The Laborist Revolution- What is the evidence?

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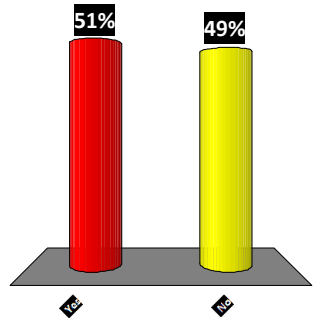
Objectives

1) Who is a laborist and how many of them are out there?
2) What are the outcomes associated with laborists?
3) What are the difficulties in studying outcomes of laborists?

Do you have laborists at your hospital?

A. Yes
B. No

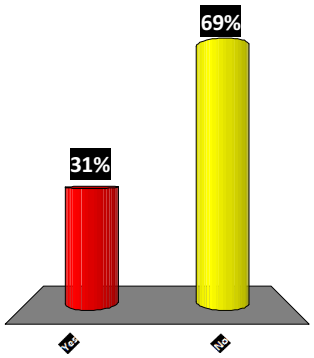


Are YOU a laborist?

A. Yes

B. No

(Physicians Only)



Workforce Concerns

- 35% of obstetrician-gynecologists in practice are over the age of 50 years.
- Fewer US medical students entering OB/GYN
- Dissatisfaction leads to early retirement
- 41% of full time OB/GYNs would be interested in part-time work
  - Most don't have that option

Anderson 2008

Workforce Concerns

- Conflict between L&D responsibilities and office practice
  - Ob/Gyns who do not perform deliveries have higher career satisfaction
  - Have more personal control, manageable workload

Bettes 2004

The best of times, the worst of times

- Most satisfying activities:
  - vaginal deliveries, planned cesarean deliveries, and surgery
  - *"fulfillment, competence, friendliness, and energy"*
- Least satisfying activities
  - on-call/in-hospital time
  - *" frustration, anxiety, fatigue, and impatience for it to end, depression, pressure, hostility, and criticism"*

Bettes 2004

Laborist

- "a physician whose sole focus of practice is managing the patient in labor"
  - Weinstein, AJOG, 2003
- may be able to:
  - improve patient care and satisfaction
  - remove from the obstetrician the need to be always available to the laboring patient
  - decrease stress, improve physician well-being, increase length of professional practice, and decrease burnout.

Types of Laborists

- Who are they?
  - Full-time laborist
    - No office responsibilities
  - "Community" Laborist
    - Physicians who do have office responsibilities but spend dedicated shifts on Labor and Delivery
  - OB/GYN Hospitalist
    - minimal outpatient and elective surgical responsibilities
    - primary role is to care for hospitalized obstetric patients and to help manage obstetric emergencies that occur in the hospital
    - may provide urgent gynecologic care and consultation to the emergency department or hospital inpatient services.

Laborists

- Whom do they serve?
  - All patients on L&D?
  - Only those without assigned physician and emergencies?

Laborists: Prevalence

- ACOG survey 2010:
  - 25% response rate
  - 15% responders described themselves as laborists
- SOGH 2014:
  - >1,700 ob-gyn hospitalists
  - >243 hospitals in the United States,
    - (~10% of obstetric hospitals)
- National Perinatal Information Center survey 2010
  - 74 hospitals in 26 states
    - Most are regional perinatal center, have residents
  - 40% using laborists

Funk, AJOG, 2010; Srinivas, JMFNM, 2012, http://www. societyofobgynhospitalists.org

Laborists in California

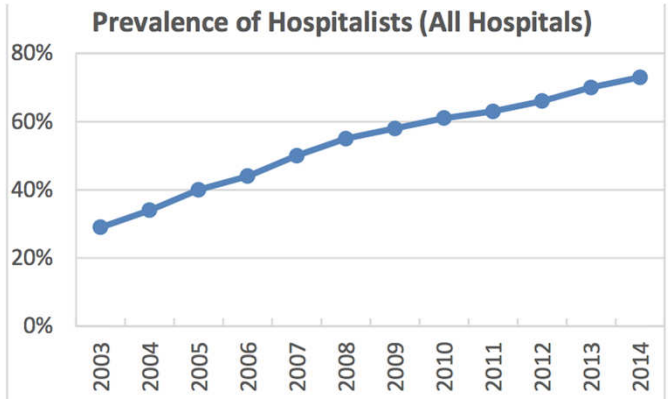
California maternity hospital survey

TABLE 2
Survey results by domain, stratified by hospital type (n = 239)[a]

Domain	Total (n = 239)	Community (n = 187)	Teaching (n = 27)	IDS (n = 25)	*P* Value
Hospital staffing					
24-hour physician coverage in-house for at least some patients	92/239 (38.5%)	40/187 (21.4%)	27/27 (100%)	25/25 (100%)	< .001
Physician coverage (obstetrician/family practitioner)					< .001
24/7 MD in-house coverage for all patients	47 (19.7%)	9/187 (4.8%)	13/27 (48.1%)	25/25 (100%)	
24/7 MD coverage but not in-house	144 (60.3%)	143/187 (76.5%)	1/27 (3.7%)	0/25 (0%)	
Blend of in-hospital and out-of-hospital coverage	48 (20.1%)	35/187 (18.7%)	13/27 (48.1%)	0/25 (0%)	

Korst , AJOG 2015

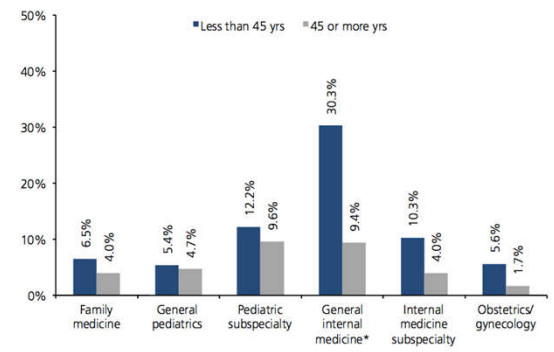
shm Society of Hospital Medicine
Hospitalists. Transforming Healthcare. Revolutionizing Patient Care.



http://www.hospitalmedicine.org

Hospitalists Across Specialties

Figure 1: Percentage of Physicians in Sample Who Are Hospitalists, by Self-Identified Specialty & Age



* P<0.05, within specialty
Source: AAMC 2009 Survey of Primary Care Physicians

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

COMMITTEE OPINION

Number 657 • February 2016 *(Replaces Committee Opinion Number 459, July 2010)*

The Obstetric and Gynecologic Hospitalist

- ACOG supports the continued development and study of the ob-gyn hospitalist model as one potential approach to improve patient safety and professional satisfaction across delivery settings.
- Additional outcomes research is needed to determine the effect of the ob-gyn hospitalist model on the safety and quality of care and to determine the economic feasibility of various models

Laborists

Possible Positives

- 24hr coverage
- Lack of distraction
- Improved team work
- Improved ability to respond to emergencies
- Reduced liability claims
- Improved work hours
- Improved work/life balance
- Increased oversight residents

Possible Negatives

- Discontinuity of care
- Disagreement between inpatient and outpatient
- Decreased patient satisfaction
- Decreased pay
- Worse outcomes due to increased handoffs
- Overmedicalization due to overvigilance
- Decreased autonomy senior residents

Srinivas, AJOG, 2012

Laborists: Cesarean Delivery

- Potential decrease in CD rate
  - More comfortable monitoring equivocal FHR tracing
  - More comfortable being patient with labor dystocia

Night float

- Change to night float system associated with
  - Fewer induction of labor
  - Less oxytocin
  - Fewer perineal lacerations
  - No change in CD rates (14.5% v 13.2%)

Barber, Obstet Gynecol, 2011

Laborists: Cesarean Delivery Rates

- Sunrise Hospital and Medical Center, NV
  - Tertiary care hospital without residents or CNMs
  - ~4500 deliveries/year
  - Analysis of 3 time periods:
    - Oct 2006 – Jan 2008: traditional private practice
    - Feb 2008 – April 2009: community laborist
    - Nov 2009 – October 2011: full-time laborist
  - Laborist cared for emergencies, unsassigned patients, and for private patients on request
    - 10% of all deliveries with “full-time” program

Iriye, AJOG, 2013

Laborists: Cesarean Delivery

TABLE 1
Demographic and clinical variables by laborist group

Variable	No laborist (n = 1830)	Community laborist (n = 1722)	Full-time laborist (n = 2654)
Cesarean delivery[a]	717 (39.2%)	666 (38.7%)	882 (33.2%)
Gestational age, wk[b]	39.15 ± 1.04	39.08 ± 1.01	39.16 ± 0.93
Maternal age, y	22.9 ± 6.4	22.7 ± 5.3	22.8 ± 6.2
Delivering physician age, y	47.7 ± 9.2	47.5 ± 9.9	50.5 ± 9.8
Induction of labor[a]	623 (34.0%)	719 (41.8%)	1109 (41.8%)
1-min Apgar[c]	8.26 ± 1.16	8.16 ± 1.11	8.30 ± 1.02
5-min Apgar	8.93 ± 0.43	8.91 ± 0.40	8.94 ± 0.41
Birthweight, g	3284.2 ± 432.8	3275.2 ± 428.3	3285.1 ± 432.8
Diabetes	72 (3.9%)	54 (3.1%)	86 (3.2%)
Maternal weight, lb[c]	176.8 ± 37.8	178.9 ± 37.8	180.7 ± 39.6

Iriye, AJOG, 2013

Laborists: Community vs. Full-time

- Why CD reduction seen only with full-time?
  - Community laborist still has competing duties
  - Competitive market discourages relinquishing care to community laborist
  - Infrequent in-house call (>1 shift/month)
- Other possibilities
  - Laborists only cared for 10% of patients
  - Time periods too short
  - No indication of secular trends

Laborists + Midwives

- Marin General Hospital
  - Equal mix of publicly and privately insured
  - Publicly insured cared for by CNM and laborist
  - Privately insured delivered under “private practice model”
  - Higher CD among privately insured

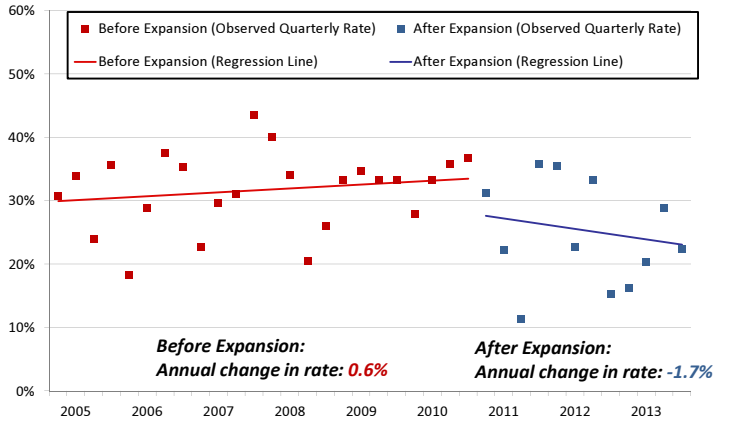
Nijagal, AJOG, 2014

The New Model

- Privately insured and publicly insured managed within same system
- Midwifery care offered to privately insured patients
- Private practice OBs participate in laborist call pool caring for all patients

Rosenstein, Obstet Gyencol, 2014

NTSV CD Rate Among Privately Insured Women Before and After Expansion



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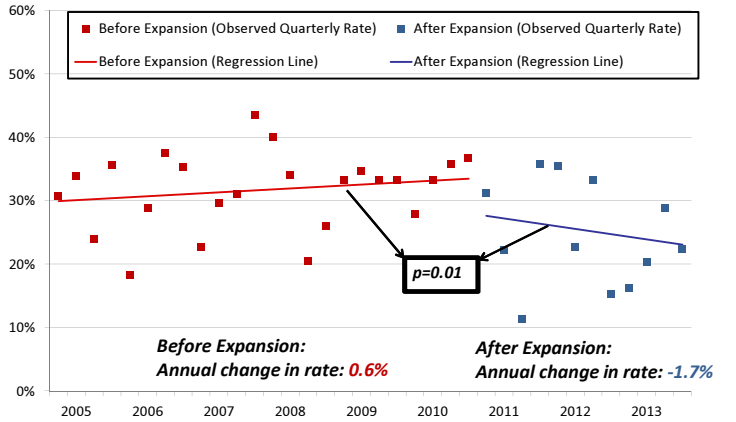

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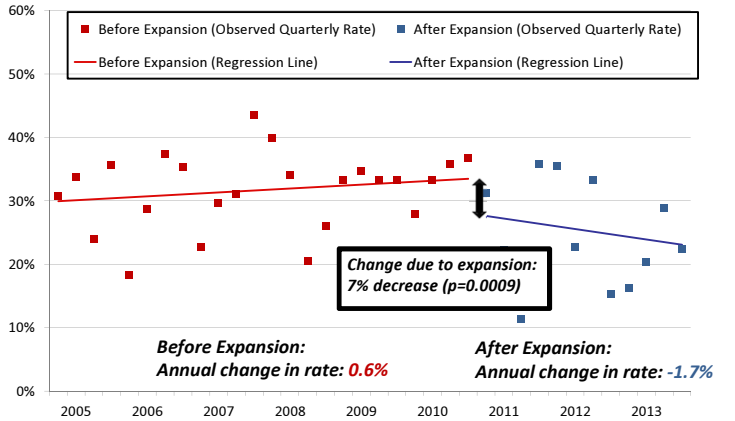
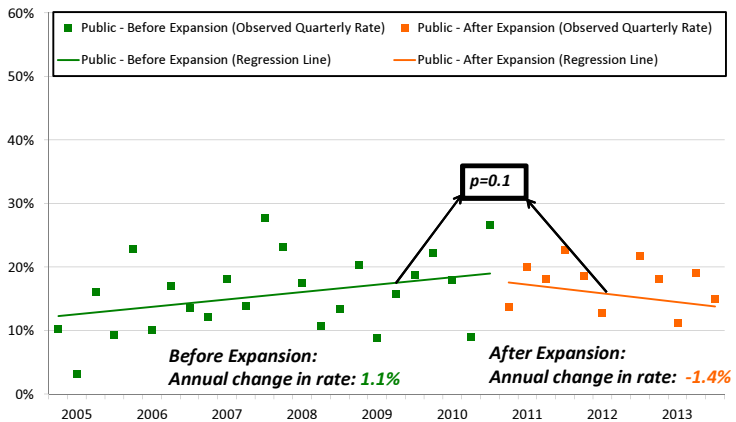
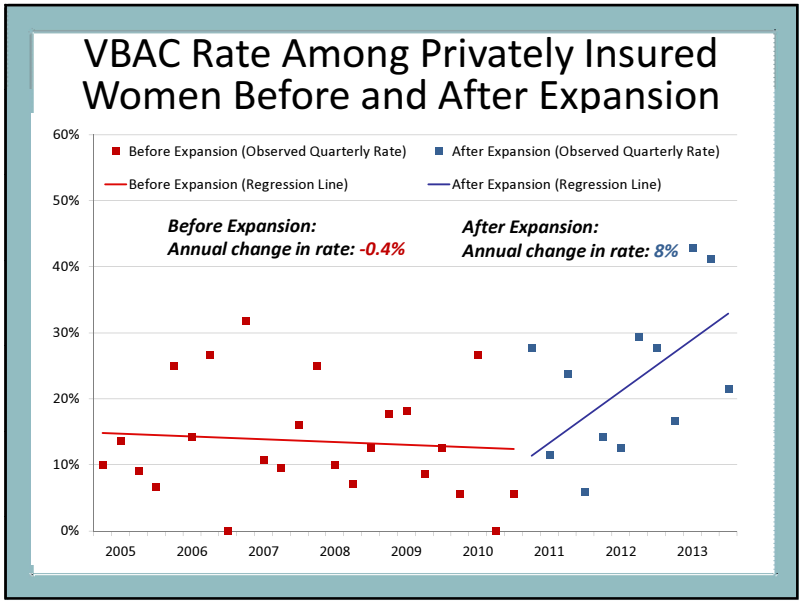


NTSV CD Rate Among Publicly Insured Women




VBAC Rate Among Privately Insured Women Before and After Expansion
Before Expansion (Observed Quarterly Rate)
After Expansion (Observed Quarterly Rate)
Before Expansion (Regression Line)
After Expansion (Regression Line)
Before Expansion:
Annual change in rate: -0.4%
After Expansion:
Annual change in rate: 8%
60%
50%
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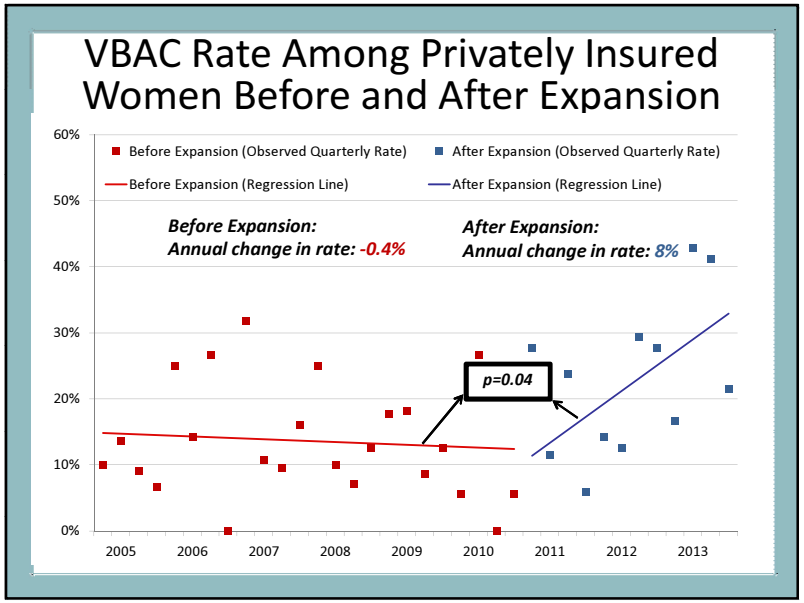
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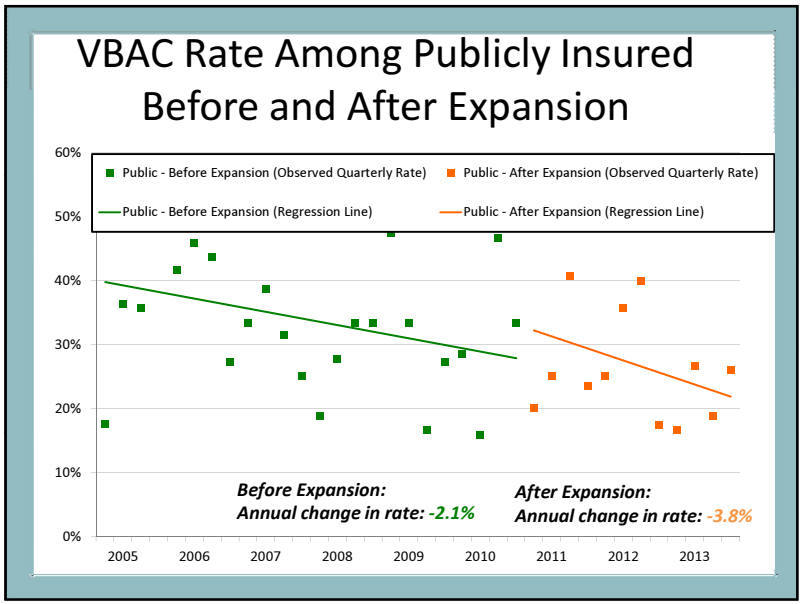
VBAC Rate Among Publicly Insured Before and After Expansion
Public - Before Expansion (Observed Quarterly Rate)
Public - After Expansion (Observed Quarterly Rate)
Public - Before Expansion (Regression Line)
Public - After Expansion (Regression Line)
Before Expansion:
Annual change in rate: -2.1%
After Expansion:
Annual change in rate: -3.8%
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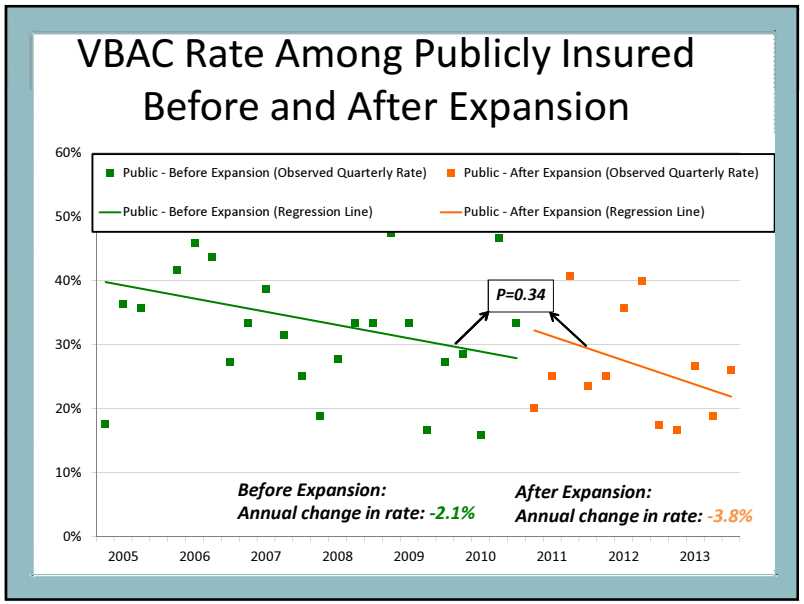
VBAC Rate Among Publicly Insured Before and After Expansion
Public - Before Expansion (Observed Quarterly Rate)
Public - After Expansion (Observed Quarterly Rate)
Public - Before Expansion (Regression Line)
Public - After Expansion (Regression Line)
P=0.34
Before Expansion:
Annual change in rate: -2.1%
After Expansion:
Annual change in rate: -3.8%
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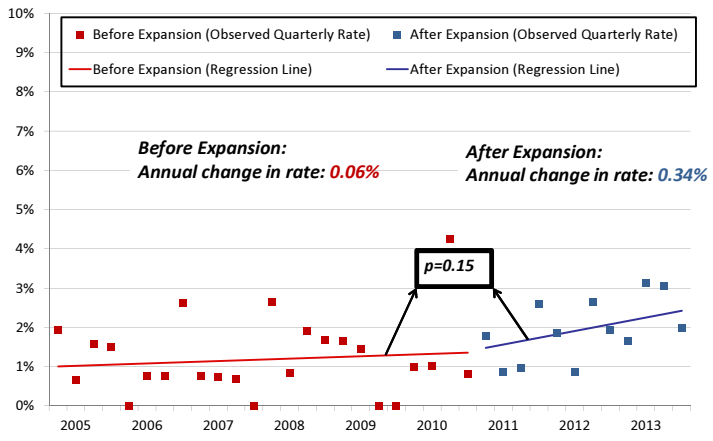
Neonatal Outcomes Among Privately Insured Before and After Expansion



Laborists in California

- 182 Community Hospitals in CA
  - 43 (24%) have laborists
- Laborist defined as : "≥1 physicians physically present in the hospital in specified shifts whose primary focus is to care for some or all patients in labor and delivery"

Outcomes

- No difference in primary cesarean delivery rates (14.8% vs. 13.9%)
- Increased VBAC rate (8.2% vs. 6.47%, p=0.03)
- Increased maternal composite morbidity
  - 14.4% vs. 12.1%, p=0.006 (difference persisted after adjusting for patient level characteristics, disappeared after adding hospital level factors)
- No difference in severe maternal morbidity
  - 1.43% vs. 1.41%

Impact of Laborists

- Comparison of outcomes before and after implementation of laborists at 8 hosptials
- Used control group of 16 non-laborist hospitals
- Compared "difference in differences" 3 years before and after change with same changes at non-laborist hospitals

Unadjusted Results

TABLE 4
Unadjusted results

	Nonlaborist before, % (N)	Nonlaborist after, % (N)	Change	Laborist before, % (N)	Laborist after, % (N)	Change	*P* value
Cesarean delivery	28.53 (46,486)	31.75 (42,343)	+3.22	32.55 (47,206)	33.62 (35,210)	+1.07	.011
Chorioamnionitis	6.15 (10,018)	4.75 (6339)	−1.4	3.83 (5549)	3.46 (3814)	−0.37	.077
Induction of labor	16.10 (26,232)	20.01 (26,681)	+3.9	21.17 (30,709)	21.85 (22,880)	+0.68	.094
Preterm birth	9.88 (16,094)	10.87 (14,493)	+0.99	8.74 (12,675)	8.07 (8455)	−0.68	.046
Maternal prolonged length of stay	24.16 (39,354)	26.15 (34,876)	+1.99	21.37 (31,002)	21.49 (22,512)	+0.12	.259
Apgar 5<7	0.35 (557)	0.35 (476)	0	0.15 (216)	0.21 (223)	+0.06	.214
Birth asphyxia	0.25 (398)	0.18 (247)	−0.07	0.21 (310)	0.16 (171)	−0.05	.904
Birth injury	0.42 (677)	0.50 (687)	+0.08	0.28 (411)	0.26 (279)	−0.02	.253
Birth trauma	0.31 (500)	0.26 (350)	−0.05	0.24 (356)	0.28 (304)	+0.04	.132
Birthweight <1500 g	2.39 (3858)	2.50 (3404)	+0.11	1.99 (2961)	2.13 (2288)	+0.14	.847
Birthweight 1500–2500 g	5.22 (8216)	5.66 (7524)	+0.44	5.29 (7704)	5.27 (5532)	−0.02	.176

Srinivas et al. Laborist model impacts maternal and neonatal outcomes. Am J Obstet Gynecol 2016.

Adjusted Results

TABLE 5
Robust SE adjusted results

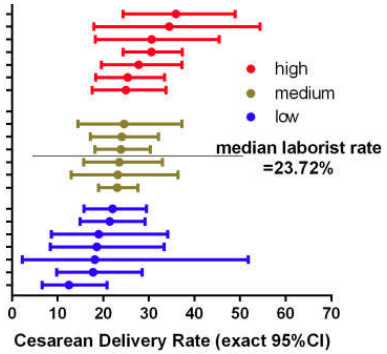
	Adjusted odds ratios [95% confidence intervals][a,b]
Cesarean delivery	1.02 [0.97–1.1]
Chorioamnionitis	1.07 [0.88–1.30]
Induction of labor	0.85 [0.71–0.99][c]
Preterm birth	0.83 [0.72–0.96][c]
Maternal prolonged length of stay	0.99 [0.87–1.14]
Apgar 5 min <7	1.09 [0.69–1.72]
Birth asphyxia	0.75 [0.48–1.18]
Birth injury	0.77 [0.56–1.07]
Birth trauma	1.32 [0.91–1.92]
Birthweight <1500 g	0.93 [0.70–1.22]
Birthweight 1500–2500 g	0.88 [0.78–1.01]

Confounding variables included for neonatal outcomes: year, hospital identification, insurance, multiple gestation, congenital anomaly, birthweight.

[a] Confidence intervals based on robust SE that account for clustering by hospital; [b] Confounding variables included for maternal outcomes: year, hospital identification, maternal age, insurance, pregnancy-related hypertension, chronic hypertension, oligohydramnios, premature rupture of membranes, liver disease, heart disease, asthma, renal disease, lupus, preterm labor; [c] Included in all models except preterm delivery model.

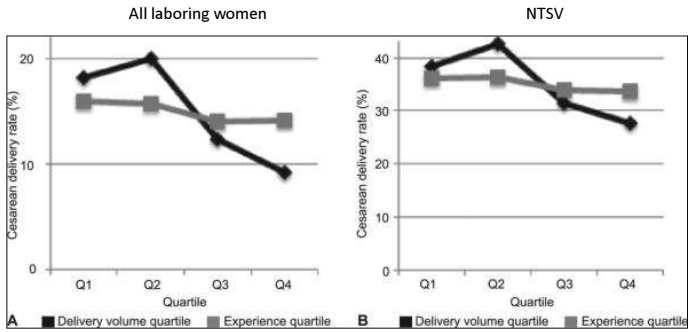
Srinivas et al. Laborist model impacts maternal and neonatal outcomes. Am J Obstet Gynecol 2016.

Variation at a single hospital



Variation in primary cesarean delivery rates by individual physician within a single-hospital laborist model.
Metz TD, Allshouse AA, Gilbert SA, Doyle R, Tong A, Carey JC.
Am J Obstet Gynecol. 2016 Apr;214(4):531.e1-6.

Obstetrician Volume and CD rates



Clapp. Obstet Gynecol 2014.

Laborists and Willingness to perform CD

- 1486 OB/GYNs, MFMs, FPs in AMA
- Responses to clinical vignettes classified as low, medium, or high threshold for CD
- Laborists more likely to recommend CD
  - OR 1.93 (1.28 – 2.90)

Cheng, JMFNM. 2014

Patient satisfaction

- Post-laborist implementation survey at urban teaching hospital (n=4166, 54% response rate)
  - 90% highly satisfied
  - No statistically significant difference in satisfaction ratings before and after laborist implementation

    91% vs. 93% favorable (p=0.08)

Srinivas, Patient Preference and Adherence 2013:7 217–222

Financial Sustainability

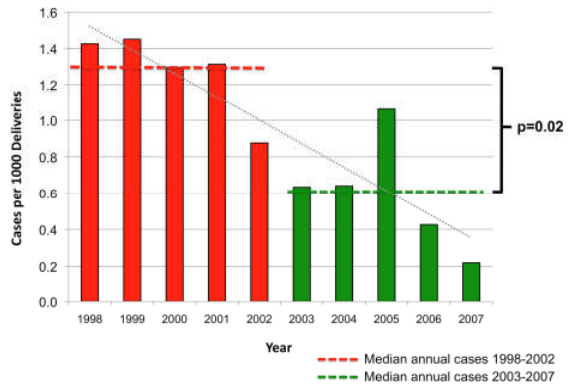
- Depends on volume
  - (more difficult with <1000 deliveries/year)
- Cost savings can be seen with
  - Decreased malpractice premiums/payments
  - Standardized procedures (pharmacy savings)
  - Increased volume with advertising of services

Comprehensive Patient Safety Progam

- Outside Expert Review
- Protocols and Guidelines
- Obstetric Safety Nurse
- Anonymous Event Reporting
- Obstetric Hospitalists
- Obstetric Patient Safety Committee
- Safety Attitude Questionnaire
- Team Training
- Electronic FHR Certification

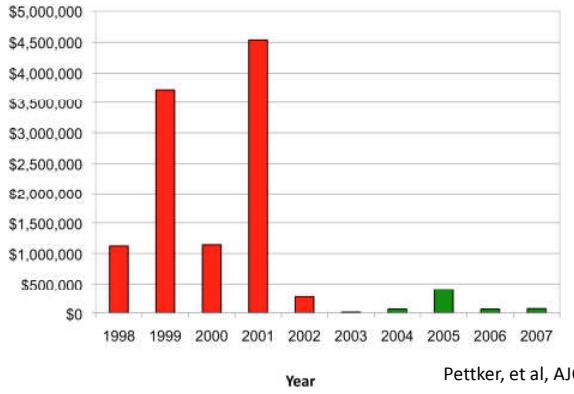
Pettker, et al, AJOG 2014

Decrease in Liability Cases



Pettker, et al, AJOG 2014

Decrease in Liability Payments



Pettker, et al, AJOG 2014

Levels of Maternity Care

Table 2. Levels of Maternal Care by Services *(continued)*

Required Service	Level of Maternal Care				
	Birth Centers	Level I	Level II	Level III	Level IV
Minimum primary delivery provider to be available	CNMs, CMs, CPMs, and licensed midwives	Obstetric provider with privileges to perform emergency cesarean delivery	Ob-gyns or MFMs	Ob-gyns or MFMs	Ob-gyns or MFMs
Obstetrics surgeon		Available for emergency cesarean delivery	Ob-gyn available at all times	Ob-gyn onsite at all times	Ob-gyn onsite at all times
MFMs			Available for consultation onsite, by phone, or by telemedicine, as needed	Available at all times onsite, by phone, or by telemedicine with inpatient privileges	Available at all times for on-site consultation and management
Director of obstetric services			Board-certified ob-gyn with experience and interest in obstetrics	Board-certified ob-gyn with experience and interest in obstetrics	Board-certified MFM or board-certified ob-gyn with expertise in critical care obstetrics
Anesthesia		Anesthesia services available	Anesthesia services available at all times Board-certified anesthesiologist with special training or experience in obstetrics, available for consultation	Anesthesia services available at all times Board-certified anesthesiologist with special training or experience in obstetrics is in charge of obstetric anesthesia services	Anesthesia services available at all times Board-certified anesthesiologist with special training or experience in obstetrics is in charge of obstetric anesthesia services

Levels of maternal care. Obstetric Care Consensus No. 2. American College of Obstetricians and Gynecologists. Obstet Gynecol 2015;125:502–15.

Level 1 (Basic Care)

Any patient appropriate for a birth center, plus capable of managing higher-risk conditions such as

- term twin gestation
- trial of labor after cesarean delivery
- uncomplicated cesarean delivery
- preeclampsia without severe features at term

Levels of maternal care. Obstetric Care Consensus No. 2. American College of Obstetricians and Gynecologists. Obstet Gynecol 2015;125:502–15.

Conclusions

- Laborists/Hospitalists are becoming more common, here to stay
- May be a good strategy to decrease physician dissatisfaction, improve patient safety, decrease CD rates
- Many models are available, each hospital should decide which is best

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