Question 1:
Can you weigh in on the controversy about whether universal cervical screening should be performed with transvaginal ultrasonography for all women at their anatomy scan?

Response from Dr. Feltovich:
There are two competing issues here. Transvaginal ultrasonography is unquestionably more accurate, but transvaginal ultrasonography on every second-trimester patient in a busy practice is impractical. One recent prospective study to evaluate whether transabdominal cervical length can rule out a short cervix on transvaginal ultrasonography found that, while transabdominal cervical measurement could not be obtained in approximately 20% of their patients (due to maternal habitus, etc), a length of >35 mm excluded all of the short cervices (defined as <30 mm). They summarized that two thirds of transvaginal scans in their population were avoidable by transabdominal scanning (see Am J Perinatol 2016; 33[5]:473–9). I suspect studies like these will inform practice.

Question 2:
Since measurement inaccuracy seems to be a major problem in all the studies that compare clinical examination (Bishop Score) to transvaginal ultrasonography, do you think that standardization with models and simulation would be useful?

Response from Dr. Feltovich:
Like so many other procedures in obstetrics and gynecology in which training is bettered by simulation, yes!
Question 3:
You mention that Dutch women who are induced with an unfavorable cervix have a much higher rate of vaginal delivery when compared to American women (85% compared with 63%, respectively). Do you think this is because women in the Netherlands are given more time to labor or is epigenetics playing a role?

Response from Dr. Feltovich:
I don’t know, but I suspect it has more to do with labor management than epigenetics. One notable difference between the Netherlands and the United States is that midwives attend most deliveries in the Netherlands. I wonder if that underlies the different success rates of vaginal delivery.

Question 4:
Aside from the recommendations that the American College of Obstetricians and Gynecologists set forth in Practice Bulletin No. 142: Cerclage for the Management of Cervical Insufficiency (see Obstet Gynecol 2014;122:372–9), when do you recommend it is best to use transvaginal ultrasonography to assist with clinical management in the preterm setting (>24 weeks of gestation)?

Response from Dr. Feltovich:
I recommend liberal use of transvaginal ultrasound cervical length on labor and delivery because it helps triage women. The Society for Maternal-Fetal Medicine Consult Series on cervical length screening suggests that measurement is useful for guiding management on labor and delivery because the negative predictive value of a transvaginal cervical length of >30 mm is high (96%–100%), as is the preterm birth risk with a very short (<20 mm) cervix. In the case of a 20–29 mm cervix, other factors (gestational age, fetal fibronectin) must be taken into account (see Am J Obstet Gynecol 2016;215:B2–7).

Question 5:
It’s incredible to think that in antiquity, membrane stripping was routinely practiced and successful in inducing labor, and that this was recently validated in modern times. Would you recommend that membrane stripping routinely be added to an obstetrician’s arsenal and performed at term to help induce labor and hopefully decrease the rate of cesarean deliveries?

Response from Dr. Feltovich:
Yes, isn’t that incredible? The best part of writing this Clinical Expert Series was that I found out so many interesting similarities between practice now and that of 2,000 years ago. Regarding induction of labor and cesarean delivery, the questions of how to increase the success of labor induction, and decrease the rate of cesarean delivery, are amazingly complex. Also, while Soranus instructed his midwives to strip membranes at term, presumably to avoid postdate labor, the randomized controlled trial on membrane stripping was done during cervical ripening for induction. That said, membrane stripping is easy, free, and possibly helpful. This could be a great resident research project!

Question 6:
The world of “precision” medicine is amazing. In cancer research, scientists have access to the cancer cells in the form of a tumor. As you depicted in Figure 4 of the article, biomarkers during pregnancy can be found in serum and cervicovaginal fluid. Is there a biological model that mimics pregnancy and the various physiologic changes that occur to the tissue during pregnancy that can be assessed in a similar way to cancer cells?
Response from Dr. Feltovich:

To my knowledge, the answer is no at the present moment, but that is precisely what we and many other groups are working toward.

**Question 7:**

You mention ultrasonic attenuation and shear wave speed can access the softness of the cervix. If one of these modalities becomes a useful biomarker, can this technology easily be implemented into practice in the office or on labor and delivery?

**Response from Dr. Feltovich:**

Yes, and perhaps even in the near future. One of the issues with these technologies is that the typical curvilinear transvaginal transducer does not work well for these applications in the cervix. Because of that, our group has been working with prototype transducers, which are not at all easy. However, commercial transducers are under development, and this will make implementation possible.

**Question 8:**

With the advent of precision medicine, do you think we will be able to make predictions for women before they are even pregnant, or will each individual fetus also impact the molecular signature to such a degree that conception must come first?

**Response from Dr. Feltovich:**

I suspect both that we will be able to tell a lot before a woman is even pregnant, and that each individual fetus will design its own molecular signature. Biology is extremely variable (and fascinating)! So many groups are actively engaged in this problem, and technology has advanced so much, that I truly think the next 10 years will see more progress in the space of parturition science than have the last 2,000. It will be exciting for sure.