EARLY PREGNANCY FAILURE MANAGEMENT:
A PREFERENCE-SENSITIVE DECISION

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CONTRA COSTA REGIONAL MEDICAL CENTER
NOON CONFERENCE SERIES

DISCLOSURE OF CONFLICT OF INTEREST

○ Speaker has nothing to disclose
My Background and Experience

• UNC Med School (2004)
• Santa Rosa Family Medicine Residency (2007)
• Post-residency general practice
  • SF-DPH Community Health Network Primary Care
  • UCSF Family Medicine Residency preceptor
  • TEACH trainer
• UCSF Fellowship in Primary Care Research and Family Planning (2011)
Objectives

1. To describe and discuss the four evidence-based management options for early pregnancy failure (EPF).

2. To review the evidence for patient preferences for EPF management.

3. To apply the shared decision-making framework to EPF management options.
Outline

• Early pregnancy failure and loss
  • Definitions and Terminology

• Miscarriage management
  • Four options = Clinical Equipoise
  • A preference-sensitive decision

• Shared decision-making in miscarriage management
  • Patient Preferences
  • Provider Practices
  • Utilizing a structured approach to decision-making
Early pregnancy failure (EPF)

• Includes all non-viable pregnancies in first trimester

15-20% of clinically recognized pregnancies

1 in 4 women will experience EPF
EPF management: A preference-sensitive decision

- Several treatment options are available and equivocal

- Best choice of treatment reflects patient’s values and preferences

O’Connor 2007
Patient Case

- Ella is a 26 yo G1P0 presenting to urgent care clinic

“I’m 2 months pregnant and I’m bleeding! Am I going to lose the baby?”
Patient Case

How do we care for Ella?

Clinical History:
• LMP
• First positive UPT
• Prenatal care thus far
• Bleeding & cramping
• Abdominal or one-sided pelvic pain
• Pregnancy intention

Work-up:
• PE?
• Labs?
• Ultrasound?
Patient Case

- Ella’s sure LMP was 9 weeks ago
- She had a positive UPT in clinic 2 weeks ago
- Her first prenatal care visit is scheduled for next week (meaning no ultrasound done yet this pregnancy)
- On exam her cervical os is closed

What can we tell Ella right now?
Explaining bleeding in early pregnancy

- Keep the patient informed
  - Provide reassurance that not all vaginal bleeding & cramping signifies miscarriage, but avoid guarantees that “everything will be all right”…
  - Assure you are available and **BE** available throughout the process

- What does the bleeding mean?
  - 50% ongoing pregnancy rate with closed cervical os
  - 85% ongoing pregnancy rate with viable IUP on sono
  - 30% of normal pregnancies have vaginal bleeding
EPF – Making the diagnosis

Clinical diagnosis:

- Spontaneous abortion
  - Vaginal bleeding + IUP, <20 wks
  - threatened, inevitable, incomplete, complete

Ultrasound diagnosis:

- Anembryonic gestation
  - Gestational sac without embryonic pole
  - MSD ≥ 16 – 25 mm

- Embryonic demise
  - 5mm embryo
  - with no cardiac activity
β-HCG utility in EPF diagnosis

- β-HCG median serum concentration:
  - 4 weeks: 100 mIU/ml (5-450)
  - 10 weeks: 60,000 (5,000 – 150,000)

Discriminatory Level

- Serum HCG at which a normal intrauterine pregnancy can be visualized on ultrasound
  - Trans-abdominal = 3600 – 6000
  - Trans-vaginal = 1500 – 2000

- Once beyond discriminatory level, limited role for “following betas”

Nyberg 1985 Am J Roentgenol
Dashefsky 1988 Radiology
Goldstein 1988 Obstet Gynecol
Fossum 1988 Fertil Steril
# Ultrasound milestones

<table>
<thead>
<tr>
<th>Ultrasound Feature</th>
<th>When should you see it?</th>
<th>Abnormality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gestational Sac</strong></td>
<td>Discriminatory Level $\beta = 1500-2000$</td>
<td>R/O ectopic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple gestation</td>
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<tr>
<td></td>
<td></td>
<td>Complete SAB</td>
</tr>
<tr>
<td><strong>Yolk sac</strong></td>
<td>MSD $&gt; 13-16$ mm</td>
<td>(wait for fetal pole)</td>
</tr>
<tr>
<td><strong>Fetal pole</strong></td>
<td>MSD $\geq 20$ mm (16-25mm)</td>
<td>Anembryonic gestation</td>
</tr>
<tr>
<td><strong>Cardiac activity</strong></td>
<td>Fetal pole $\geq 5$ mm</td>
<td>Embryonic demise</td>
</tr>
</tbody>
</table>

*MSD* = Mean Sac Diameter
Anembryonic gestation
Embryonic Demise

The fetal Crown-rump length (CRL) in this case is 10.8 cm = 7 weeks 3 days.
Pseudosac
Patient Case

- Ella’s ultrasound is performed and shows a 10 mm embryo with NO cardiac activity

What are her options?
EPF Management

- Expectant
- Medical
- Aspiration

Depends on:
1. Hemodynamic stability
2. Patient preference and follow-up
3. Stage in process
4. Local resources
Decision-making for EPF management

• Four treatment approaches for the clinically stable patient
  1. Aspiration w/ general/deep sedation (operating room)
  2. Aspiration w/ local/moderate sedation (office-based)
  3. Medical (misoprostol +/- mifepristone)
  4. Expectant

• All methods are effective, with equivalent safety and patient acceptability

NSFG 2004; Chen 2007; Wieringa-de Waard, 2002; Zhang 2005; Trinder 2006
EPF Management

CASE OF CLINICAL EQUIPOISE

Best choice for management reflects patient’s values and preferences
Expectant Management

• “Watchful waiting”
• Can safely advise up to 8 weeks of waiting
• Definition of “success” varies widely in published studies
• Counseling with realistic expectations about: **Duration, Discomfort, and potential D&c**
  
is important for patient acceptability

• Stage of miscarriage process impacts expected efficacy

Bagratee 2004;
Blohm 1997
## Expectant Management: Complete Abortion rate

<table>
<thead>
<tr>
<th></th>
<th>By day 7 (%)</th>
<th>By day 14 (%)</th>
<th>By day 46 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete Ab (n=221)</td>
<td>53</td>
<td>84</td>
<td>91</td>
</tr>
<tr>
<td>Anembryonic gestation (n=92)</td>
<td>25</td>
<td>52</td>
<td>66</td>
</tr>
<tr>
<td>Embryonic demise (n=138)</td>
<td>30</td>
<td>59</td>
<td>76</td>
</tr>
<tr>
<td>Total (n=451)</td>
<td>40</td>
<td>70</td>
<td>81</td>
</tr>
</tbody>
</table>

**Summary for waiting 1 – 2 weeks:**

- 75 – 85% of women with incomplete ab can avoid suction
- 30 – 60% of women with embryonic demise can avoid suction

Luise 2002 BMJ
Expectant Management

Advantages
- Non-invasive
- Body naturally expels non-viable pregnancy
- Avoids anesthesia and surgery risks
- Allows for patient privacy and continuity of care

Disadvantages
- Unpredictable outcome and timescale
- Process can last days to weeks
- Can have prolonged bleeding and cramping
- Despite waiting, may still need uterine aspiration
Expectant Management

Contraindications

• Uncertain diagnosis
• Severe hemorrhage or pain
• Infection
• Suspected gestational trophoblastic disease
• Indicated karyotyping

Same contraindications for medical management
Medical Management

• Use of medications for active management of EPF

• Misoprostol
  • Stimulates uterine contractions & softens cervix
  • Inexpensive, easy storage

• Mifepristone
  • Anti-progestin used for pregnancy termination
  • Limited use in non-viable pregnancies
Medical Management

Advantages

• Non-invasive
• Safe
• Can be highly effective
• Avoids anesthesia and surgery risks
• Highly cost-effective
• Allows for patient privacy and continuity of care

Disadvantages

• May cause heavier or longer bleeding
• Increased need for analgesics and pain control
• May cause short-term gastrointestinal and other side effects
• May still need uterine aspiration
Misoprostol for EPF

- Small studies with wide range of doses, follow-up and definition of success
- Common regimen:  
  800 mcg vaginally, repeat dose @ 24h PRN
- Success (avoid surgical intervention) = 70 – 96%
- Higher success with longer follow-up
  → Incomplete miscarriages have higher success

Zhang et al, NEJM, 2005
Weeks et al, Obstet Gynecol 2005
Sur et al. Best Pract ObG 2009
**Miso Algorithm**

- **Miso 800 mcg PV**
  - Cramping w/ clot/tissue in 24-48 hrs
  - 7 Days Clinical f/u U/S if indicated
  - Clinical signs of passage DONE!
  - No Sac & (endometrium <= 30 mm) DONE!
  - Sac present or (Endometrium > 30 mm)
    - If still sac (or endo > 30 mm) after 2 doses: Recommend suction
      - If wants expectant mgmt, f/u 2-4 wks
      - Suction if signs of infection or HD instability

- (Rhogam for Rh- women)
  - No clinical passage in 24-48 hrs
  - 2nd Dose Miso on D3

**Follow up precautions**
- Bleeding should stop in 2-3 wks
- Menses should resume in 6-8 weeks

Adapted from Goldberg 2009 in Mgmt of unintended & abnl pregnancy
Aspiration for EPF

• Historically done in operating room under general anesthesia
• Suction curettage with MUA or EUA has largely replaced surgical D&C
• Safe procedure that can be done in an office-setting in less than five minutes
Operating Room Aspiration

**Advantages**
- Predictable
- Offers fastest resolution of miscarriage
- Reduced duration of bleeding
- Low risk (<5%) of needing further treatment
- Can be asleep

**Disadvantages**
- Rare risks associated with invasive procedure and general anesthesia
- More cost than office-based procedures
- More time and physical exams than office-based procedures
- May be more bleeding complications under general anesthesia than in office-based procedures
Office-based Aspiration

Advantages
- Predictable
- Offers fastest resolution of miscarriage
- Reduced duration of bleeding
- Low risk (<5%) of needing further treatment
- Pain control with local plus oral or IV meds
- Compared to OR management:
  - May allow improved patient access and continuity of care
  - Improved privacy
  - Less patient and staff time
  - Resource and cost savings

Disadvantages
- Rare risks of invasive procedure
- Less pain control options in some settings
## Overall success rates

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expectant</strong></td>
<td>(7 – 14 days)</td>
<td>Missed EPF 30% - 60%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incomplete 75% - 85%</td>
</tr>
<tr>
<td><strong>Misoprostol</strong></td>
<td>800 mcg PV (7 days)</td>
<td>70% - 90%</td>
</tr>
<tr>
<td></td>
<td>Anembryonic</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>Embryonic Demise</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Incomplete</td>
<td>93%</td>
</tr>
<tr>
<td><strong>Aspiration</strong></td>
<td></td>
<td>97% - 100%</td>
</tr>
</tbody>
</table>

Adapted from Paul et al, 2009
Patient Case

- Ella chose to use misoprostol at home
- She placed the pills vaginally and began having cramping and bleeding 2 hours later
- Her heavy bleeding lasted 4 hours, and she noticed one particularly large clot, that may have had tissue in it
- She still has some light bleeding today, 7 days later

She’s here for F/U, what’s next?
Endometrial Thickness

Thickness of endometrium NOT associated with need for future intervention
<table>
<thead>
<tr>
<th>Clinical Checkpoints</th>
<th>Counseling Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Clear diagnosis</td>
<td>• Pregnancy intention</td>
</tr>
<tr>
<td>• Pt is stable, has access to phone &amp;</td>
<td>• Present all appropriate options to</td>
</tr>
<tr>
<td>emergency care</td>
<td>pt</td>
</tr>
<tr>
<td>• Pain control</td>
<td>• Feelings of guilt</td>
</tr>
<tr>
<td>• Anticip guidance for bleeding, S/Sx infx</td>
<td>• Future fertility</td>
</tr>
<tr>
<td>• Rh status</td>
<td>• “When can I start trying?”</td>
</tr>
<tr>
<td>• Follow-up scheduled</td>
<td></td>
</tr>
</tbody>
</table>
Decision-making for EPF management

• Four treatment approaches for the clinically stable patient
  1. Aspiration w/ general/deep sedation (operating room)
  2. Aspiration w/ local/moderate sedation (office-based)
  3. Medical (misoprostol +/- mifepristone)
  4. Expectant

• All methods are effective, with equivalent safety and patient acceptability

NSFG 2004; Chen 2007; Wieringa-de Waard, 2002; Zhang 2005; Trinder 2006
EPF: A Preference-sensitive Decision

- Clinical equipoise
  - Best choice for management reflects patients values and preferences

- However, patients are dissatisfied by
  - Providers treating their miscarriage as mundane, with a lack of urgency or insensitivity
  - Information dissemination
  - Emotional support
  - Timing of management
  - Follow-up and aftercare

O’Connor 2007; Lee 1996; Friedman 1989
What do we know about patient preferences?

• Patients have **strong** preferences
  • Challenges in recruitment for RCTs
  • Report higher satisfaction when treated according to patient’s preference

• Patients have widely **divergent** preferences

**No ‘one best way’ to treat miscarriage that suits all individuals.**  
- *Smith 2006*

Wieringa-de Waard 2002; Dalton 2006; Smith 2006
Patient preferences for EPF management

When extensive counseling is utilized, up to 70% of women will choose expectant management.

When aspiration is indicated or preferred, the majority of women will choose an office-based procedure over one in the OR.

Molnar 2000
Dalton 2006
Patient Preferences

• Three key studies identify patient preferences and priorities in EPF management

• Two studies as extensions of the MIST trial
  • Petrou and McIntosh surveyed 630 women with a stated preference discrete-choice questionnaire
  • Smith, et al., conducted interviews and focus groups with 127 women

• Dalton and Harris, et al., in Michigan, followed 165 women prospectively through choosing between OR and office-based aspiration
Patient Priorities

- Pain
- Time
- Complications
- Safety
- Bleeding
- Privacy
- Anesthesia
- Past experience
- Finality
Patient Preferences & Priorities

• For many women, preferences for management are largely determined by their feelings towards “the baby” or about the physical act of an aspiration

"I didn't agree with abortion, and things like that, and to me [the D&C] felt the same"

"I was relieved that it had miscarried naturally...the thought of having it killed on purpose, that's how I would have seen [the D&C]"

“I think that that’s one of the scariest things: knowing that something inside of you is dead”

Smith 2006
Patient Preferences & Priorities

• Timing was also important to many women – time for grief and time for waiting

‘... it’s very clean, very quick, wonderful operation, but, in a way, I think probably letting it miscarry helps to grieve in a funny way, because you’re going through your grief all of the time that you are waiting for it to go, and then it goes, and you do a sort of mental realignment or whatever, you know, you have time to sort of prepare yourself.’

‘... but, it was just awful, having to wait, like wait ...you know, I was walking around, waiting to lose my baby.’

Smith 2006
Provider Practice

- Training
- Safety Data
- Efficacy Data
- System Resources
- Staff Buy-in
- Assumptions
EPF Management Practices in the U.S.

Expectant Misoprostol Office aspiration OR

Percent of EPF providers

Adapted from Dalton 2010
Barriers and Biases

- Misconceptions about safety and efficacy of misoprostol
- Space constraints, lack of nursing support, lack of training
- Assumptions that patients want to have a painless, asleep procedure for miscarriage management
- Unaware or unresponsive to cost-effectiveness data that support medication management above all, and office-based over OR aspiration
Counseling: The missing piece?

Need a means to reconcile the mismatch between patient preferences and current clinical practice
The Patient – Provider Interaction

- Counseling extremely important for patient choice and satisfaction
- Goal is to support women in identifying their values in and priorities for management
- One half of women would change their decision based on a physician’s recommendation

Molnar 2000
Shared Decision-making

“... a mechanism to decrease the informational and power asymmetry between doctors and patients by increasing patients’ information, sense of autonomy and/or control over treatment decisions that affect their well-being.”

Shared decision-making applies well to preferences-sensitive decisions and may maximize health treatments dependent on both patients and providers having a role in managing illness

Charles 1997
Shared Decision-making

1. Provider presents all relevant medical information
2. Patient provides information about personal circumstances, values, and priorities
3. Provider also discusses preferences while acknowledging personal values and biases
4. Decision is reached
### SDM: Information Exchange

- Provider provides all relevant medical information
- Present all options for management with anticipated advantages, disadvantages, and outcomes

<table>
<thead>
<tr>
<th></th>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
<th>RELATIVE EFICACY*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXPECTANT MANAGEMENT</strong></td>
<td>Non-invasive • Body naturally expels non-viable pregnancy • Allows for patient privacy and continuity of care</td>
<td>Unpredictable outcome and timescale • Process can last days to weeks • Can have prolonged bleeding and side effects • Despite waiting, may still need uterine aspiration</td>
<td>Embryonic demise or anembryonic pregnancy: 10-75% Ankum [4]; Luise [31]; Bagratee [26]</td>
</tr>
<tr>
<td><strong>MEDICAL MANAGEMENT (with misoprostol)</strong></td>
<td>Non-invasive • Safe • Can be highly effective • Avoids anesthesia and surgery risks • Highly cost-effective • Allows for patient privacy and continuity of care</td>
<td>May cause heavier or longer bleeding • May cause short-term gastrointestinal and other side effects • May still need uterine aspiration</td>
<td>Embryonic demise or anembryonic pregnancy: 77-89% Herabutya [13]; Demetroulis [32]; Bagratee [26]; Zhang [14]; Ngoc [38]</td>
</tr>
<tr>
<td><strong>OFFICE-BASED ASPIRATION MANAGEMENT</strong></td>
<td>Predictable • Offers fastest resolution of miscarriage • Reduced duration of bleeding than expectant or medical • Low risk (&lt;5%) of needing further treatment • Pain control with local plus oral or IV meds • Compared to OR management: - May allow improved patient access and continuity of care - Improved privacy - Less patient and staff time - Resource and cost savings</td>
<td>Rare risks of invasive procedure • Less pain control options in some settings</td>
<td>95%-100% Milingos [27]</td>
</tr>
<tr>
<td><strong>OPERATING ROOM (OR) ASPIRATION MANAGEMENT</strong></td>
<td>Predictable • Offers fast resolution of miscarriage • Reduced duration of bleeding than expectant or medical • Low risk (&lt;5%) of needing further treatment • Can be asleep</td>
<td>More cost than office-based procedures • More time and physical exams than office-based procedures • Rare risks associated with invasive procedure and general anesthesia • May be more bleeding complications under general anesthesia than in office-based procedures</td>
<td>95%-100% Demetroulis [32]; Gronlund [28]; Trinder [15]</td>
</tr>
</tbody>
</table>
SDM: Information Exchange

- Elicit patient priorities and preferences for management
- Create atmosphere conducive to patient participation
- Can use systematic method such as a decision aid or checklist

<table>
<thead>
<tr>
<th>TREATMENT PRIORITY</th>
<th>Not Important</th>
<th>Somewhat Important</th>
<th>Most Important</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Factors</strong></td>
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<tr>
<td>Treatment by your own provider</td>
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<tr>
<td>Recommendation of treatment from friend or family member</td>
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<tr>
<td>Recommendation of treatment from provider</td>
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<tr>
<td>Previous miscarriage or pregnancy termination</td>
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<tr>
<td>Want to experience symptoms of bleeding and cramping in private</td>
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<tr>
<td><strong>Emotional Factors</strong></td>
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<tr>
<td>Most natural process</td>
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<tr>
<td>Do not want to see the pregnancy tissue</td>
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<tr>
<td><strong>Physical Factors</strong></td>
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<tr>
<td>Least amount of pain</td>
<td></td>
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<tr>
<td>Fewest days of bleeding after treatment</td>
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<td></td>
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<tr>
<td>Lowest risk of complications</td>
<td></td>
<td></td>
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<tr>
<td>Lowest risk of need for other steps</td>
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<tr>
<td>Want to avoid invasive procedure</td>
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<td></td>
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<tr>
<td>Want to avoid medications with side effects</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Do not want to see blood</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>In case of a surgical procedure, want to avoid going to sleep</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In case of a surgical procedure, want to be asleep</td>
<td></td>
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</tr>
<tr>
<td><strong>Time and Cost Factors</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Shortest time before miscarriage is complete</td>
<td></td>
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<tr>
<td>Shortest time in the clinic or hospital</td>
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<tr>
<td>Fastest return to fertility or normalcy</td>
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<tr>
<td>Fewest number of clinic visits</td>
<td></td>
<td></td>
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<tr>
<td>Lowest cost of treatment to you</td>
<td></td>
<td></td>
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<tr>
<td><strong>Other Factors (please list):</strong></td>
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</tbody>
</table>
SDM: Deliberation & Negotiation

• Provider facilitates deliberation and negotiation by integrating medical information with patient preferences.

• Negotiation may be more effective if provider assumes the role of healthy detachment.

  an examination of personal preference or bias to establish self-awareness and allow for a non-judgmental and non-directive discussion of management options.

• Providers can prepare by acknowledging that how they present options to patients may be influenced by:
  • training
  • available resources
  • perceptions of patient preferences.

Singer 2004
SDM for EPF

Information Exchange → Deliberation → Negotiation → Agreement
Is SDM the magic answer?

- SDM is not for all patients or all women
- But it does create a partnership and balance of power during the intimate and personal experience of miscarriage

- For more answers to how women want to make decisions about miscarriage management, stay tuned....
Thank you and thanks to my co-authors!

Counseling women with early pregnancy failure: Utilizing evidence, preserving preference


References


