



**ACEP Mission**

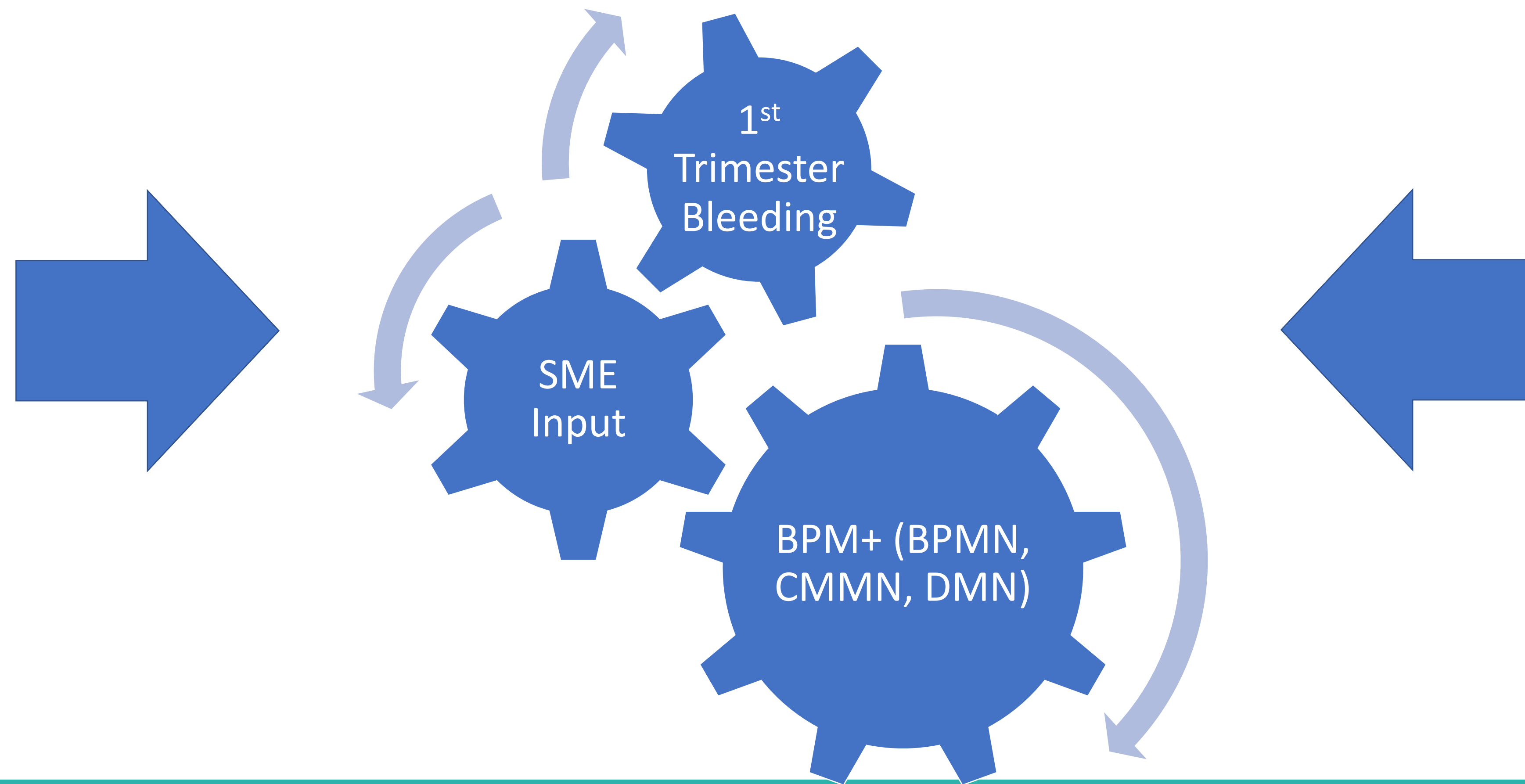
The American College of Emergency Physicians promotes the highest quality of emergency care and is the leading advocate for emergency physicians, their patients, and the public.

**Physician Burden**

- ED Patients: New, unscheduled & often
- Variable patterns of care in the ED
- Data Discovery Burden (past meds, PMH)
- Hospital EHRs: Poor workflow designs

# Reducing HIT Burden & Improving Outcomes

## Building Evidence-Based, Policy-Driven EMR Protocols



**ACOG Mission**

The American College of Obstetricians and Gynecologists is a membership organization dedicated to the advancement of women's health care and the professional and socioeconomic interests of its members through continuing medical education, practice, research, and advocacy.

**Current Challenges**

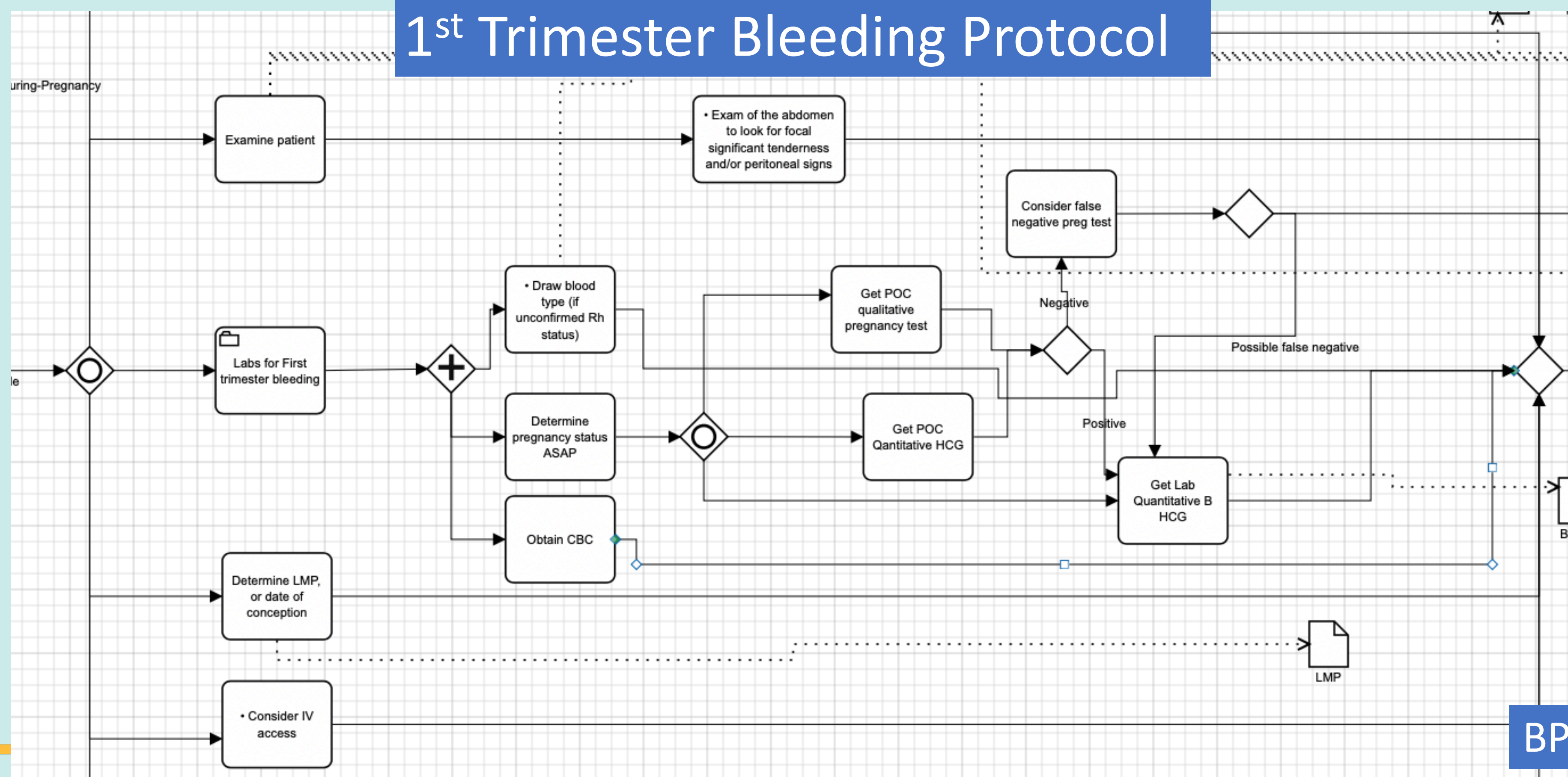
- Outcomes less than ideal
- Care is complicated & with a 17-year gap
- Siloed Data
- EHRs are a huge source of physician burden
- Declining Fee-for-Service Compensation

**Business Process Management Plus (BPM+)**  
**An Ideal Model**

- 3-in-1:
  - BPMN: Business Process Model and Notation
  - CMMN: Case Management Model and Notation
  - DMN: Decision Model and Notation
- Human & machine readable
- Broad, cross-specialty appeal
- Defined scope (e.g. clear inclusion/exclusion logic, I/O)
- Market viability
- Encompass existing best practices & policies
- Scalability (broad availability for various clinicians)



**1st Trimester Bleeding Protocol**



**Differential Diagnosis Calculator**

	inputs			outputs	annotations
	Pelvic US	B HCG Quantitative level	Tissue at Gs	Differential Dx	Description
U	[[PelvicUSresults "IUP, viable", "IUP viability uncertain", "Empty Uterus", "Adnexal Mass", "Adnexal free fluid", "Extra-uterine gestational sac or fetus"]]	Number	Boolean	[[DifferentialDx "Threatened Abortion", "Spontaneous Abortion", "Ectopic, ruptured", "Ectopic, unruptured", "Pregnancy of Unknown Location"]]	
1	"IUP, viable" in ?	-	false	["Threatened Abortion", "Heterotopic pregnancy", "Other source of vaginal bleeding"]	
2	"IUP, viable" in ?	-	true	["Spontaneous Abortion", "Heterotopic pregnancy"]	
3	"IUP viability uncertain" in ?	-	true	["Spon(an)eous Abortion", "Heterotopic pregnancy"]	
4	"Adnexal free fluid" in ?	-	-	"Other source of intra-abdominal bleeding"	
5	"IUP viability uncertain" in ?	-	false	["Threatened Abortion", "Heterotopic pregnancy"]	
6	"Empty Uterus" in ?	>3000	-	["Ectopic, ruptured", "Ectopic, unruptured"]	
7	"Adnexal Mass" in ?	-	-	"Ectopic, unruptured"	
8	List contains all of the elements([ "Empty Uterus", "Adnexal free fluid", "Adnexal Mass"])	-	-	"Ectopic, ruptured"	
9	"Empty Uterus" in ?	<3000	-	["Ectopic, unruptured", "Ectopic, ruptured", "Pregnancy of Unknown Location"]	

**Key Take-Aways**

- Challenge – Reconcile differences in specialty objectives (OB v. EM)
- Solution:
  - Certain protocols should not have finite ends or conclusions
  - Use DMN to help build in a calculator for differential diagnoses
- Cross-specialty functionality is possible

**Next Steps**

- Develop 'patient is unstable' arm of the protocol
- New protocols:
  - Alternative to Opioid in Low Back Pain (*in development*)
  - Diabetic Control

**Call to Action**

- **Build more protocols**
  - Specific to established guidelines
  - Choose areas with cross-specialty appeal
- **Directly involve physicians in your specialty**