Do laborists improve delivery outcomes for laboring women in California community hospitals?

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OBJECTIVE: We sought to determine the impact of the laborist staffing model on cesarean rates and maternal morbidity in California community hospitals.

STUDY DESIGN: This is a cross-sectional study comparing cesarean rates, vaginal birth after cesarean rates, composite maternal morbidity, and severe maternal morbidity for laboring women in California community hospitals with and without laborists. We conducted interviews with nurse managers to obtain data regarding hospital policies, practices, and the presence of laborists, and linked this information with patient-level hospital discharge data for all deliveries in 2012.

RESULTS: Of 248 childbirth hospitals, 239 (96.4%) participated; 182 community hospitals were studied, and these hospitals provided 221,247 deliveries for analysis. Hospitals with laborists (n = 43, 23.6%) were busier, had more clinical resources, and cared for higher-risk patients. There was no difference in the unadjusted primary cesarean rate for laborist vs nonlaborist hospitals (11.3% vs 11.7%; $P = .382$) but there was a higher maternal composite morbidity rate (14.4% vs 12.0%; $P = .0006$). After adjusting for patient and hospital characteristics, there were no differences in laborist vs nonlaborist hospitals for any of the specified outcomes. Hospitals with laborists had higher attempted trial of labor after cesarean rates, and lower repeat cesarean rates (90.9% vs 95.9%; $P < .0001$). However, among women attempting trial of labor after cesarean, there was no difference in the vaginal birth after cesarean success rate.

CONCLUSION: We were unable to demonstrate differences in cesarean and maternal childbirth complication rates in community hospitals with and without laborists. Further efforts are needed to understand how the laborist staffing model contributes to neonatal outcomes, cost and efficiency of care, and patient and physician satisfaction.

Key words: cesarean, hospital variation, hospitalist, laborist, maternal morbidity

Cite this article as: Feldman DS, Bollman DL, Fridman M, et al. Do laborists improve delivery outcomes for laboring women in California community hospitals? Am J Obstet Gynecol 2015;213:587.e1-13.

Wachter and Goldman[1] coined the term "hospitalist" to describe physicians whose primary professional focus is the general medical care of hospitalized patients. This model gained popularity in internal medicine and was adopted by other fields. In 2003, Weinstein[2] proposed the term "laborist" to refer to a provider whose "sole focus of practice is managing the patient in labor." Nationwide, approximately 37.7% of hospitals use laborists and 15% of obstetrician/gynecologists describe themselves as laborists.[3,4]

Research reveals that the laborist staffing model has both positive and negative features.[5,6] Positive features include improvement in physician's satisfaction and quality of life, decreased litigation, and improved safety culture on the labor and delivery unit.[3,7,8] Negative features include discontinuity of care and hypervigilance.[6] Clinicians and researchers have suggested theoretical reasons why the laborist model should improve patient outcomes such as increased surveillance, decreased distraction, and the elimination of physician decision-making based on convenience. For example, the performance of cesarean deliveries appears to peak from

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Received March 7, 2015; accepted May 26, 2015.

This project was funded by Agency for Healthcare Research and Quality grant number 5 R01 HS020915. D.S.F. was supported by the Duchesnay USA Research Fellowship Award, American College of Obstetricians and Gynecologists, for her contribution to this project.

The authors report no conflict of interest.

Presented in oral format at the 35th annual meeting of the Society for Maternal-Fetal Medicine, San Diego, CA, Feb. 2-7, 2015.

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0002-9378/$36.00 • • http://dx.doi.org/10.1016/j.ajog.2015.05.051

TABLE 1
Domains of childbirth services potentially related to childbirth outcomes

Domain	Subdomains
Hospital structure/context	Hospital type (eg, integrated delivery system, teaching, community)
	Hospital ownership
	Patient characteristics (eg, age, race/ethnicity, insurance, high-risk status, multiparity, ambulance transport in)
	Rural or isolated hospital status
	Annual delivery volume
Hospital staffing	Nurse staffing (eg, structure, number, workload and nurse patient ratios, moonlighting availability, on-call system, availability for newborn care)
	Physician (obstetrician/family practitioner) staffing (eg, structure, number, laborist availability, 24-h availability, maternal-fetal medicine availability)
	Physician (pediatrician/family practitioner) staffing (eg, structure, number, 24-h availability, neonatologist availability)
	Anesthesia staffing (eg, practitioner type, structure [including dedicated labor and delivery service], 24-h availability)
	Physician specialist availability for emergency (eg, general surgeon, gynecologic oncologist, urologist, and availability to respond)
	Physician consult availability for maternal patients
	Midwife staffing and patient coverage
	Operating room and clerical personnel availability
	Availability of dedicated patient safety nurse
Hospital clinical resources	Labor and delivery model of care (where deliveries/recovery takes place)
	Triage, antepartum, and postpartum models of care
	Adult critical care capability 24 h
	Subspecialty ICU capability 24 h
	NICU capacity 24 h, and licensed level of NICU care
	Pharmacy availability 24 h, availability of specific maternal medications
	Blood bank availability 24 h
	Laboratory turn-around time for key laboratory tests
	Radiology availability 24 h, turn-around time for key studies, including ultrasound testing
	Central fetal heart rate monitoring availability
	Invasive cardiac monitoring availability
	Resources for severely obese patients (eg, beds, gurneys, operating room tables, retractors, surgical instruments, resuscitation equipment)
	Labor support resources, including epidural availability, natural childbirth
	Electronic medical records, prenatal care record availability

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6-8 AM and from 4-6 PM suggesting that physician convenience contributes to the rising cesarean rate.[9] The presence of an in-house physician should mitigate against competing office and personal commitments. However, the evidence regarding the impact of laborists on cesarean rates is sparse.[10,11] Nonetheless, the American Congress of Obstetricians and Gynecologists supports the continued development of this staffing model.[12]

This article evaluates the impact of the laborist staffing model on selected maternal outcomes, specifically, the cesarean rate[13] and maternal morbidity associated with childbirth. Since one of the roles of a laborist is to manage labor, we hypothesized that the presence of a laborist would be associated with lower cesarean and childbirth morbidity rates among laboring women. This hypothesis is tempered with the knowledge that the cesarean rate is the result of multiple clinical and nonclinical factors, many of which may not be affected by staffing practices.

Studies have demonstrated variation in cesarean rates by hospital type and nonclinical factors suggesting that hospital culture plays a role in clinical practices.[9,14] For example, integrated delivery system hospitals (ie, hospitals that are part of a network of health care organizations providing a continuum of health care services) and teaching hospitals are more likely to have standardized protocols and clinicians available 24 hours a day, 7 days a week (24/7). Studies have reported lower cesarean rates in these hospitals.[9] We therefore focused on community hospitals in California.[15]

Materials and Methods

This is a cross-sectional study of community hospitals in California that provided obstetrical services and reported to the California Office of Statewide Health Planning and Development (OSHPD) in calendar year 2012. This is a planned analysis of data from a comprehensive study designed to evaluate the impact of hospital clinical resources on maternal childbirth outcomes. Labor and delivery nurse managers participated in a 1-hour structured interview, providing answers to 185 hospital-specific questions regarding hospital factors likely to impact