Patients with a Glasgow-Blatchford score (GBS, Table 2) of 0 have point estimates of 99%–100% sensitivity with lower bounds of 95% confidence interval (CI) of 98% (7–9), although specificities are poor with point estimates ranging from 8% to 22% (see Supplementary Table 1.2, Supplementary Digital Content, http://links.lww.com/AJG/B962). Patients with a GBS = 0–1 have sensitivity point estimates of 99%, with lower bounds of 95% CI of 97%–98% (7,8); specificities are higher with point estimates ranging from 27% to 40%. Two large multicenter studies reported GBS = 0–1 in 19%–24% of patients presenting with UGIB (6,7). A recent machine learning model from Shung et al. (8) can be set to provide sensitivities of 99% (comparable with GBS = 0–1) or 100% (comparable with GBS = 0) with specificities that are higher than GBS.

Figure 1 illustrates the calculation of sensitivity and specificity for a hypothetical cohort of 250 patients presenting with UGIB using the GBS threshold of 1 to identify very-low-risk patients. A 99% sensitivity means that for every 100 of these patients who will require hospital-based intervention or die, there will be 1 false negative—i.e., 1 patient with GBS = 0–1 is falsely categorized as not requiring intervention or dying. As mentioned, specificities are poor at high sensitivities. Figure 1 shows that among the 150 patients who will not require intervention or die, only 50 are correctly classified by a GBS = 0–1 (33% specificity, 67% rate of false positives). Thus, most patients who do not require intervention or die, and likely would not benefit from hospitalization, are not classified as very low risk. Improvement in specificity while maintaining high sensitivity is a key goal in development of new risk assessment models.

The panel considered if a sensitivity below 100% was acceptable and concluded that aiming for a sensitivity of 99% was reasonable because the greater specificity with the slightly lower sensitivity allows a greater number of patients to be discharged. Two risk stratification tools seem to provide sensitivities of 99% (with lower bound of 95% CI of 97%–98%): GBS = 0–1 and the Shung machine learning model (see Supplementary Table 1.2, Supplementary Digital Content, http://links.lww.com/AJG/B962). The panel mentioned only GBS in the recommendation because GBS has been widely studied in a variety of settings while the Shung model has only been evaluated in 1 setting at present. Importantly, the suggested threshold of 1% false negatives (99% sensitivity) for the outcome of hospital-based intervention or death serves as a guide for assessing prognostic models developed in the future. Patient and provider preferences regarding certainty of risk and desire for outpatient vs inpatient management should play an important role in decisions regarding thresholds. Decisions need to be individualized based on patient age, comorbidities, reliability, social support, and accessibility to medical care after discharge.

Although observational studies suggest GBS and a machine learning model identify very-low-risk patients with high sensitivity, evidence is scant to document that discharging such patients from the emergency department with outpatient management can indeed be performed with little or no risk as compared to admitting such patients. Only 1 study meeting the criteria for this PICO was identified: a before-after study (10) (see Supplementary Table 1.1, Supplementary Digital Content, http://links.lww.com/AJG/B962). Before implementing a rule that patients with GBS = 0 would not be admitted unless necessary for other reasons, 0 of 105 patients with GBS = 0 required hospital-based intervention (transfusion, endoscopic, or surgical therapy) or died within 30 days. After implementing the rule, 0 of the 84 patients with GBS = 0 who were not admitted required hospital-based intervention or died on follow-up (10). In addition, a retrospective case series noted that, after initiating a protocol in which patients with acute UGIB and GBS = 0–1 would be discharged from the emergency department with outpatient care if no other reason for admission, 0 of 103 patients with GBS = 0–1 who were discharged required hospital-based intervention or died within 30 days (11).

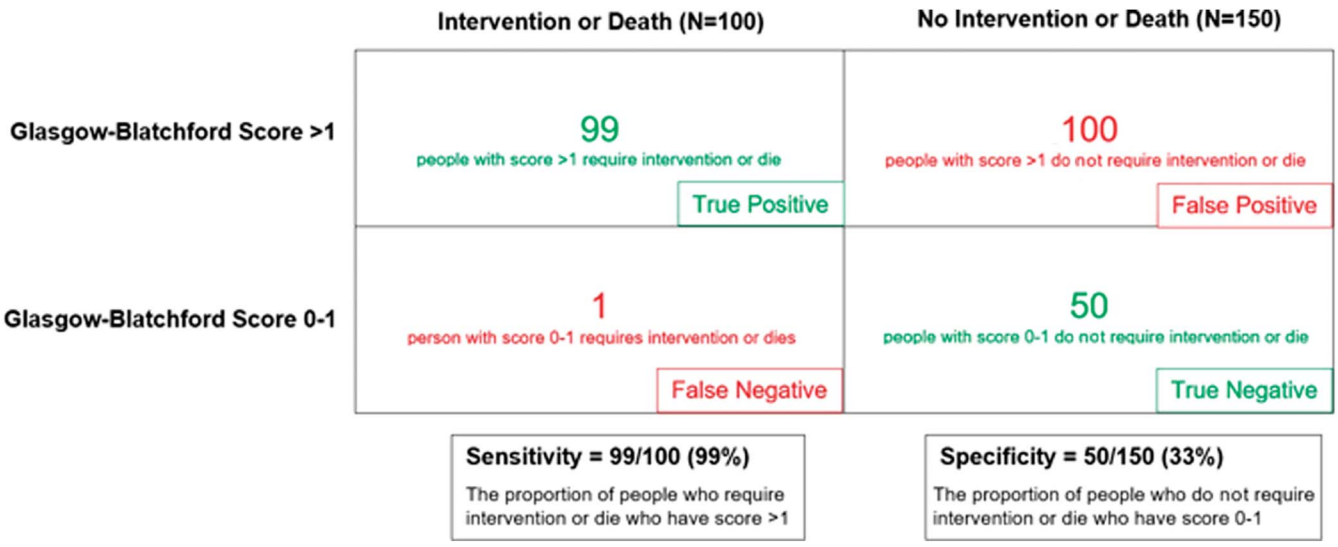

Figure 1. Two-by-two table to determine sensitivity and specificity for hypothetical population of 250 patients presenting with upper gastrointestinal bleeding using Glasgow-Blatchford score cutoff of 1. The upper row includes patients with scores >1, and the lower row includes those with scores of 0–1 (defined as very low risk). The left column shows the 100 patients who will require hospital-based intervention or die, with sensitivity calculated by the formula true positives divided by total number requiring intervention or dying (99/100 = 99%). The right column shows the 150 patients who will not require hospital-based intervention or die, with specificity calculated by the formula true negatives divided by total number not requiring intervention or dying (50/150 = 33%).