Question 1:
You mention how there is a significantly lower risk of fistula after vaginal hysterectomy as compared to abdominal or laparoscopic hysterectomy while discussing the benefits of early identification of intraoperative injury. In addition to performing intraoperative cystoscopy, what other evaluation techniques are easily accessible to surgeons in the operating room to evaluate for urinary tract or bowel injury at the time of hysterectomy? And do you recommend routine use of any of these techniques?

Response from Dr. Rogers and Dr. Jeppson:
Intraoperative cystoscopy is the gold standard for visualization of the lower urinary tract. Whether or not routine cystoscopy should be performed after every hysterectomy remains controversial but few would argue against performing cystoscopy at the time of suspected injury. Other methods of evaluating the integrity of the bladder include back-filling the bladder with methylene blue–tinged fluid or sterile milk. In addition, if patients are given pyridium prior to the procedure or fluoresceine during the procedure, the appearance of color-stained fluid in the abdomen may help identify a bladder or ureteral injury intraoperatively. Although bowel injuries are less common than lower urinary tract injuries, a rectal examination is a simple way to evaluate the distal rectum for injury. This only takes seconds to perform and does not add appreciable risk to the procedure. Filling the pelvis with fluid during abdominal procedures and insufflating the rectum and colon can help to screen for injuries as well. This should only be performed when there is a strong suspicion of injury. Finally, consultation with operative experts for other assessment of injury is always appropriate if concerns arise.
Question 2:
In your article, you recommend performing a nutritional assessment in certain fistula cases to ensure optimal nutrition to aid in surgical healing. What initial evaluation do you perform to assess nutritional status?

Response from Dr. Rogers and Dr. Jeppson:
We mentioned nutritional assessment as a consideration for select patients because malnutrition can contribute to poor wound healing. The primary purpose of that statement is for patients being treated in underdeveloped countries as they are at much greater risk to suffer from malnutrition. That being said, we routinely check all patients’ height and weight at every clinic visit because serial body mass index (BMI) assessments can be used to trend weight gain or loss. In addition, the general appearance of patients can be a clue to malnutrition as thin, brittle hair, gaunt facial features, muscle wasting, and overall thin appearance may indicate malnutrition. For patients with appearance concerning for malnutrition or low BMI, serum albumin levels can be checked to evaluate for malnutrition. At tertiary care centers, consultation with a dietician can be an excellent resource to help patients identify dietary deficits or identify economical options to increase the nutritional content of their diet.

Question 3:
Managing patient expectations regarding fistula repair is important and can be complicated. How do you counsel patients with regard to their expectations for recovery, continence, and sexual function following repair? Do you have any specific advice for helping patients who are particularly angry or resentful about the fact that they have developed a fistula? Does your counseling change when you are treating a patient who has sustained a fistula due to a foreign body or mesh?

Response from Dr. Rogers and Dr. Jeppson:
Adverse outcomes following vaginal birth or surgery are disappointing to both providers and patients. A frank discussion of how the repair will take place, how long recovery will take, and functional outcomes after repair are essential and will vary depending on the type of fistula and the patient’s overall health and condition. In general, recovery from fistula repair is similar to recovery from any major surgery and most surgeons recommend postoperative pelvic rest for 6 weeks or until the fistula is documented as closed. As we mention in the article, even though the fistula is closed, the patient may continue to experience urinary or anal incontinence. For example, a vesicovaginal fistula may be successfully closed but if the patient still has urgency urinary incontinence or stress incontinence following repair, they will continue to report leakage. Discussion of these possible outcomes is important to set expectations, and the patient may need further therapy to treat the now “unmasked” secondary problem. In the case of vesicovaginal fistula, it is essential that the patient understand the need for bladder drainage with prolonged catheter use following the procedure. Counseling patients regarding adverse outcomes such as fistulae is challenging in the best of circumstances. The best counseling happens before the occurrence of the complication, as even in the best of hands, complications do occur. Frank answers with a clear treatment plan can help to alleviate frustration. Our general counseling does not change when fistulae formation is related to mesh or other foreign object; however, in those instances we would recommend removing the offending mesh or object that may make the fistula more complicated.
**Question 4:**
In Table 2, you discuss the many additional testing options available in the clinical setting to help identify fistula tracts that can be used in addition to the physical examination techniques reviewed in the article. Do you have a general algorithm for which tests you routinely conduct or recommend when evaluating for certain types of fistulae?

**Response from Dr. Rogers and Dr. Jeppson:**

*For patients presenting with a suspected vesicovaginal fistula, the double dye test is the easiest to implement in the clinical setting. Since we are a referral clinic with cystoscopy capabilities in clinic, we often perform a cystoscopy in the clinical setting on the patient’s first visit. For rectovaginal fistula, a rectal examination coupled with the use of dye-tinged gel is often helpful to identify the fistulous tract; if that is unsuccessful, installation of dye-tinged fluid into the distal rectum with the use of large Foley catheter with a large balloon can also be helpful.*

**Question 5:**
For patients with suspected fistula-in-ano, you mention the importance of ruling out inflammatory processes. Do you routinely recommend referral to gastroenterology or colorectal surgery to evaluate for these inflammatory conditions prior to surgery?

**Response from Dr. Rogers and Dr. Jeppson:**

*For patients presenting with an anorectal fistula who have not had a precipitating event such as a surgery or severe vaginal laceration at the time of childbirth, colonoscopy may be indicated to rule out inflammatory bowel disease or a malignant process. For patients who present with clear signs of infection, fistula-in-ano should be considered, as the infection is the most likely cause of the fistula and treatment of the infection with or without Seton placement would improve attempted surgical repair.*

**Question 6:**
When discussing conservative management options, is there a specific time period after the initial injury when you would no longer consider conservative management with prolonged Foley drainage or ureteral stent placement as a primary treatment option for vesicovaginal or ureterovaginal fistulae?

**Response from Dr. Rogers and Dr. Jeppson:**

*During the acute healing phase of an injury with continuous drainage or stent placement, some fistulous tracts will close. In our experience, even large tracts may spontaneously close. Once the fistula tract is matured with scarring, it is unlikely that the tract will spontaneously close. Typically, this occurs within a 6–8-week period, sometimes sooner. Very prolonged catheter drainage or stent placement is unlikely to close the fistula tract for matured fistulae.*
Question 7:
For patients undergoing vesicovaginal fistula repair, what is your routine postoperative management in terms of duration of catheterization and whether you perform any imaging or other testing prior to catheter removal?

Response from Dr. Rogers and Dr. Jeppson:
In our clinical setting we suggest bladder drainage for 7–10 days, and follow-up with a cystogram to document that the fistula is closed. If the fistula is not closed, then we recommend continued Foley catheter drainage with repeat cystogram in a week.

Question 8:
You discuss that the colorectal literature supports placing women on a regular diet after colorectal repairs or rectovaginal fistula repair. In addition to resuming a regular diet, do you have a specific postoperative bowel regimen that you recommend for patients following rectovaginal fistula repair? And, if so, would you recommend a similar regimen for women after undergoing a fourth-degree obstetric laceration repair?

Response from Dr. Rogers and Dr. Jeppson:
We recommend a regular diet after fourth-degree obstetric lacerations as well as after rectovaginal fistula repair and encourage patients to maintain soft, but formed stools. We prefer a high fiber diet with plenty of fluids to achieve this, but stool softeners and fiber supplements may be used as well. We are concerned if patients become obstipated or unable to defecate for a prolonged period after surgery. We counsel patients that the first bowel movement is likely to be painful and that they will need to bear down as they normally do for bowel movements. We recommend keeping the perineum clean between bowel movements and recommend the use of a peribottle to clean the perineum following defecation.