Choosing High-Value Medications

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Clinical Scenario
A 20-year-old gravida 1 (G1) patient presented to labor and delivery for induction of labor at 41 weeks. Her pregnancy had been uncomplicated to this point. She denied rupture of membranes and reported good fetal movement.

A physician evaluated the patient and noted the following vital signs: Temp 98.7°F, HR 85, BP 110/70, RR 12, O2 Sat 100% RA. Her cervix was 25% effaced, 1 cm dilated, and high with a Bishop score of 1. The nonstress test was reactive.

Treatment Options
Option A: We counsel the patient on induction of labor and place a dinoprostone vaginal insert for cervical ripening.
Option B: We counsel the patient on induction of labor and give misoprostol orally for cervical ripening.

Discussion Questions
Which cervical ripening agent is more effective, dinoprostone vaginal insert or oral misoprostol?
What is the cost difference between the dinoprostone vaginal insert and oral misoprostol?

Costs*
Option A: Dinoprostone vaginal insert: $333.00
Option B: Oral misoprostol: $1.00/dose

*Costs were obtained from healthcarebluebook.com. These costs are estimates and represent the amount typically paid by an insurance company for this medication.

Teaching Moment
The patient in this case was a low-risk patient at 41.0 weeks presenting for induction of labor. Current ACOG (American Congress of Obstetricians and Gynecologists) practice guidelines regarding management of late-term pregnancies recommend induction of labor between 41.0 and 42.0 weeks due to perinatal morbidity and mortality increasing beyond 42.0 weeks. This patient discussed the risks and benefits of induction of labor with her physician and desired to proceed with induction.

More than 22% of all gravid women undergo induction of labor in the United States. The goal
of induction of labor is to achieve vaginal delivery by stimulating uterine contractions before the spontaneous onset of labor. The Bishop score is used to evaluate how favorable a cervix is for labor. A score of ≤6 indicates an unfavorable cervix, and cervical ripening is recommended prior to labor induction. The goal of cervical ripening is to facilitate the process of cervical softening, thinning, and dilating necessary for labor.2-4

Multiple methods are available to an obstetric provider for cervical ripening, including mechanical cervical dilators and synthetic prostaglandins (PGE-1-misoprostol and PGE-2-dinoprostone).3,5 The choice of which agent to use for cervical ripening is largely dependent on the preference of the provider.

Mechanical cervical dilators have been shown to be equally efficacious as synthetic prostaglandins.6 Additionally, labor induction with oral misoprostol compared to vaginal dinoprostone has demonstrated a shorter time to vaginal delivery as well as fewer cesarean deliveries, without compromising safety.7

Given the safety, efficacy, and cost difference between misoprostol ($1.00/dose) and dinoprostone ($333.00) (Fig. 1), choosing misoprostol over the dinoprostone vaginal insert is a simple and significant intervention, generalizable to all institutions and capable of providing high-value, cost-conscious care.

**Intervention and Result**

In 2013, the obstetrics and gynecology residents and faculty at Greenville Health System were educated about the efficacy, safety and cost of the dinoprostone vaginal insert versus oral or vaginal misoprostol. Utilization of the dinoprostone vaginal insert was monitored for the following 2 years and a significant drop after this intervention was noted (Fig. 2). This information was subsequently reported to our maternal-fetal medicine committee who supported removal of this product from the hospital formulary.

**References**