

Ambulatory Emergency Care in South Wales

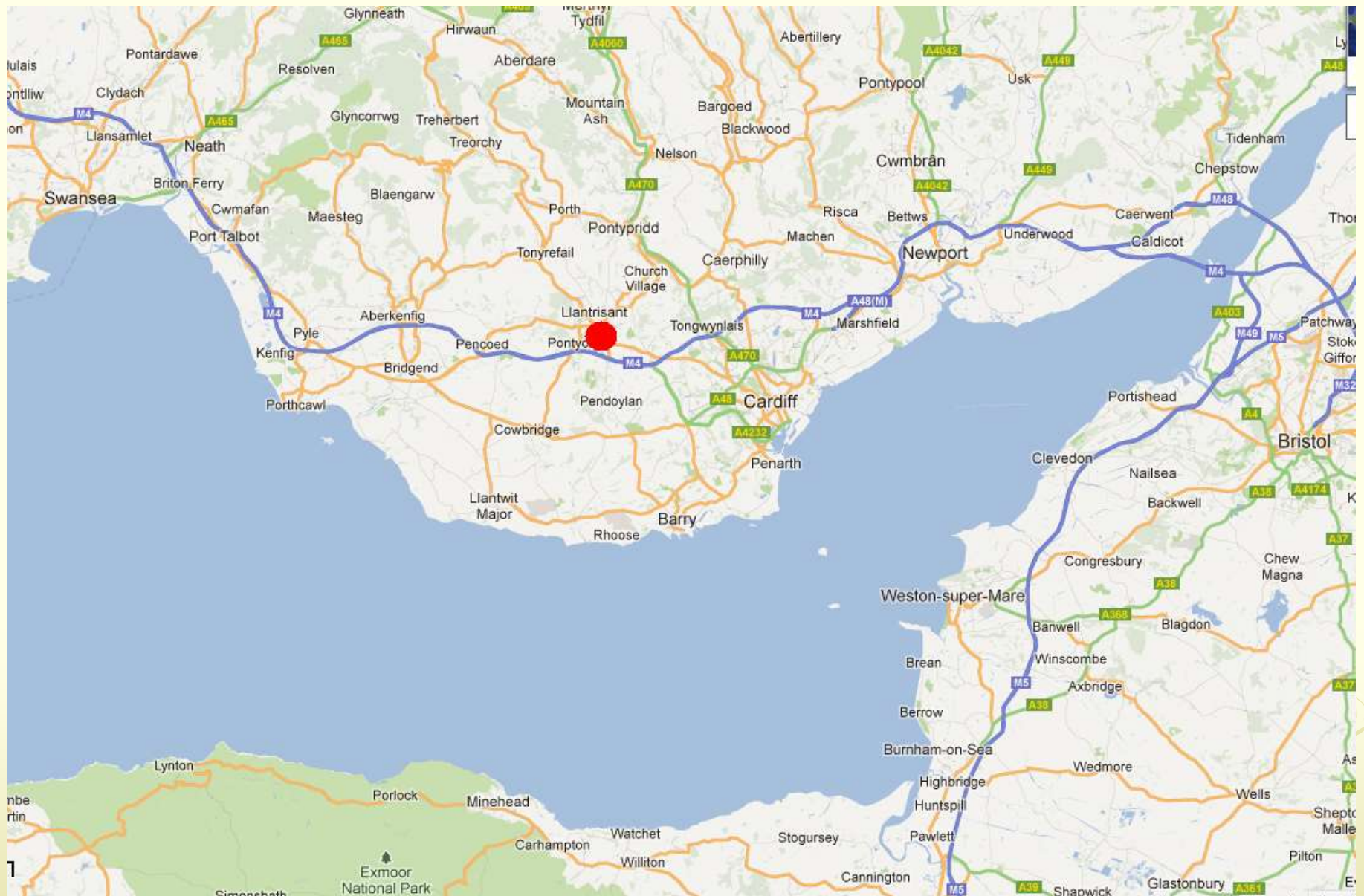
The Ambulatory Care Score (*Amb Score*)

Les Ala

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Royal Glamorgan Hospital

LLantrisant, South Wales





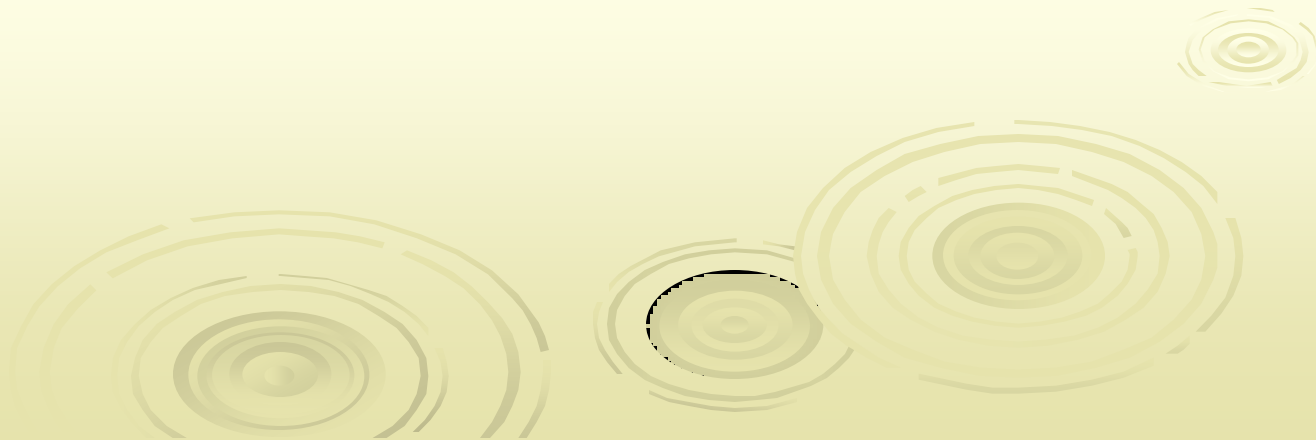
ROYAL GLAMORGAN HOSPITAL

Format

- Our current practice and challenges
- Developing the *Amb* Score
- Using the *Amb* Score
- Future (near future) plans



Our current practice and challenges



Challenges of delivering Acute Medicine services at RGH

➤ Increase demand

- Increase referrals for assessment / admission
- Increase A&E attendance (5% increase every year)

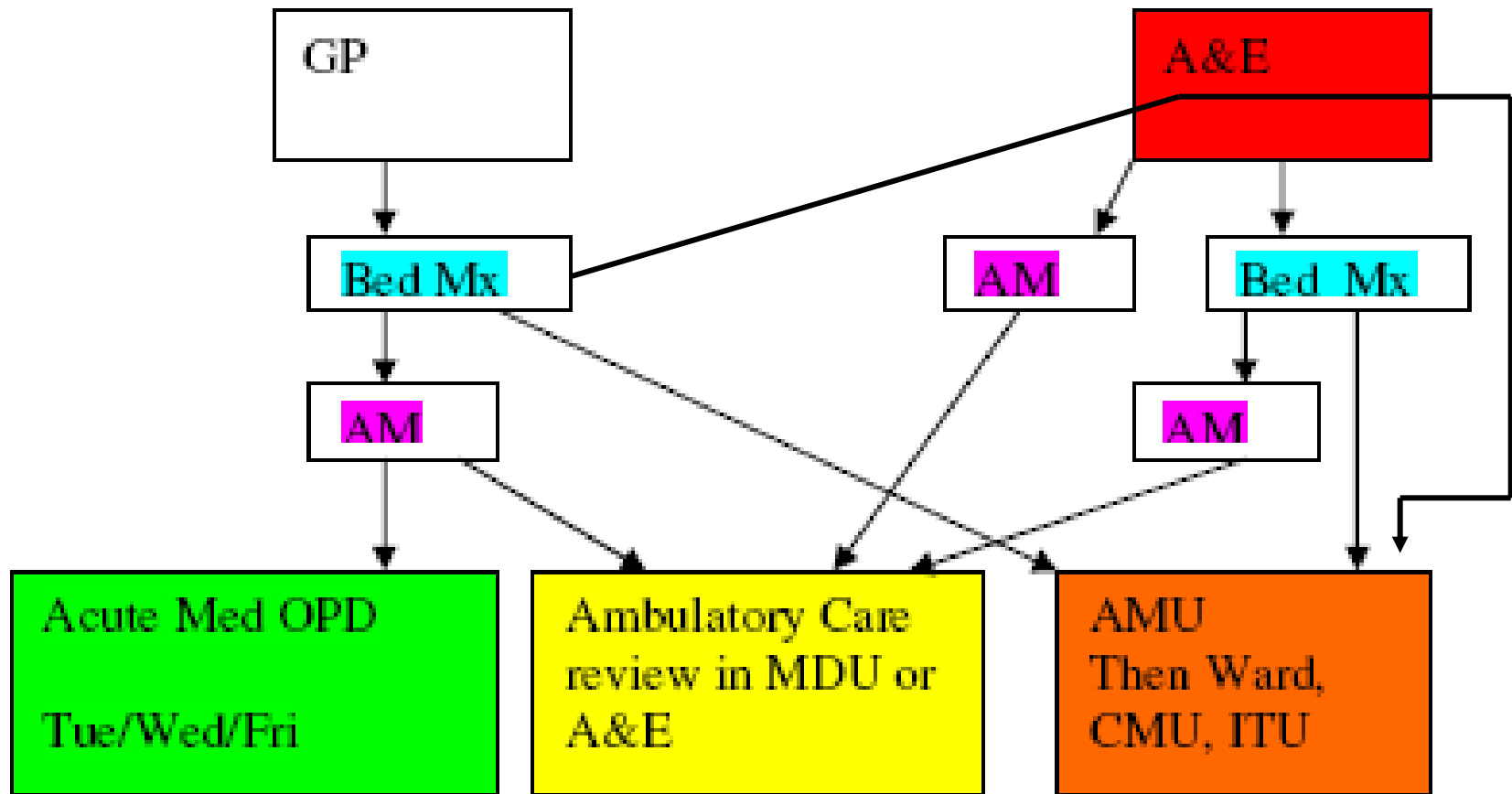
➤ Resource constraints

- Lack of 'rapid access OPD/Hot specialty-based clinics'
- Lack of staff
- Reduction in in-patient beds
- Poor physical planning

➤ Inefficiencies

- End to end walk
- 30-50% day-time admissions discharged same day from AMU
- Inappropriate referral to AMU or Ambulatory Care or vice versa

How it worked at RGH

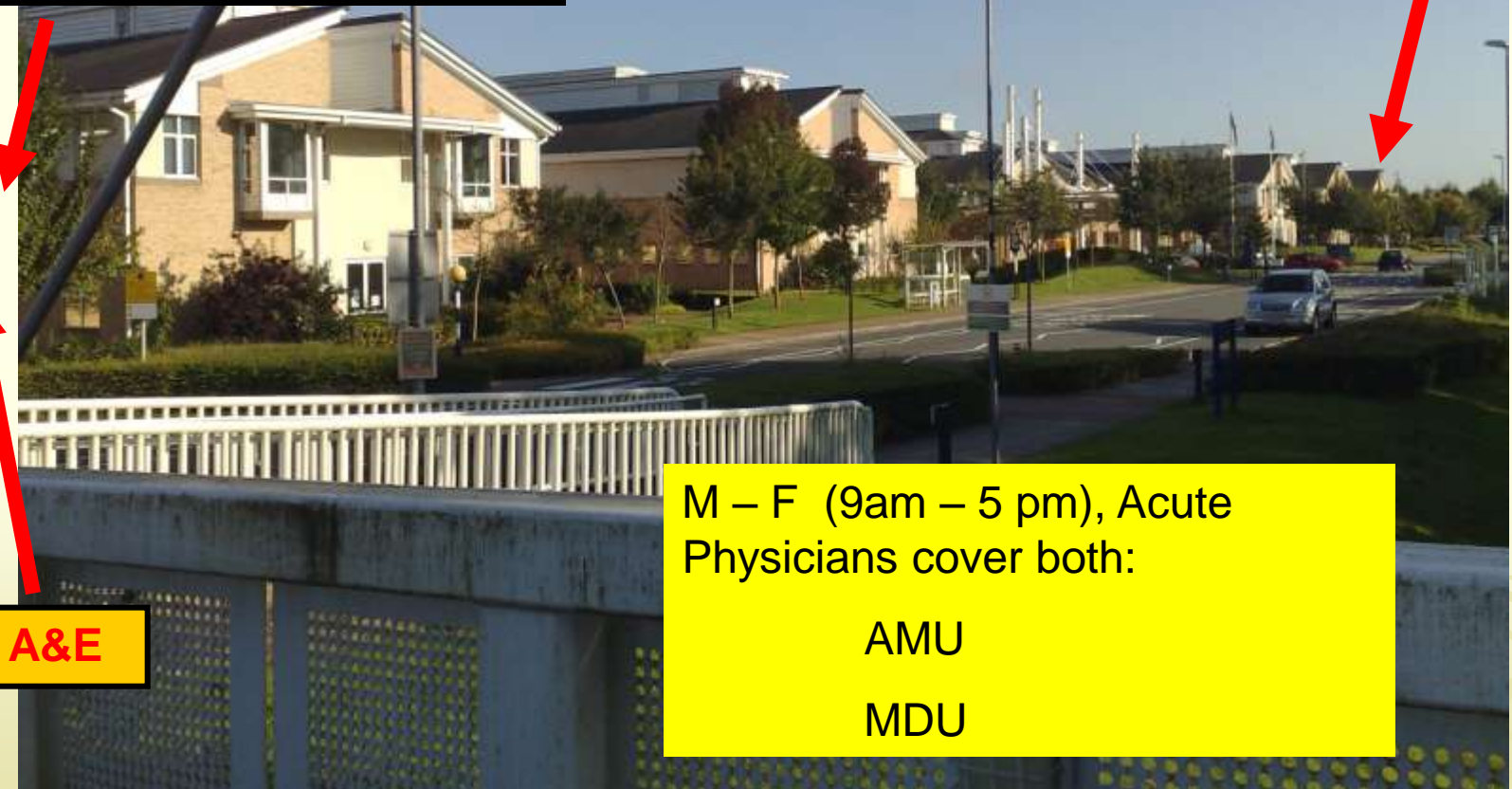


**Acute Medical Unit
(AMU)**

***Acute Admissions
30-50 per day***

**Medical Day Unit
(MDU)**

***Ambulatory Care
10-12 new pts per day***



A&E

M – F (9am – 5 pm), Acute
Physicians cover both:

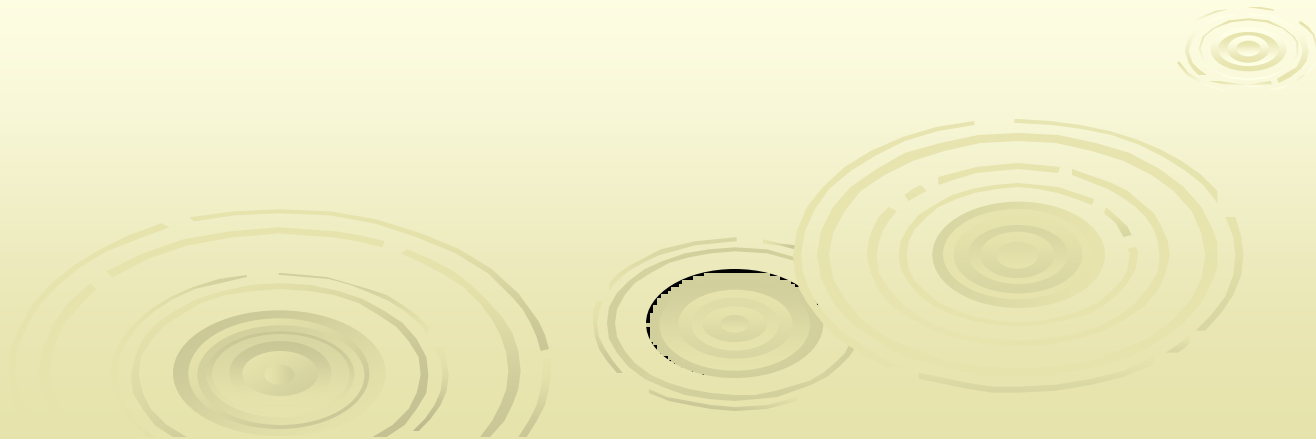
AMU

MDU

Appropriate place for the patient

- How to decide...Admission –vs- Ambulatory
- Why does it matter?
 - Appropriate use of resource
 - What to bring to hospital
 - No expectation to stay
 - Arrangement for work, carers, family
 - Bed management planning
 - Early senior review in AMU for discharge
 - Possible diversion to rapid access clinics next day

Developing the *Amb* Score



Who can be managed in Ambulatory Care



OUR STUDY: Selecting AEC patients from the unselected general medical emergency in-take

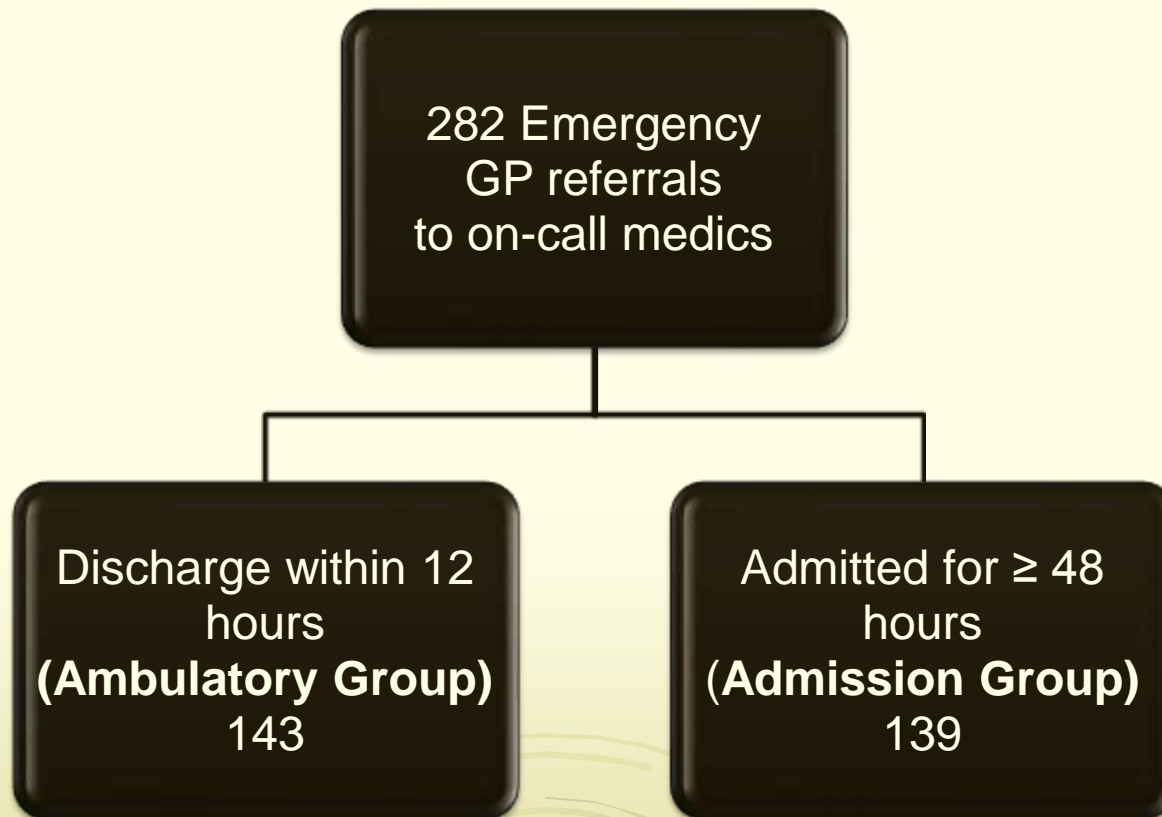
Phase 1: Derivation of the Amb Score

Phase 2: Internal Validation



Phase 1 Derivation: May / June 2010

What factors determine whether an emergency-referred GP patient is discharged within 12 hours of arrival in hospital?



Variable	Admission group (%) n=139	Ambulatory group (%) n=143	Odds Ratio (95% CI)	P value	Adjusted OR (95%CI)
Mean age (SD)	71.2(16.2)	57.2(17.5)		<0.01	
Age 30-39	5 (3.6)	16 (11.2)	0.3 (0.1-0.8)	<0.01	
Age 40-49	6(4.3)	20(14.0)	0.3(0.1-0.7)	<0.01	
Age 50-59	11(7.9)	23(16.1)	0.4(0.2-0.9)	<0.05	
Age ≥ 80	52 (37.4)	13(9.1)	6(3.1-11.6)	<0.01	2.4(1.1-5.2)
Male sex	61(43.9)	41(28.7)	1.9(1.2-3.2)	<0.01	1.9(1.1-3.5)
Can eat / drink normally	132 (95)	143 (100)	Undefined		
Ambulant	124 (89.2)	143 (100)	Undefined		
Access to transportation	54 (38.8)	127 (88.8)	0.07(0.04-0.2)	<0.01	0.1(0.05-0.2)
Family support or carers available	102(73.4)	128 (89.5)	0.3(0.1-0.6)	<0.01	
IV treatment not anticipated	74 (53.2)	139(97.9)	0.02(0.007-0.1)	<0.01	0.1(0.009-0.08)
Not acutely confused	121 (87.1)	141(98.6)	0.05(0.006-0.4)	<0.01	0.1(0.02-0.6)
No new sphincter problems	131 (94.2)	143 (100)	Undefined		
If chest pains, ACS not suspected	128 (92)	131 (91.6)	1.07(0.4-2.6)	0.44	
Significant bleed not suspected	136 (97.8)	131 (98.6)	0.5(0.04-5.4)	0.05	
No new neurological deficit	119 (85.6)	134 (93.7)	0.4(0.16-0.9)	<0.05	
Normal temperature	118(84.9)	129(90.2)	0.1(0.02-0.5)	<0.01	
Normal respiratory rate	128 (92.0)	103 (72.0)	0.9(0.3-2.8)	<0.05	
Normal oxygen saturation (≥93%)	112(80.6)	126(88.1)	0.15(0.05-0.5)	<0.01	
Heart rate 50-140 bpm	135 (97.1)	133 (93.0)	0.5(0.05-5.7)	0.50	
Systolic BP 100-200 mmHg	121 (87.1)	139 (97.2)	0.2(0.04-0.5)	<0.01	
MEWS 0	70 (50.4)	104 (72.7)	0.4(0.2-0.6)	<0.01	0.5(0.2-0.9)
MEWS 2	17(12.2)	5 (3.5)	3.8(1.4-10.7)	<0.01	
MEWS 3	12(8.6)	4 (2.8)	3.3(1.03-10.4)	<0.05	
MEWS ≥ 4	11(7.9)	2 (1.4)	6(1.3-27.9)	<0.01	
GCS 15	129 (92.8)	143 (100)	Undefined		
No past history coronary artery disease	74 (53.2)	85 (59.4)	0.8(0.3-1.7)	0.25	
No past history of heart failure	87 (62.6)	97 (67.8)	0.6(0.1-3.7)	0.45	
No past history of arrhythmia	77 (55.4)	91 (63.6)	0.6(0.2-1.5)	0.12	
No past history of diabetes	74 (53.2)	89 (62.2)	0.5(0.2-1.2)	0.07	
No past history of stroke or TIA	82 (59.0)	93 (65.0)	0.4(0.1-1.4)	0.08	
No past history of renal disease	79 (56.8)	94 (65.8)	0.5(0.2-1.3)	0.07	
No past history of chronic lung disease	65 (46.8)	79 (55.2)	0.6(0.3-1.2)	0.07	
Not discharged within previous 30 days	101 (72.7)	125 (87.4)	0.2(0.07-0.5)	<0.01	0.3(0.2-0.7)

Independent variables

Variable	Admission group (%) n=139	Ambulatory group (%) n=143	P value	Adjusted OR (95%CI)
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Not discharged within previous 30 days	101 (72.7)	125 (87.4)	<0.01	0.3(0.2-0.7)

The Ambulatory Care Score (*Amb Score*)

Sex	Female	0	
	Male	-0.5	
Age	< 80	0	
	≥80	-0.5	
Access to personal transport / can take public transport	Agree	+2	
	Disagree	0	
IV treatment NOT anticipated	Agree	+2	
	Disagree	0	
NOT acutely confused	Agree	+2	
	Disagree	0	
MEWS = 0	Agree	+1	
	Disagree	0	
NOT been discharged from hospital in the last 30 days	Agree	+1	
	Disagree	0	
TOTAL Amb Score (Max 8)			

The higher the Score, the greater likelihood of 12 hour discharge, therefore potentially for Ambulatory Care management.

clerking and LP, and time to subsequent discharge.

Reference

- (1) Cortnum S, Sorensen P, Jorgenson J. Determining the Sensitivity of Computed Tomography Scanning in Early Detection of Subarachnoid Hemorrhage *Neurosurgery*. 66(5):900-903, May 2010

Safe discharge of patients with low-risk upper gastrointestinal bleeding (UGIB): can the use of Glasgow-Blatchford Bleeding Score be extended?

Le Jeune IR, Gordon A, Farrugia D, Manwani R, James MW
Nottingham University Hospitals NHS Trust
ivan.lejeune@nuh.nhs.uk

Introduction / Aims

Risk stratification of patients with suspected UGIB using

Lancet 2009; 373:42-47

2. Risk assessment after acute upper gastrointestinal haemorrhage. Rockall TA et al. *Gut* 1996; 38:316-21

The Amb Score: A pilot study to develop a scoring system to identify which emergency medical referrals would be suitable for Ambulatory care management.

Ala L, Mack J, Shaw R, Gasson A.
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lesala99@yahoo.co.uk

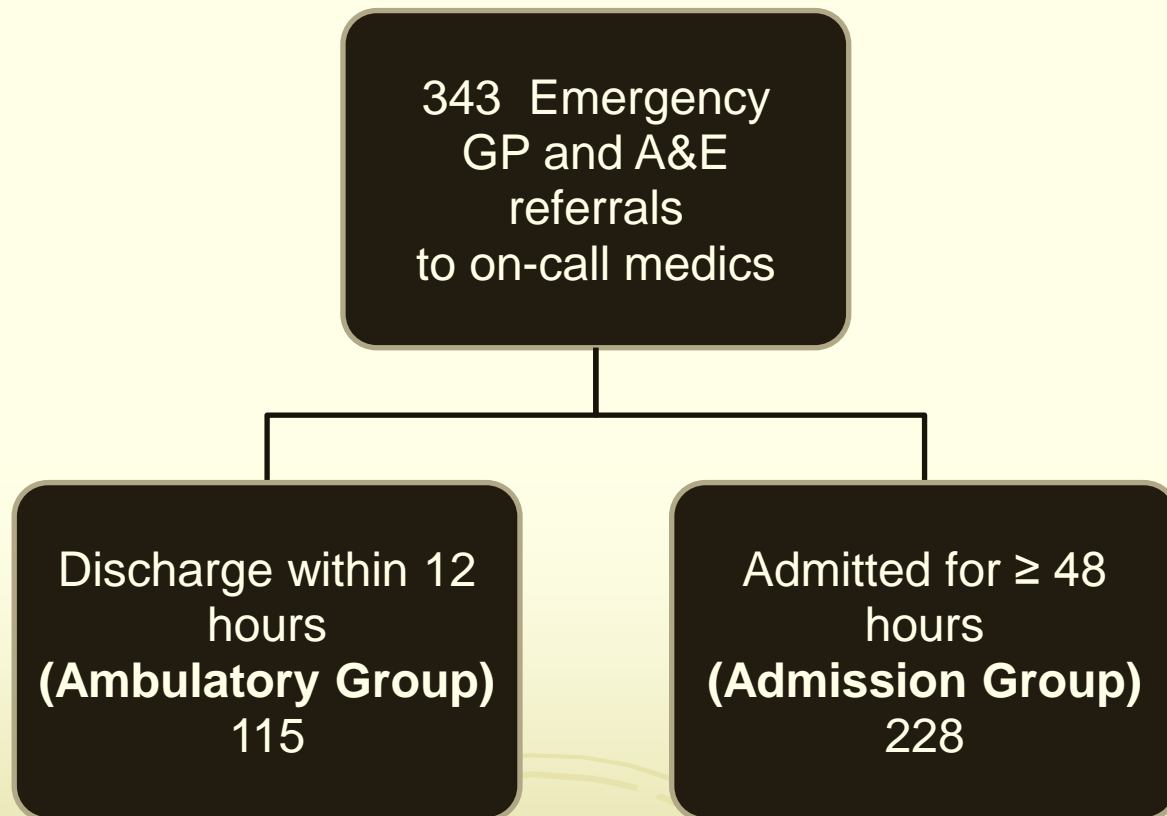
Introduction / Aims

One third of referrals seen in AMU are discharged on the same day. With good diagnostic support, many medical

Oral Presentation: 4th International Conference, Society for Acute Medicine, Edinburgh October 2010

Phase 2: Internal validation May/June 2011

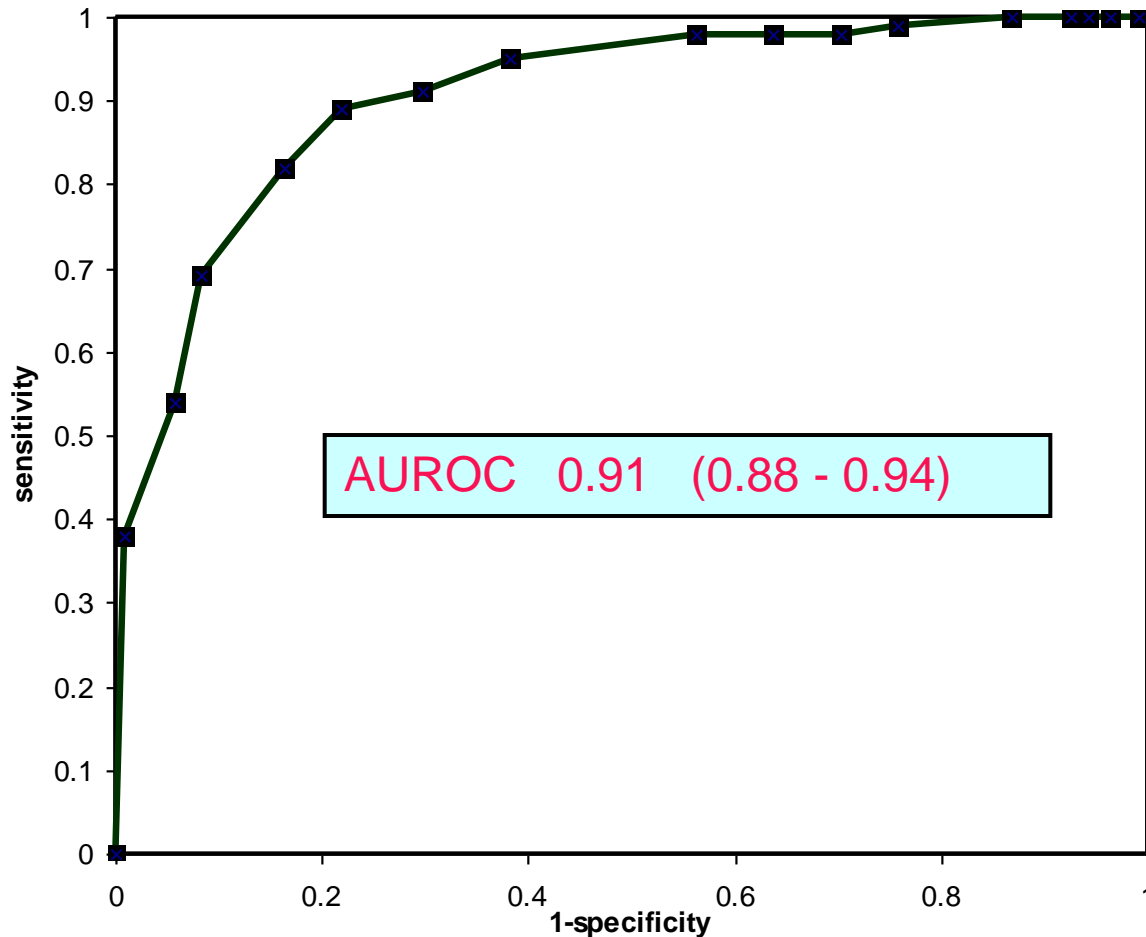
Can the *Amb* Score predict discharge within 12 hours of hospital assessment?



Verification of Amb Score

	Admission group (%) n=228	Ambulatory group (%) n=115	OR (95% CI)	
Female sex	97 (42.5)	75 (65.2)	0.4 (0.2-0.6)	p<0.01
Age < 80	136 (59.6)	108 (93.9)	0.2 (0.1-0.3)	p<0.01
Access to personal / public transport	132 (57.9)	109 (94.8)	0.1 (0.03-0.2)	p<0.01
IV treatment NOT anticipated	82 (40.0)	106 (92.2)	0.1 (0.03-0.1)	p<0.01
NOT acutely confused	198 (86.8)	113 (98.3)	0.1 (0.03-0.5)	p<0.01
MEWS score = 0	72 (31.6)	77 (67.0)	0.2 (0.1-0.4)	p<0.01
NOT discharged within last 30 days	187 (82.0)	106 (92.2)	0.5 (0.2-0.8)	p<0.01
Mean Amb Score (SD)	4.2 (1.8)	7.1 (1.1)		p<0.01

Receiver Operator Curve



If Amb Score ≥ 5 , patient is more likely to be discharged within 12 hours !

Sensitivity: 96% (90-98)

Specificity: 62% (55-68)

Selected Abstracts from the 5th International Meeting of the Society for Acute Medicine

either being stopped or doses reduced. As a minimum, every elderly patient over the age of 70 was receiving a medication review on admission to hospital. Future work involves exploring outcomes and potential cost savings.

References

1. Wiffen PJ, Gill M, Edwards J, Moore A. Adverse drug reactions in hospital patients: a systematic review of the prospective and retrospective studies. *Bandolier Extra* June 2002.
2. Gallagher P, O'Mahony D. STOPP (Screening Tool of Older Persons potentially inappropriate Prescriptions) application to acutely ill elderly patients and comparison with Beers criteria. *Age Ageing* 2008; 37: 673-679.

Intentional Rounding on the Amu

**Jacqueline Phillips, Nicolai Wennike &
Andrew Thompson**
Musgrove Park Hospital, Taunton

Selecting potential ambulatory care patients from the unselected general medical take using the Amb Score: A verification and validation study

Les Ala, Emma Coghill, Marion Rose, Rahsa Rahman, Francesca Deibell & Nia Rathbone
Royal Glamorgan Hospital, Wales
Email: Lesala99@yahoo.co.uk

Aim

Knowing the likelihood of same day discharge could be useful in directing patients admitted on the medical take^{1,2,3} to an ambulatory care unit, and could assist with bed management. Previously, we identified 7 independent

Oral Presentation: 5th International Conference, Society for Acute Medicine, London, October 2011

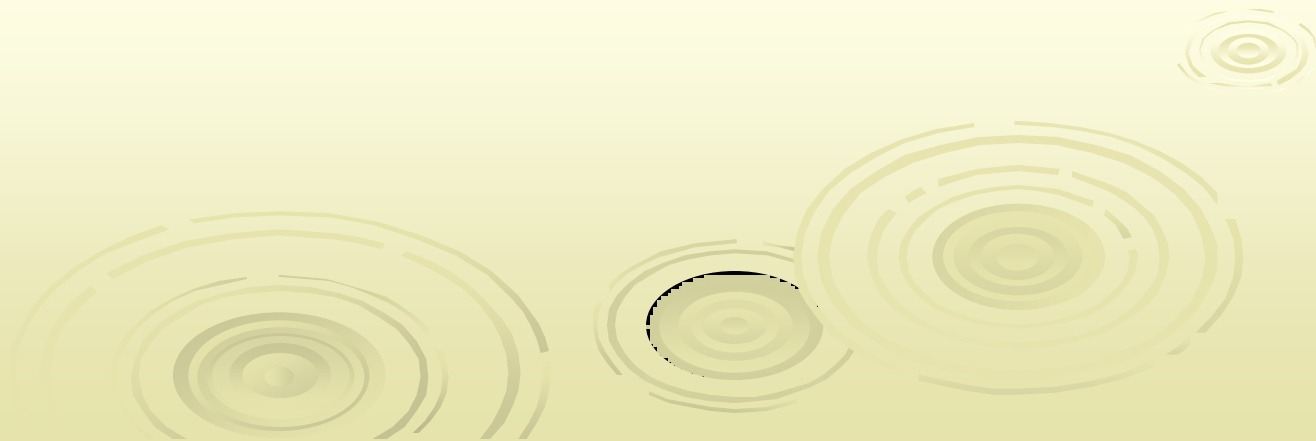
Selecting ambulatory emergency care (AEC) patients from the medical emergency in-take: the derivation and validation of the Amb score

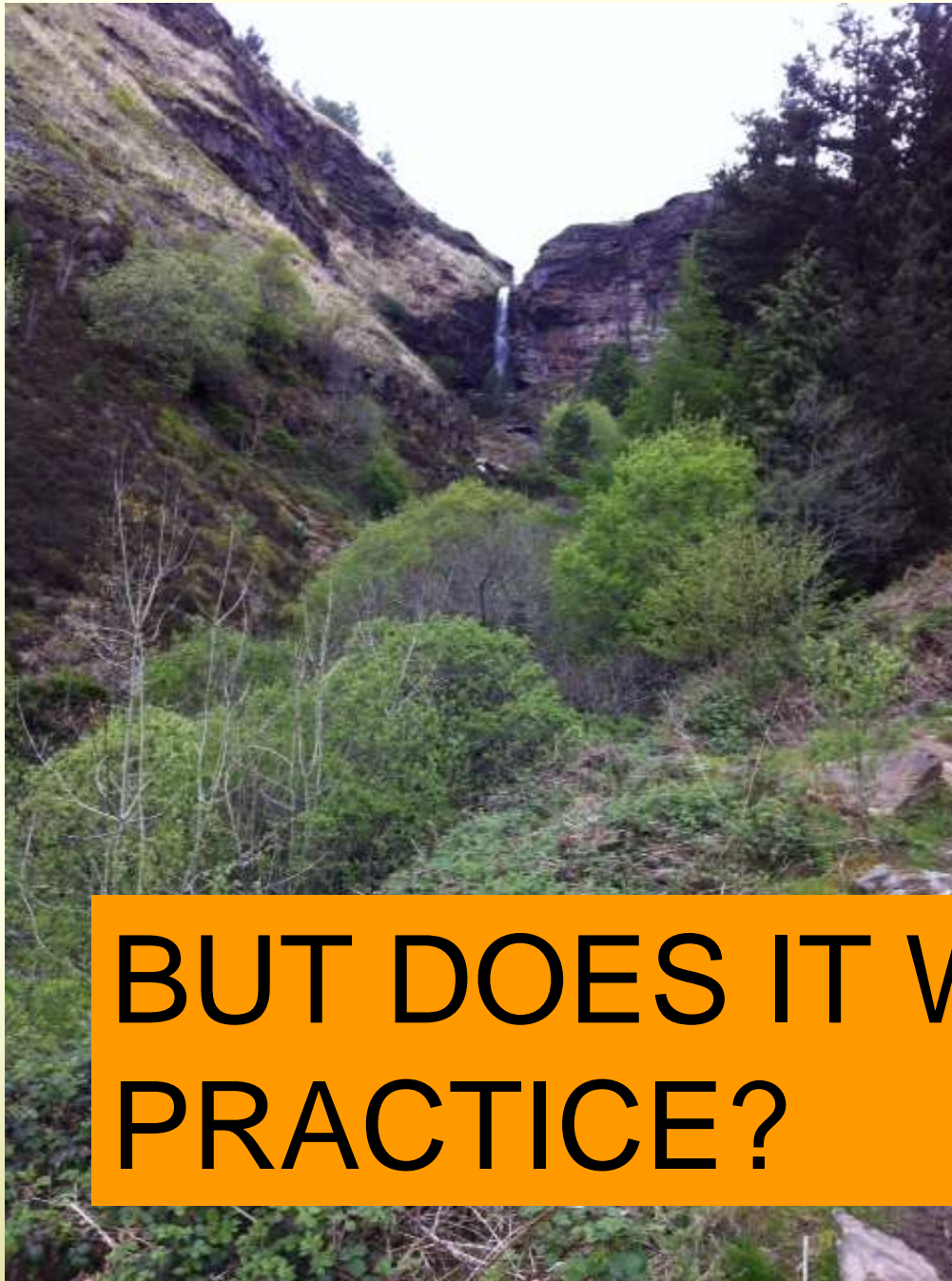
Les Ala, Jennifer Mack, Rachel Shaw, Andrea Gasson, Emma Cogbill, Rose Marion, Rasha Rahman, Francesca Deibel and Nia Rathbone

ABSTRACT – Accurate prediction of the likelihood of same-day discharge could make it possible to direct one-third of the medical in-take to an ambulatory care unit, thereby facilitating bed management. In Phase 1 of this study, we identified seven independent factors that contribute to an ambulatory care score (Amb score) that can potentially be used as a tool to select ambulatory emergency care (AEC) patients from the medical emergency in-take. A high score was associated with discharge within 12 hours of assessment and treatment in hospital. In Phase 2, we verified and internally validated the performance of the Amb score in a different cohort of patients, finding that it functioned well in identifying early discharges (ie AEC patients), with an area under the receiver operator curve (AUROC) of 0.91 (95% CI 0.88–0.94). An Amb score of ≥ 5 has a sensitivity of 96% (95% CI 90–98) and a specificity of 62% (95% CI 55–68) in identifying potential AEC patients.

The RCP Acute Medicine Task Force⁷ defines ambulatory emergency care (AEC) as ‘the clinical care which may include diagnosis, observation, treatment and rehabilitation, not provided within the traditional hospital bed base or within the traditional outpatient services that can be provided across the primary–secondary care interface. In the context of acute medicine, it is the care of a condition that is perceived either by the patient or by the referring practitioner as urgent, and that requires prompt clinical assessment undertaken by a competent clinical decision maker.’ AEC patients tend to fall into one of four categories: a diagnostic exclusion group in which certain conditions, such as a possible deep venous thrombosis, must be ruled out; a low-risk group, such as those with community-acquired pneumonia with a low CURB65 score; a specific diagnostic group, who require a procedure such as pleural effusion; and finally, the group that requires a treatment that has traditionally been provided in an inpatient department, such as those

Using the Amb Score





**BUT DOES IT WORK IN
PRACTICE?**



200 Random patients from General Medical Take May 2012 (AMU patients)

Duration of Stay	Number	Mean Amb Score	SD
< 12 hours	36	5.7*	1.0
12-24 hours	26	5.6	2.0
24-48 hours	6	5	2.6
>48 hours	128	4*	2.0
Died within 48 hrs	4	3	3.5

p < 0.01 (ANOVA)

* P < 0.01

Admitted < 12 hours: 78% had Amb Score ≥ 5

Admitted > 48 hours: 42% had Amb Score ≥ 5

Has the Amb Score enhanced our existing ambulatory care service?

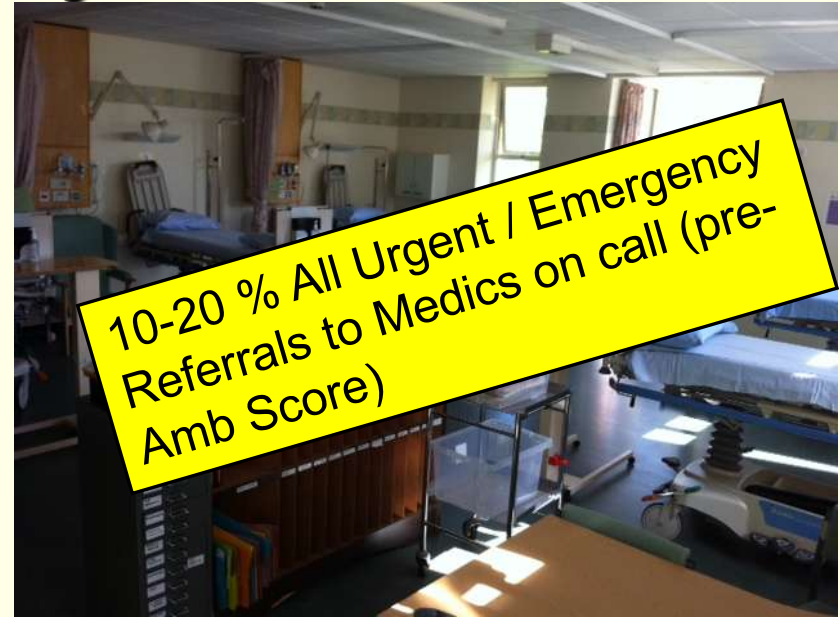
Our existing Ambulatory Care Unit is called
The Medical Day Unit (MDU)



Medical Day Unit

2 Bays in a Ward

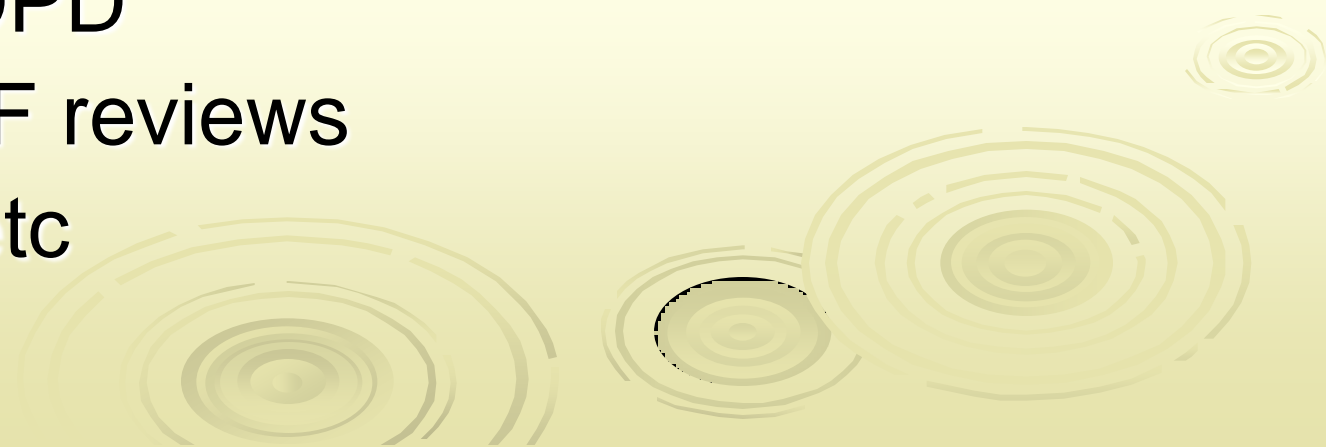
- -5 Trolleys (New Patient Area)
- (Red Bay)
- -2 Trolleys & 3 Chairs
(Blue Bay)
- Opens 8:30 am - 4:30 pm
weekdays 'Office hours' ONLY



Staff

- 1 FP1*
- 1 CT*
- 1 SpR*
- 1 Consultant
- Ward Manager
- Nursing staff
- 1 clerical staff / HCSW
- * Not there all the time (eg..on call)

Blue Bay MDU

- Review of recent discharge from wards
 - INR management in early stages of Rx
 - IV Treatment (Ambulatory)
 - Routine blood transfusion
 - Day Liver / Lung biopsy
 - Endocrine investigations
 - Stable COPD
 - DCCV / AF reviews
 -Etc etc
- 


What do we see in (Red Bay) Ambulatory Care (MDU)?

11/02/2012	GE	29/09/1941	Leg swelling	71	venous insufficiency	MDU FU	
01/02/2013	MC	06/04/1975	imbalance	37	demyelinating disease	neuro FU	
01/02/2013	PF	11/07/1943	TIA	69	TIA	RID FU	
01/02/2013	RH	30/08/1931	Swollen L arm	81	eczema	Derm FU	
01/02/2013	EP	26/01/1931	anaemia	82	anaemia unknown cause	OGD	
04/02/2013	ST	17/10/1984	chest pain	28	musculoskeletal	NFU	
04/02/2013	GT	06/07/1960	collapse	52	vaso vagal	NFU	
04/02/2013	NK	05/03/1968	facial/limb weakness	44	TIA	RID FU	
04/02/2013	MN	28/06/1944	?cellulitis	68	Cellulitis, oral Abx	OPD FU	
04/02/2013	CS	09/03/1995	Headache	17	BIH	neuro FU	
05/02/2013	GJ	03/03/1980	limb weakness	32	TIA	RID FU	
05/02/2013	RJ	24/10/1949	swollen left leg	63	no DVT, unknown	NFU	
05/02/2013	ES	21/11/1947	seizure	65	post-CVA seizure	admission	
05/02/2013	NT	25/12/2022	swollen left leg	90	DVT	OPD FU	
06/02/2013	SH	03/06/1946	palpitations	66	ectopics	OPD FU	
07/02/2013	SB	07/01/1938	Falls following assault	74	concussion	OPD FU	
12/02/2013	RC	03/08/1957	swollen L leg	55	Above knee DVT	FU OPD	
15/02/2013	GS	29/03/1983	seizures	29	epilepsy	Neuro OPD	
15/02/2013	ET	09/04/1923	Lightheadedness	89	Secondary to known r	UHW OPD	
15/02/2013	MY	02/05/1926	anaemia of chronic disease	86	sarcoma	UHW referral	
15/02/2013	VJ	10/05/1928	calf swelling	84	postcellulitis swelling	NFU	
15/02/2013	JJ	22/08/1970	fever	42	NS viral infection		
15/02/2013	SL	11/03/1977	headache	35	migraine		
18/02/2013	JE	17/02/1980	pain in left leg	33	Bakers cyst	NFU	
18/02/2013	LJ	05/10/1949	leg swelling	63	Bilateral above knee D	MDU FU	
18/02/2013	ML	22/01/1956	purpuric rash on leg	56	HSP	OPD FU	
18/02/2013	EM	27/04/1988	Palpitations	24	Pregnancy related Tac	Cardio Referral	
19/02/2013	KH	12/05/1979	Seizure	33	Nocturnal seizures, ur	OPD FU	
20/02/2013	LA	15/06/1965	liver biopsy	47	??	FU Gastro	
20/02/2013	PB	15/06/1978	foot swelling	34	rheumatoloigcal??	rheum referral	
20/02/2013	CB	05/10/1963	painful R leg	49	musculoskeletal	DC	
20/02/2013	CL	30/07/1990	Haemachromatosis	22	same	OPD FU	
20/02/2013	RL	01/02/1941	Chest pain	72	musculoskeletal	NFU	
20/02/2013	KR	07/06/1960	foot pain	52	soft tissue injury	MDU FU	
20/02/2013	KT	17/01/1969	pain L calf	44	musculoskeletal	NFU	
21/02/2013	PB	12/07/1962	left sided facial weakness	50	CVA	Stroke referral	

What happens when Amb Score introduced?

Amb Score after arrival in AMU / A&E:
Another 10% diverted to Ambulatory Care
(MDU)

Amb Score before arrival in AMU (GP
referrals): Another 10-20% diverted to
Ambulatory Care (MDU)



MDU numbers (2012)

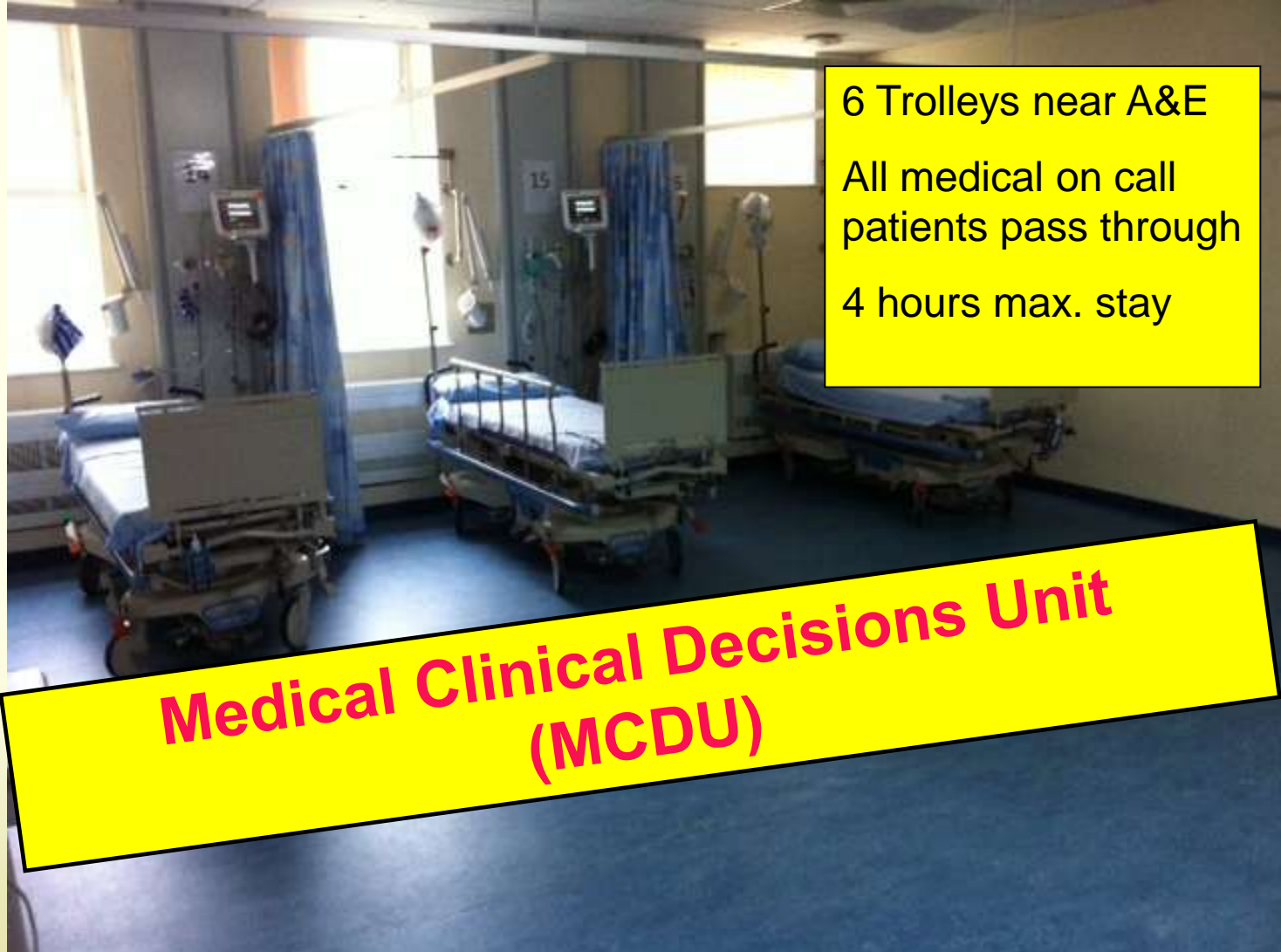
	Red Bay			Blue bay	Total
	New	Reviews	Total		
July	129	72	201	368	569
Aug	95	63	158	312	470
Sep	99	59	158	348	506
Oct	125	104	229	382	611
Nov	119	77	196	346	542
Dec	95	77	172	318	490

What happens next?



FRONT DOOR EARLY ASSESSMENT.

What next?...As of July 2012..



6 Trolleys near A&E

All medical on call
patients pass through
4 hours max. stay

**Medical Clinical Decisions Unit
(MCDU)**

**Acute Medical Unit
(AMU)**

*Acute Admissions
30-50 per day*

**Medical Day Unit
(MDU)**

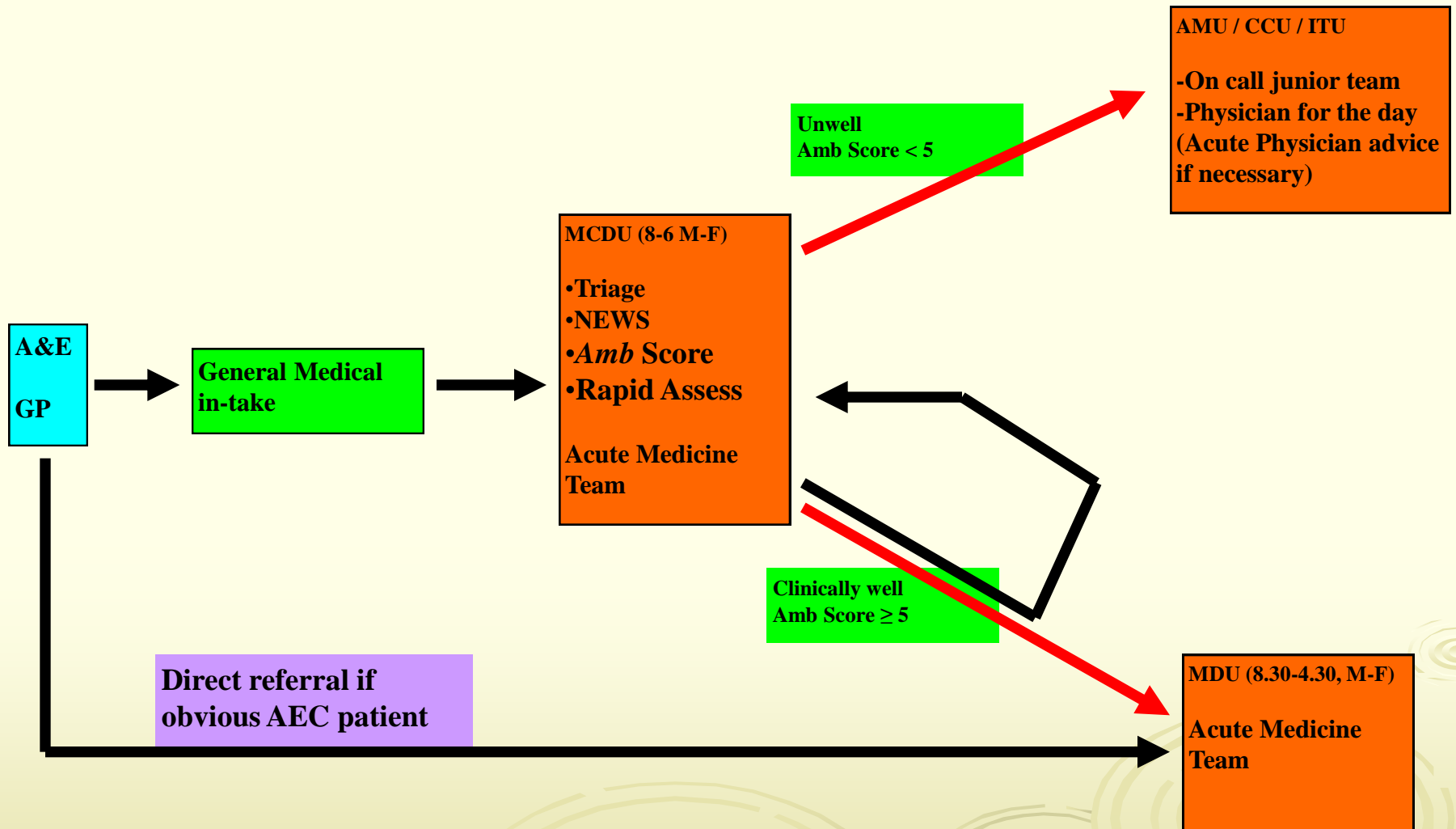
*Ambulatory Care
10-12 new pts per day*

The New MCDU

A&E



How it should work



But beware of other decisions..





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26 October 2012 Last updated at 06:44



Welsh hospital bed numbers fall by 1,000 in three years

By Owain Clarke

BBC Wales health correspondent

The number of beds in Welsh hospitals has fallen by more than 1,000 (8%) in three years, BBC Wales has discovered.

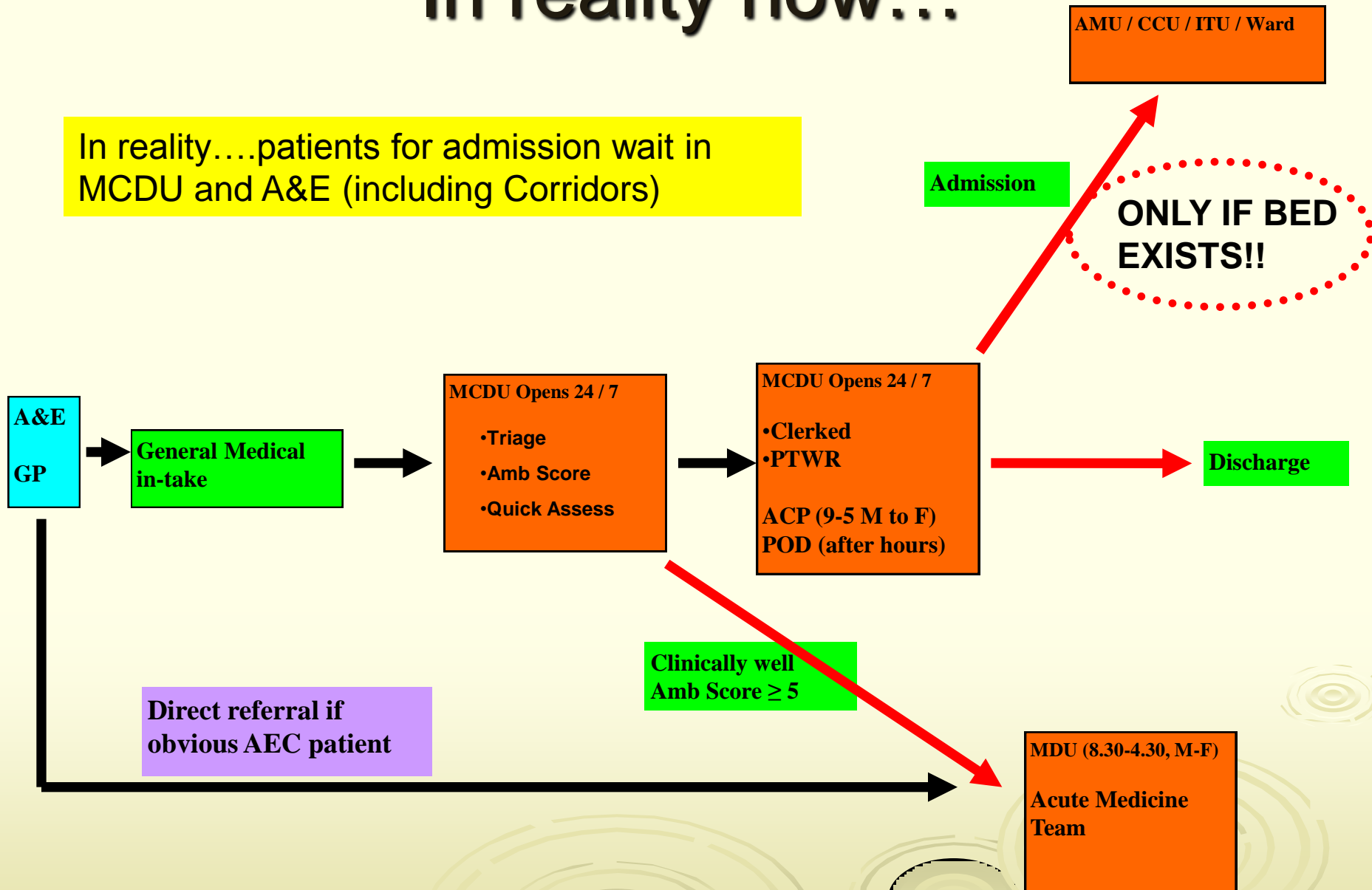
Statistics from Welsh health boards after Freedom of Information requests also reveal



In RGH, lost 125 Acute and Rehab beds

In reality now...

In reality....patients for admission wait in MCDU and A&E (including Corridors)

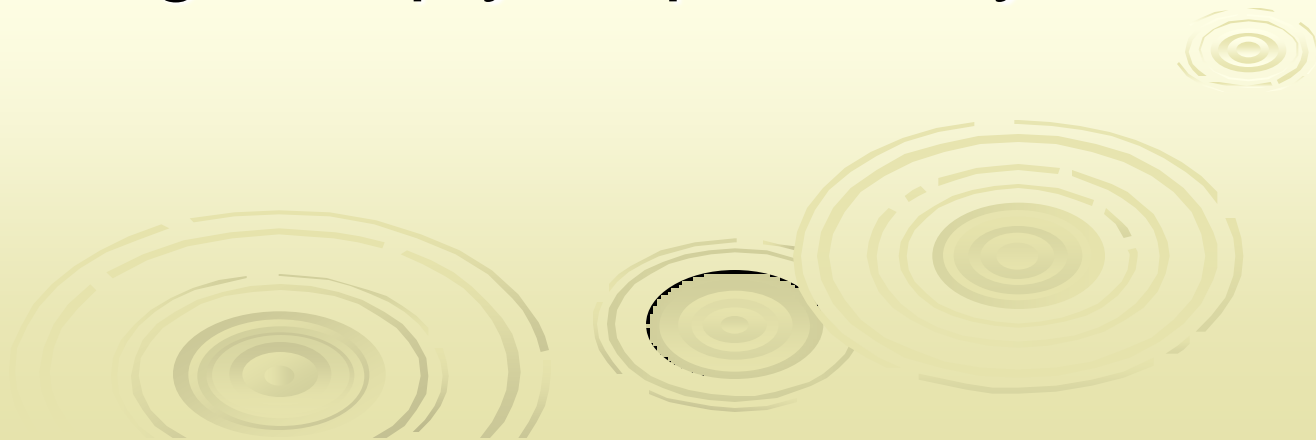


Then what....?

- Role out **Amb** score to GPs
- Robust data systems to monitor outcomes
 - Cost savings
 - Impact of workload of AMU / AEC patients
 - Readmission rates
- Patient / staff feedback
- What else?
 - Larger study, different locality and geographical areas

Summary

- Our process (*somewhat rather inefficient, in my view*) in managing Acute Medicine patients
- Simple tool that MAY help in AEC management in OUR locality
- If you think it might help you, please try it out.





**Diolch yn fawr
Questions?**