outcomes, leading to a lack of precision (ie, wide confidence intervals [CIs]) for most point estimates. Most of the prospective studies do not specify whether clinicians were blinded to the risk stratification results or had incorporated these risk estimates into clinical management decisions. In addition, these studies had an unacceptably high rate of lost to follow-up.

The most frequently studied risk stratification instrument is the ABCD2 score (Appendix E).[6-13,17,26,27,31-47] The ABCD2 score was derived and validated using retrospective data from the California and Oxfordshire groups in a Class II[11] study. Using 1,916 patients with suspected TIA in the derivation group and 2,892 in the validation group, they noted a 3.9% and 7.5% frequency for stroke at 2 and 7 days, respectively. Using a threshold of less than 4, the ABCD2 score identified 33.8% of patients as "low risk," with strokes occurring in 1% and 1.2% of these low-risk patients at 2 and 7 days, respectively. Since the derivation of the ABCD2 score, 6 Class II[34,40,42,44,45,47] and 21 Class III[6-10,12,13,17,26,27,31-33,35-39,41,43,46] studies have evaluated this score. These studies varied from multi-institutional prospective studies to single-center retrospective ones. Although the discriminatory accuracy of ABCD2 to distinguish patients with suspected TIA at low or high short-term risk for stroke is less convincing than the original derivation and validation set,[11] many of these subsequent studies did not report LRs or sufficient detail to compute LRs at any timeframe after the TIA.[12,25,27,35,38,41-43] The ABCD2 negative LRs for 2- to 7-day stroke risk among the studies that did report these data vary widely, from 0 to 1.1, with significant imprecision and wide CIs.[7-9,11,13,17,32,34,40,44]

The 7 Class II[11,34,40,42,44,45,47] studies of the ABCD2 score are limited by uncertain blinding of outcome assessors to the ABCD2 score. This could have potentially skewed any observed prognostic accuracy because of aggressive TIA management based on the observed ABCD2 score. These interventions could have prevented short-term strokes that the ABCD2 score would have predicted if preventive interventions guided by the ABCD2 score had not been implemented. Inconsistent reporting of short-term (2- or 7-day) stroke rates and high rates of lost to follow-up were also common limitations. In addition, the feasibility of ED clinicians scoring the ABCD2 in real time was rarely assessed; instead, research teams usually calculated the score either retrospectively or prospectively. In a Class II study, Wasserman et al[47] prospectively evaluated 1,093 consecutive adults with suspected TIA at 2 Canadian tertiary care EDs, including 1.6% admitted from the ED. Strokes were observed in 3.2% of patients at 90 days, which was approximately one-third the rate predicted by the ABCD2 score; stroke outcomes in this study were determined by a neurologist who was not blinded to the ABCD2 score. The ABCD2 negative LR for 90-day stroke was 0.29 (95% CI 0.08 to 0.81).

In a Class II study, Cancelli et al[34] prospectively evaluated 161 TIA patients in 1 Italian stroke referral center, noting an 11.5% 90-day stroke rate. An ABCD2 score less than 4 was associated with a 0% stroke rate at 2, 7, 30, and 90 days, but only 4 strokes were observed in 2 days, creating an unacceptably wide CI (negative LR 0; 95% CI 0 to 1.9). Stead et al[44] reported 7-day stroke risk in a single-center retrospective study of 637 adult patients with suspected TIA. The 7-day stroke risk was 1%, and strokes occurred in 1.1% of individuals with an ABCD2 score less than 4, representing a negative LR of 1.1 (95% CI 0.2 to 2.6). A Class II study by Ozpolat et al[40] reported on 64 patients with TIA in a Turkish ED using convenience sampling; 12.5% had stroke within 3 days of the TIA, yet none of these patients had an ABCD2 score less than 4, thus representing a negative LR of zero. In a Class II study, Wardlaw et al[45] reported a systematic review of 26 studies including 12,586 patients, assessing 7-day stroke risk with ABCD2 less than 4 (34%) versus greater than or equal to 4 (55%), but they combined heterogeneous prospective and retrospective studies without stratifying analysis by populations, study design, or quality. They also did not report LRs. Finally, a Class II study by Perry et al[42] reported a multicenter prospective study comparing the ABCD2 score with the Canadian TIA Score for predicting the 7-day risk for strokes. Although the Canadian TIA Score was shown to be superior to the ABCD2 score, the Canadian TIA Score has not been validated.

Multiple Class III[8,9,12,13,24,25,27,30,38,48] studies evaluated other risk stratification instruments. Similar to the ABCD2, none of these instruments demonstrated sufficient diagnostic accuracy to identify TIA patients at lower short-term risk for stroke, with negative LRs ranging from 0 to 0.55 and CIs that generally crossed 1. The negative LRs and imprecision of each score are not sufficiently accurate or precise to confidently risk stratify TIA patients for short-term risk of stroke. Several of the modified instruments such as ABCD-I, ABCD2-I, and ABCD3-I incorporate concurrent ED MRI, which is beyond the scope of this question.[8,12,27,29,36]

The ABCD has been evaluated in 3 Class II[11,28,29] studies and 7 Class III[9,13,24-27,30] studies with negative LRs for ABCD less than 4 for 7-day stroke risk, which extended from an LR of 0 (95% CI 0 to 0.55)[28] to 0.12 (95% CI 0.01 to 0.65)[30] to 0.39 (95% CI 0.13 to 0.99).[9] ABCD scores were not more accurate at determining 2-day strokes, with negative LRs of 0.30 (95% CI 0.02 to 1.4).[13] The ABCD3 has been evaluated in 3 Class III[12,27,38] studies, the California score by 1 Class II[11] study and 3 Class