Universal Screening for the Short Cervix: To Screen or Not to Screen

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WHAT WE LEARNED

Universal screening at MOGS has potential to prevent 1 – 2 PTDs annually with positive revenue of $45,725 plus potential savings to the system of $55,870. We anticipate implementation in the future upon resolution of the significant barriers.

BACKGROUND

- Preterm delivery (PTD) ⇨ The leading cause of perinatal morbidity and mortality worldwide.
- Short cervix < 25mm ⇨ Increases odds of PTD
  - RR 3.5 (95%CI, 2.7-4.6).[1-2]
- Should we screen all for asymptomatic short cervix?
  - To prevent 1 PTD < 34 weeks:
    NN Screen: 400 - 588 NN Treat: 7 – 13.4[3-5]
- **"Doing nothing is no longer an option."[6-7]**

WHO General Principles for Screening[8]

I. Important adverse outcome: Preterm delivery
II. Acceptable screening test: Transvaginal ultrasound for cervical length (TVCL) @ 18-23[9-10]
III. Effective treatment: Vaginal progesterone (18-36[6])[11]

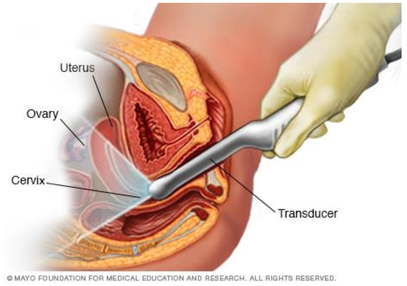
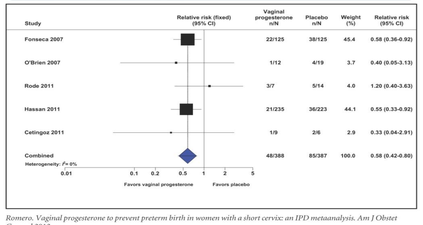


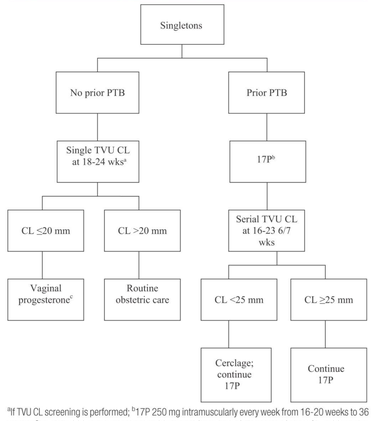
FIGURE 3
Effect of vaginal progesterone on preterm birth <33 weeks of gestation



Romero. Vaginal progesterone to prevent preterm birth in women with a short cervix: an IPD metaanalysis. Am J Obstet Gynecol 2012.

SMFM Guidelines[12]

FIGURE
Algorithm for use of progestogens in prevention of PTB in clinical care



[a]If TVU CL screening is performed; [b]17P 250 mg intramuscularly every week from 16-20 weeks to 36 weeks; [c]eg, daily 200-mg suppository or 90-mg gel from time of diagnosis of short CL to 36 weeks.
CL, cervical length; PTB, preterm birth; 17P, 17-alpha-hydroxy-progesterone caproate; TVU, transvaginal ultrasound.
SMFM. Progesterone and preterm birth prevention. Am J Obstet Gynecol 2012.

BACKGROUND

Projected Benefits of Universal Screening

- ❖ Save $19 -120 million per 100,000 screened[1,13]
  $13 billion annually in US[1]
  $1.9 billion in remote areas (>1hr to hospital)[14]
- ❖ Cost of $253 million[14]

Critiques

Extreme rates used in cost-benefit analyses[6]
Real world experience ≠ projections[5,17]

OBJECTIVE

To assess the feasibility of universal screening for cervical length at MAHEC OB/GYN Specialists.

METHODS

Study Design: Decision Analysis

Assumptions:

- Incidence of asymptomatic short cervix = 0.8%-2.3%[11,15-17]
- Incidence of PTD w/ asymptomatic short cervix:
  - Tx: <34 wks=13.1%; : Ø Tx: < 34wks=22.5%[11]
- Tx acceptance/adherence = 90-92.8%[4,16]
- TVCL & OB scan >14 wks: +7.4 min thus total 32.2 min[10]
- Single TVCL sufficient
- Each screen+ needs MFM consult @ 15 min.
- Medicaid reimbursements: TVCL=$81; MFM=$134[18]
- Costs NICU $3,000/day[19]
- Costs of 30-days meds * 5 mos: PT $15; System $310[20]
- MAHEC Costs: Mean salary + benefits + overhead
- MAHEC Revenues: 2014 Medicaid reimbursement
- Costs based on largest #s; Revenues on smallest #s

RESULTS

The Real World at MOGS

N = 1,249 low risk OB patients in 2013
n=141 no scans: assumed care started >24 weeks
N = 1,108 potential patients to screen
n=236 OB scans >14 weeks with TVCL
N = 872 additional patients to screen

MAHEC Projections: PTD Reduction

	Lowest		Highest	
	Calculation	N	Calculation	N
Short Cervix	1108 * .008	9	1108 * .023	25
Accept Tx	9 * .928	8	25 * .928	23
PTD w/ Tx	8 * .131	1	23 * .131	3
PTD Ø Tx	8 * .225	2	23 * .225	5

MAHEC Projections: Financial

MAHEC Costs		Duration	Annual
Personnel	US Tech/MFM	4.5 /1.42 hrs	($24,907)
MAHEC Revenue			
TVCL	$81	872	$70,632
MFM consults	$134	9	$1,206
Total Revenue			$71,838

System Costs/savings	Rate	Duration	Total
NICU n=1	$3,000	21days	$63,000
Medications n=23	$62	5 months	($7,130)

MAHEC Significant Barriers

- Add Ultrasound tech for 4.5 hrs/week?
  - Keep more scans in house (Ø Mission) & create .5FTE?
- Increase MFM time by 1.42 hrs/wk?
  - Need more MFM supervision if increase US Tech FTE.
- Anticipate reduced reimbursement for combined scan?

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