Hypothesis / aims of study
To identify baseline demographic, social and clinical factors associated with treatment failure in women undergoing surgical treatment of stress urinary incontinence (SUI) in a multisite randomized clinical trial.

Study design, materials and methods
Baseline data were examined from 655 women participating in a large randomized trial of Burch colposuspension or pubovaginal sling using autologous rectus fascia for the treatment of SUI. Of those, 520 (80%) completed outcome assessment at 24 months: 255 Burch, 265 sling.

For stress specific failure, three factors were found to be significant predictors: severity of urge UI symptoms (p=0.023), prolapse stage (p=0.011), and menopause status and HRT (p=0.020). For every 10 point increase on the MESA urge UI score, the odds of failure nearly doubled (OR 1.93, CI 1.10-3.41) and was 2.5 times greater for women with stage III-IV prolapse than with stage 0-1 prolapse (OR 2.52, CI 1.34-4.75). Post-menopausal women not taking HRT were nearly twice as likely to experience treatment failure as those taking HRT (OR 1.86, CI 1.18, 2.93).

For non-stress treatment failure, severity of urge and stress symptoms were found to be significant predictors but in opposite directions. Odds of non-stress failure quadruples for every 10 point increase in MESA urge UI score (OR 4.18, CI 1.57-11.10) and decreased over 2 times for every 10 point decrease in stress UI score (OR 0.35, CI 0.15-0.78). The associations described between the risk factors and failure remained similar regardless of surgical group.

Interpretation of results
This 2 year large multicenter well powered study reports on the importance of urge UI, advanced pelvic organ prolapse and non use of HRT in post-menopausal women to be predictors of stress-related failure, and of urge UI for the non-stress related failure of both Burch and sling operations for stress UI. For women with mixed stress and urge UI, our finding suggests that a strong urge UI component could be a harbinger for post-operative stress-related as well as non-stress related failure following stress UI operations. A possible explanation for these 3 factors to explain the predisposition to failure is that they could be the surrogate or the manifestation of an occult intrinsic dysfunction possibly due to neuromuscular dysfunction in the case of urge UI, collagen dysfunction in the case of advanced prolapse and tissue atrophy in the case of lack of HRT overlapping with the obvious hypermobility of the bladder neck. Of interest is that this study did not find age, BMI, prior UI surgery and vaginal deliveries to be risk factors for failure in this multivariate analysis.

Concluding message
Two years after surgery, risk factors for stress-specific treatment failure are similar in women undergoing Burch and sling procedures and included greater baseline urge UI symptoms, more advanced pelvic organ prolapse, and post-menopausal women not on HRT. Higher urge scores were predictive of failure by outcome measures not specific for SUI. This information will assist in counselling patients regarding long term efficacy of these surgical procedures and may prompt more aggressive alternative strategies for women with concurrent urge incontinence. Furthermore, investigation into the mechanism/s by which these factors predispose women to failure following these operations is warranted.

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HUMAN SUBJECTS: This study was approved by the Beaumont Hospital Institutional Review Board and followed the Declaration of Helsinki Informed consent was obtained from the patients.