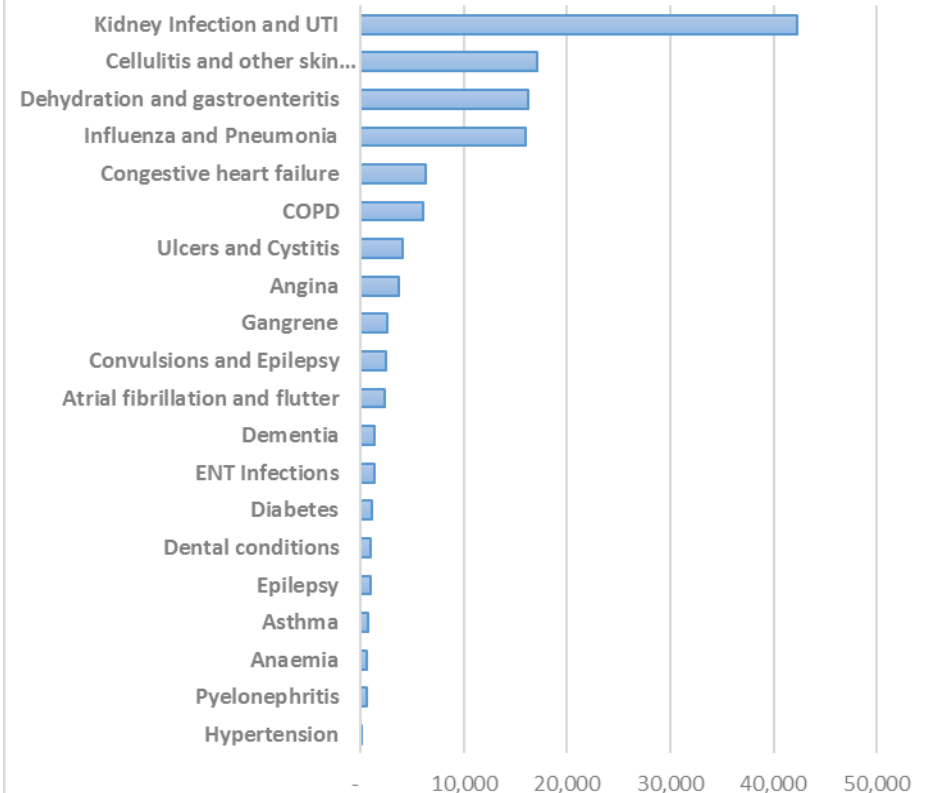
ACSs are conditions where effective community care and case management can help prevent the need for hospital admission. There are 19 ACSC's identified across the following categories:

- Vaccine preventable
- Chronic
- Acute

Where an individual has been admitted for an acute ACS condition, it may indicate that they have deteriorated more than should have been allowed by the adequate provision of healthcare in primary care or as a hospital outpatient.

Where an individual has been admitted for a chronic ACS condition, it is an indicator of how successfully long term conditions like asthma, diabetes, epilepsy and dementia are being managed in the community setting. There are variances in the rate between different localities, suggesting that there is more scope in some areas for improvement in admission avoidance and supporting people with long term conditions more effectively in the community.

Bed Days attributable to ACS Conditions (2016)





## Appendix 2

**Earlier Supported Discharge:** Earlier supported discharge to the out of hospital setting, increased use of community locality services

Adm Type	Specialty	Likely	New Care Package for displaced activity	% Requiring further support
EL	Cardiology	0%	ESD Streaming	100%
EL	Clinical Haematology	0%	ESD Streaming	100%
EL	Clinical Oncology	0%	ESD Streaming	100%
EL	ENT	-42%	ESD Streaming	100%
EL	Gastroenterology	-32%	ESD Streaming	100%
EL	General Medicine	0%	ESD Streaming	100%
EL	General Surgery	-12%	ESD Streaming	100%
EL	Gynaecology	-52%	ESD Streaming	100%
EL	Medical Oncology	0%	ESD Streaming	100%
EL	Midwifery	0%	ESD Streaming	100%
EL	Antenatal Obstetrics	0%	ESD Streaming	100%
EL	Obstetrics	-9%	ESD Streaming	100%
EL	Ophthalmology	-34%	ESD Streaming	100%
EL	Oral Surgery	0%	ESD Streaming	100%
EL	Paediatric Medicine	0%	ESD Streaming	100%
EL	Pain Management	0%	ESD Streaming	100%
EL	Palliative Medicine	0%	ESD Streaming	100%
EL	Trauma & Orthopaedics	-9%	ESD Streaming	100%
EL	Urology	-32%	ESD Streaming	100%
EL	Elderly Medicine	-28%	ESD Streaming	100%
EL	General Practice - Other than Maternity	0%	ESD Streaming	100%
EL	Rheumatology	0%	ESD Streaming	100%
EL	Nephrology	0%	ESD Streaming	100%
NE	Accident & Emergency	-14%	ESD Streaming	100%
NE	Anaesthetics	0%	ESD Streaming	100%
NE	Cardiology	-5%	ESD Streaming	100%
NE	Clinical Haematology	0%	ESD Streaming	100%
NE	Dermatology	0%	ESD Streaming	100%
NE	Elderly Medicine	-22%	ESD Streaming	100%
NE	Endocrinology	-30%	ESD Streaming	100%
NE	ENT	-2%	ESD Streaming	100%
NE	Gastroenterology	0%	ESD Streaming	100%
NE	General Medicine	-15%	ESD Streaming	100%
NE	General Practice - Other than Maternity	0%	ESD Streaming	100%
NE	General Surgery	-13%	ESD Streaming	100%
NE	Gynaecology	0%	ESD Streaming	100%
NE	Medical Oncology	-6%	ESD Streaming	100%
NE	Midwifery	-7%	ESD Streaming	100%
NE	Nephrology	0%	ESD Streaming	100%
NE	Obstetrics	-3%	ESD Streaming	100%
NE	Ophthalmology	0%	ESD Streaming	100%
NE	Paediatric Medicine	0%	ESD Streaming	100%
NE	Pain Management	0%	ESD Streaming	100%
NE	Palliative Medicine	0%	ESD Streaming	100%
NE	Rheumatology	0%	ESD Streaming	100%
NE	Trauma & Orthopaedics	-18%	ESD Streaming	100%
NE	Urology	-33%	ESD Streaming	100%
NE	Haematology	0%	ESD Streaming	100%
NE	Neurology	0%	ESD Streaming	100%
NE	Antenatal Obstetrics	0%	ESD Streaming	100%
NE	Clinical Oncology	0%	ESD Streaming	100%

### Shift sensitivity LoS

Min	Likely	Max
0%	0%	-9%
0%	0%	0%
0%	0%	0%
0%	-42%	-60%
0%	-32%	-48%
0%	0%	0%
0%	-12%	-28%
-37%	-52%	-60%
0%	0%	-60%
0%	0%	0%
0%	0%	0%
0%	-9%	-60%
0%	-34%	-60%
0%	0%	0%
0%	0%	-33%
0%	0%	0%
0%	0%	0%
0%	0%	0%
0%	-9%	-19%
-19%	-32%	-39%
0%	-28%	-28%
0%	0%	0%
0%	0%	0%
0%	0%	0%
-7%	-14%	-23%
0%	0%	-42%
-2%	-5%	-21%
0%	0%	0%
0%	0%	0%
-15%	-22%	-31%
-18%	-30%	-33%
0%	-2%	-23%
0%	0%	-1%
-8%	-15%	-25%
0%	0%	0%
-1%	-13%	-19%
0%	0%	-7%
0%	-6%	-50%
0%	-7%	-14%
0%	0%	0%
0%	-3%	-11%
0%	0%	-2%
0%	0%	-6%
0%	0%	0%
0%	0%	-40%
0%	0%	0%
-3%	-18%	-31%
-15%	-33%	-42%
0%	0%	0%
0%	0%	0%
0%	0%	0%
0%	0%	0%
0%	0%	0%

### Peer Reductions - data

% Change Welsh HB 50th percentile Risk Adjusted	% Change HDU Performance Peer 50th percentile Risk Adjusted	% Change Top Hospitals 2018 50th percentile Risk Adjusted	%Change Top Hospitals 2018 75th percentile Risk Adjusted
0%	0%	0%	-9%
0%	0%	0%	0%
0%	0%	0%	0%
0%	-42%	-44%	-60%
0%	-32%	-32%	-48%
0%	0%	0%	0%
0%	-12%	-12%	-28%
-37%	-52%	-53%	-60%
0%	0%	0%	-60%
0%	0%	0%	0%
0%	0%	0%	0%
0%	-9%	-9%	-60%
0%	-34%	-34%	-60%
0%	0%	0%	0%
0%	0%	0%	-33%
0%	0%	0%	0%
0%	0%	0%	0%
0%	-9%	-11%	-19%
-19%	-32%	-32%	-39%
0%	-28%	0%	-28%
0%	0%	0%	0%
0%	0%	0%	0%
0%	0%	0%	0%
-7%	-14%	-14%	-23%
0%	0%	0%	-42%
-2%	-5%	-7%	-21%
0%	0%	0%	0%
0%	0%	0%	0%
-15%	-22%	-24%	-31%
-18%	-30%	-30%	-33%
0%	-2%	-9%	-23%
0%	0%	0%	-1%
-8%	-15%	-21%	-25%
0%	0%	0%	0%
-1%	-13%	-13%	-19%
0%	0%	0%	-7%
0%	-6%	-18%	-50%
0%	-7%	0%	-14%
0%	0%	0%	0%
0%	-3%	-4%	-11%
0%	0%	0%	-2%
0%	0%	0%	-6%
0%	0%	0%	0%
0%	0%	0%	-40%
0%	0%	0%	0%
-3%	-18%	-20%	-31%
-15%	-33%	-36%	-42%
0%	0%	0%	0%
0%	0%	0%	0%
0%	0%	0%	0%
0%	0%	0%	0%

Attendance Type	Subspecialty	% Change in Activity	% of activity carried provided in Community Hubs
FA	Accident & Emergency	0%	90%
FA	Anaesthetics	0%	90%
FA	Antenatal Obstetrics	0%	90%
FA	Audiological Medicine	0%	90%
FA	Cardiology	0%	90%
FA	Chemical Pathology	0%	90%
FA	Clinical Genetics	0%	90%
FA	Clinical Haematology	0%	90%
FA	Clinical Neurophysiology	0%	90%
FA	Clinical Oncology	0%	90%
FA	Dermatology	0%	90%
FA	Endocrinology	0%	90%
FA	ENT	0%	90%
FA	Gastroenterology	0%	90%
FA	General Medicine	0%	90%
FA	Elderly Medicine	0%	90%
FA	General Surgery	0%	90%
FA	Gynaecology	0%	90%
FA	Haematology	0%	90%
FA	Medical Oncology	0%	90%
FA	Midwifery	0%	90%
FA	Nephrology	0%	90%
FA	Neurology	0%	90%
FA	Neurosurgery	0%	90%
FA	Ophthalmology	0%	90%
FA	Oral Surgery	0%	90%
FA	Paediatric Medicine	0%	90%
FA	Paediatric Neurology	0%	90%
FA	Pain Management	0%	90%
FA	Palliative Medicine	0%	90%
FA	Postnatal Obstetrics	0%	90%
FA	Rheumatology	0%	90%
FA	Trauma & Orthopaedics	0%	90%
FA	Urology	0%	90%
FU	Anaesthetics	-25%	90%
FU	Antenatal Obstetrics	-25%	90%
FU	Audiological Medicine	-25%	90%
FU	Cardiology	-25%	90%
FU	Chemical Pathology	-25%	90%
FU	Clinical Genetics	-25%	90%
FU	Clinical Haematology	-25%	90%
FU	Clinical Oncology	-25%	90%
FU	Dermatology	-25%	90%
FU	Endocrinology	-25%	90%
FU	ENT	-25%	90%
FU	Gastroenterology	-25%	90%
FU	General Medicine	-25%	90%
FU	Elderly Medicine	-25%	90%
FU	General Surgery	-25%	90%
FU	Gynaecology	-25%	90%
FU	Haematology	-25%	90%
FU	Medical Oncology	-25%	90%
FU	Midwifery	-25%	90%
FU	Nephrology	-25%	90%
FU	Neurology	-25%	90%
FU	Neurosurgery	-25%	90%
FU	Ophthalmology	-25%	90%
FU	Paediatric Medicine	-25%	90%
FU	Paediatric Neurology	-25%	90%
FU	Pain Management	-25%	90%
FU	Palliative Medicine	-25%	90%
FU	Postnatal Obstetrics	-25%	90%
FU	Rheumatology	-25%	90%
FU	Trauma & Orthopaedics	-25%	90%
FU	Urology	-25%	90%

[illegible][illegible]

## Appendix 4

### A&E & MIU Assumptions: Activity Change and % suitable for MIU

Locality	% Change in activity	% of existing A&E attendances suitable for MIU
Llanelli	-4.3%	30%
North Pembrokeshire	-4.3%	30%
North Ceredigion	-4.3%	30%
South Pembrokeshire	-4.3%	30%
Amman/Gwendraeth	-4.3%	30%
Taf / Teifi / Tywi	-4.3%	30%
South Ceredigion	-4.3%	30%
Other	-4.3%	30%

### Sensitivity Analysis (change in activity):

Min	Likely	Max
5.7%	-4.3%	-10%
5.7%	-4.3%	-10%
5.7%	-4.3%	-10%
5.7%	-4.3%	-10%
5.7%	-4.3%	-10%
5.7%	-4.3%	-10%
5.7%	-4.3%	-10%
5.7%	-4.3%	-10%

Assumption is that this activity is minor activity that can be diverted with better access to primary care teams etc.

**Shift from acute to community hospitals:** Assumptions on max stay in acute care, point of transfer to community hub (this before the impact of any out of hospital shifts)

Specialty	Urgent Care Centre Trim point	% to shift at Trim Point
Accident & Emergency	3	50%
Anaesthetics	3	50%
Cardiology	3	50%
Clinical Haematology	3	50%
Clinical Oncology	3	50%
Dermatology	3	50%
Elderly Medicine	3	50%
Endocrinology	3	50%
ENT	3	50%
Gastroenterology	3	50%
General Medicine	3	50%
General Practice - Other than Maternity	3	50%
General Surgery	3	50%
Gynaecology	3	50%
Antenatal Obstetrics	999	50%
Haematology	3	50%
Medical Oncology	3	50%
Midwifery	999	50%
Nephrology	3	50%
Neurology	3	50%
Obstetrics	999	50%
Ophthalmology	3	50%
Oral Surgery	3	50%
Paediatric Medicine	999	50%
Pain Management	3	50%
Palliative Medicine	3	50%
Radiology	3	50%
Rheumatology	3	50%
Trauma & Orthopaedics	3	50%
Urology	3	50%

[illegible]

### Shift sensitivity UCC

[illegible]

### Shift sensitivity Acute

[illegible]

## Appendix 6

### Daycase Assumptions: Throughput

Subspecialty	Days per year	Daycase Throughput (cases per bed per day)	% of daycase activity provided in Community Hubs
Anaesthetics	252	1.5	0%
Cardiology	252	1.5	50%
Clinical Haematology	252	1.5	50%
Clinical Oncology	252	1.5	50%
Dermatology	252	1.5	50%
Elderly Medicine	252	1.5	50%
Endocrinology	252	1.5	50%
ENT	252	1.5	0%
Gastroenterology	252	1.5	50%
General Medicine	252	1.5	50%
General Surgery	252	1.5	0%
Gynaecology	252	1.5	0%
Haematology	252	1.5	50%
Medical Oncology	252	1.5	50%
Nephrology	252	1.5	50%
Neurology	252	1.5	50%
Obstetrics	252	1.5	0%
Ophthalmology	252	1.5	50%
Oral Surgery	252	1.5	0%
Paediatric Medicine	252	1.5	50%
Pain Management	252	1.5	0%
Palliative Medicine	252	1.5	50%
Radiology	252	1.5	0%
Rheumatology	252	1.5	50%
Trauma & Orthopaedics	252	1.5	0%
Urology	252	1.5	0%

### Sensitivity Analysis (change in activity):

Min	Likely	Max
0%	0%	0%
40%	50%	60%
40%	50%	60%
40%	50%	60%
40%	50%	60%
40%	50%	60%
40%	50%	60%
40%	50%	60%
0%	0%	0%
40%	50%	60%
40%	50%	60%
40%	50%	60%
40%	50%	60%
40%	50%	60%
40%	50%	60%
0%	0%	0%
40%	50%	60%
0%	0%	0%
40%	50%	60%
0%	0%	0%
40%	50%	60%
0%	0%	0%
40%	50%	60%
0%	0%	0%
0%	0%	0%