



## Senior Medicine Rotation: Evidence-Based Medicine Project

Resident Name: Fay Lin

Block: Aug-Sept 2004

## Case SIGNOUT:

73 yo F with small volume hematemesis 2 wks after EGD/cautery of AVMs during hematemesis with Hct->17. First Hct 34, BP stable 140/80, not orthostatic, P90. Comorbid illness = CRI 1.4 (BUN 37), metastatic dz likely lung, bedbound with pain.

GI says: No need for emergent scope, will put on schedule.

## Clinical Question:

What risk stratification technique is available fo predict the prognosis of upper GI bleed?

**Search Strategy**

Database:

Pubmed MESH search: GI bleed

Limit: clinical trial

Keywords: 'risk stratification' 'prediction' 'risk' - not fruitful.

• Search	Most Recent Queries	Time	Result
<a href="#">#11</a>	Search #7 AND prognosis	18:41:15	<a href="#">0</a>
<a href="#">#10</a>	Search #7 AND prediction	18:40:44	<a href="#">0</a>
<a href="#">#9</a>	Search #7 AND 'prediction'	18:40:36	<a href="#">0</a>
<a href="#">#8</a>	Search #6 AND risk	18:40:20	<a href="#">2708</a>
<a href="#">#7</a>	Search #6 AND 'risk'	18:40:11	<a href="#">0</a>
<a href="#">#6</a>	Search "Gastrointestinal Hemorrhage"[MeSH]	18:39:46	<a href="#">29891</a>
<a href="#">#5</a>	Search "Gastrointestinal Hemorrhage"[MeSH] Limits: Clinical Trial	18:39:37	<a href="#">1603</a>
<a href="#">#4</a>	Search ("Gastrointestinal Hemorrhage/classification"[MeSH] OR "Gastrointestinal Hemorrhage/epidemiology"[MeSH]) Limits: Clinical Trial	18:39:06	<a href="#">274</a>
<a href="#">#3</a>	Search ("Gastrointestinal Hemorrhage/classification"[MeSH] OR "Gastrointestinal Hemorrhage/epidemiology"[MeSH])	18:38:55	<a href="#">2321</a>

Up to date for GIB: Citations

5 citations, chose paper by sample size and date of publication

- A risk score to predict need for treatment for upper-gastrointestinal haemorrhage.

AU - Blatchford O; Murray WR; Blatchford M

SO - Lancet 2000 Oct 14;356(9238):1318-21.

**BACKGROUND:** Current risk-stratification systems for patients with acute upper-gastrointestinal bleeding discriminate between patients at high or low risks of dying or rebleeding. We therefore developed and prospectively validated a risk score to identify a patient's need for treatment. **METHODS:** Our first study used data from 1748 patients admitted for upper-gastrointestinal haemorrhage. By logistic regression, we derived a risk score that predicts patients' risks of needing blood transfusion or intervention to control bleeding, rebleeding, or dying. From this score, we developed a simplified fast-track screen for use at initial presentation. In a second study, we prospectively validated this score using receiver operating characteristic (ROC) curves--a measure of the validity of a scoring system--and chi<sup>2</sup> goodness-of-fit testing with data from 197 patients. We also validated the quicker screening tool. **FINDINGS:** We calculated risk scores from patients' admission haemoglobin, blood urea, pulse, and systolic blood pressure, as well as presentation with syncope or melaena, and evidence of hepatic disease or cardiac failure. The score discriminated well with a ROC curve area of 0.92 (95% CI 0.88-0.95). The score was well calibrated for patients needing treatment ( $p=0.84$ ). **INTERPRETATION:** Our score identified patients at low or high risk of needing treatment to manage their bleeding. This score should assist the clinical management of patients presenting with upper-gastrointestinal haemorrhage, but requires external validation.



**Senior Medicine Rotation: Based Medicine Project (Cont)**

Group	Criteria or definition	n
<b>Derivation group</b>	All upper GI bleeds in all 19 hospitals in west Scotland	
Inclusion criteria	Patients aged 15 years and over treated in hospitals for acute upper gastrointestinal haemorrhage during a six month period.	Unknown
Exclusion criteria	Subsequently shown not to have upper GI bleed	1882*
	Unknown exclusion criteria for inclusion in logistic regression	1748
<b>Validation group</b>	Prospective, consecutive adult patients admitted with upper GI bleed during a 3 month period at 3 hospitals in west Scotland	205
Exclusion criteria	Incomplete records – 2 Final outcome unknown – 6	197

\*BMJ 1997 315:510-4. Acute upper gastrointestinal haemorrhage in west of Scotland: case ascertainment study. Blatchford O, Davidson LA, Murray WR, Blatchford M, Pell J.

Exposures studied: Clinical and laboratory data from initial assessment of patient, prior to endoscopy  
 Outcome of interest: Need for treatment, defined as transfusion, operation, endoscopy, or in absence of intervention died, rebled, or had fall in hemoglobin after admission.

Importance: Risk stratification with outcome of mortality or rebleeding is not commonly used, past risk stratification systems rely on endoscopic findings, and thus do not assist in triage of patients for admission. A method of screening patients by admission data for need for treatment will assist in triaging patients for admission.

**Strengths**

- Large sample size, geographic catchment area for derivation group avoids referral bias
- Prospective, consecutive cohort in validation group avoids referral bias

**Weaknesses**

- No blinding for researcher: investigator bias possible with both outcome and exposures known
- No blinding for treating physician: workup bias possible with exposures known and used to determine choice of outcome.

Test 1	Gold Standard			Likelihood Ratio
	Sensitivity		Specificity	
Abbreviated risk score	99%		32%	Positive: 1.46 Negative: 0.03

**What are the results?**

See graphs in paper for ROC curve. Main findings:

Age not significant in logistic regression to derive score

Risk score includes: Admission BUN, Hb, SBP, pulse, melena, syncope, hepatic disease, CHF

BUN mmol/L	
6.5-8.0	2
8-10	3
10-25	4
>25	6
Hb g/L for men	
120-130	1
100-120	3
<100	6
Hb g/L for women	
100-120	1
<100	6
SBP mm Hg	
100-109	1
90-99	2
<90	3
Others	
Pulse >100	1
Melena	1
Syncope	2
Hepatic dz	2
CHF	2

ROC curve area 0.92

Abbreviated risk score for rapid screen: BUN<6.5 mmol/L, Hb>130 g/L men or 120 g/L women, SBP >110, P<100->

**Will the results help me in caring for my patients?**

- Reproducible, easy to interpret
- Applicable to patients in ER, but not to my patient who has already GI bled. In her case, the Rockall endoscopy score is the more appropriate prognostic test.
- Our patient population does not have good outpatient followup, so low-risk patients who might otherwise be discharged from the ER using the abbreviated risk score might not be safe to go home.
- More applicable in communities with better access to care.