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2017-02-01

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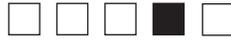
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# A National CERA Study of the Use of Laborists in Family Medicine Residency Training

Robert A. Baldor, MD; Christine Chang Pecci, MD; Gerardo Moreno, MD, MSHS; Virginia Van Duyne, MD; Stacy E. Potts, MD, MEd

**BACKGROUND AND OBJECTIVES:** Little is known about the impact of laborists (which we defined as “clinicians dedicated to providing L&D care services in the hospital environment for pregnant patients, regardless of who provided the prenatal care” for this survey) on family medicine residency training. We surveyed family medicine residency directors to assess characteristics about laborist services and their involvement in family medicine residency teaching.

**METHODS:** Questions were included in the 2015 Council of Academic Family Medicine Educational Research Alliance (CERA) survey of family medicine residency directors. Univariate statistics were used to describe programs, directors, and our questions on the use of laborists. Chi-square tests and Student's *t* tests were used to evaluate bivariate relationships using a  $P < .05$  to denote statistical significance.

**RESULTS:** A total of 250/473 (52.9%) of residency directors completed the laborist section of the CERA survey. Sixty-four percent of residency programs were community based/university affiliated, representing the expected range, size, and location of family medicine programs. Almost half of programs (44.4%) reported a laborist service in their main teaching hospital for L&D training. Of directors, 64.1 % viewed laborists as good/excellent educators; 54.3% reported little or no reduction in L&D teaching required of their faculty despite the presence of a laborist service. Fifteen percent reported that >30% of their graduates included L&D care in their first practice..

**CONCLUSIONS:** Laborists have an important role in family medicine resident obstetrics training and education. More research is needed to explore how laborists and family medicine faculty can collaborate to promote enhanced efficiency and effectiveness as residency teachers.

(Fam Med 2017;49(2):114-21.)

A growing national public health concern is the decreasing numbers of maternity care providers.<sup>1</sup> Contributing to this concern is the alarming decline in the numbers of family physicians who provide maternity care, such that less than 10% of family physicians report providing maternity care in 2010, down from 46% in 1978.<sup>2,3</sup> We have also seen a decline in the number of family physicians who care for hospitalized patients. This has been accompanied by the rise of hospitalists, who care for adult and pediatric patients admitted by primary care clinicians.<sup>4</sup> Building on these models of care has been the advent of the “laborist,” whose focus is to provide labor and delivery (L&D) hospital care for the pregnant patient.<sup>5</sup> With growing concern over the availability of family physician L&D providers, one potential model has been proposed for community-based family physicians to provide outpatient prenatal care while “laborists” (obstetricians or family physicians) perform the inpatient care and delivery.<sup>1</sup>

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What defines a laborist or “obstetrical hospitalist” varies. While the original definition specified “a physician whose sole focus of practice is managing the patient in labor,” a variety of arrangements exist, including those who provide L&D services for their own patients and/or for other practices, whether they have provided the prenatal care for those patients.<sup>5,6</sup> A 2010 national survey revealed that 37.7% of hospitals surveyed were using laborists. Of these hospitals, more than a third (39.7%) reported that family physicians also provided L&D care at their facilities, although there was no relationship between the use of laborists and the presence of family physicians.<sup>7</sup>

Given the increasing number of L&D centers using laborists,<sup>6,8</sup> it is likely that family medicine residency programs are working with laborists to train their residents. Indeed, the original “laborist” description assumed that these providers would also supervise and educate residents.<sup>3</sup> Studies on the impact of medicine hospitalists have shown that they are viewed as good teachers, and the teaching quality is the same or improved over more traditional models of inpatient teaching.<sup>9,10</sup> A 2014 survey reported that the majority of obstetricians surveyed felt that laborists enhanced house staff training;<sup>6</sup> however, other than one descriptive case report,<sup>11</sup> a review of the literature failed to reveal studies specifically addressing the impact of laborist services on family medicine residency obstetrical training.

The family medicine program requirements for obstetrics have become less stringent, reflecting the range of maternity care provided by present day family physicians. Residents must document 200 hours dedicated to participating in deliveries and providing prenatal and postpartum care and demonstrate competence to independently perform a spontaneous vaginal delivery, along with basic skills in managing obstetrical emergencies.<sup>12</sup> All programs are required to have at least one family physician faculty member providing

and teaching maternity care, including deliveries.

To understand the relationship between laborists and family medicine residency programs, we developed a series of questions, which were included in the 2015 Council of Academic Family Medicine (CAFME) Educational Research Alliance (CERA) survey of family medicine residency directors.<sup>13</sup> We aimed to understand the interface of laborists programs with family medicine L&D training including the nature of these programs (eg, whether they are family medicine or OB managed), the extent to which laborists are involved in teaching, and if so, how family medicine program directors view the role of laborists in such teaching.

## Methods

### *Sample and Survey*

The sampling frame for the survey was all Accreditation Council for Graduate Medical Education (ACGME)-accredited US family medicine residency program directors (n=473) as identified by the Association of Family Medicine Residency Directors (AFMRD).

The questions were part of a larger omnibus survey conducted by the Council of Academic Family Medicine Educational Research Alliance (CERA).<sup>14</sup> The CERA steering committee evaluated questions for consistency with the overall subproject aim, readability, and existing evidence of reliability and validity. Pretesting was done on family medicine educators who were not part of the target population. Questions were modified following pretesting for flow, timing, and readability. The project was approved by the American Academy of Family Physicians Institutional Review Board in June 2015. Data were collected from June to July of 2015. Email invitations to participate were delivered with the survey using the online program Survey Monkey. Three follow-up emails to encourage nonrespondents to participate were sent after the initial email invitation.

### *Measures*

The main variable of interest was the presence of laborist services in family medicine residency obstetrics training. We defined laborist as “a clinician dedicated to providing L&D care services in the hospital environment for pregnant patients, regardless of who provided the prenatal care.” Family medicine program directors were asked if the main teaching hospital for their L&D training had a laborist service (yes or no). Four survey questions asked program directors about the characteristics of laborists (physician management of laborist service, types of clinicians in laborist group, participation in family medicine deliveries, and teaching activities). If program directors indicated that laborists were involved in family medicine teaching, they were then asked about those teaching activities. Three questions asked about teaching outcomes (supervision, quality of training, and reduction in family medicine teaching load); one global item rated the quality of laborists as educators, and four questions were about specific resident teaching activities (attending rounds, supervision of L&D skills, provision of lectures, and attendance at morning report).

Program directors were also queried about their residency program’s general characteristics (location, size of community, proportion of international medical graduates (IMGs), age of program), and characteristics of the L&D clinical training (number of L&D months, number of deliveries in main training hospital, and the roles of family physicians and obstetricians at the main training hospital). The responses for the number of deliveries in main teaching hospital were dichotomized as <2,000 per year versus >2,000 per year. We also queried about the percentage of recent graduates that were providing prenatal and/or L&D care.

### *Analysis*

Data were analyzed using Stata version 12 (College Station, TX). Univariate statistics were used to

describe the nature of the residency programs, the program directors, and our specific questions on the use of laborists in family medicine residency training. Bivariate statistics were used to examine relationships between the use of laborists to teach family medicine residents and program characteristics. We examined the bivariate relationship between (1) program hospitals with >2,000 deliveries per year and the presence of a laborist service, (2) having  $\geq 30\%$  of graduates choose OB after graduation and geographic region, number of months on L&D, and percent of IMG residents in program, and (3) participation of laborists in specific

teaching activities and perceived improvements in teaching outcomes. Chi-square tests and student *t* tests were used to evaluate bivariate relationships using a  $P < .05$  to denote statistical significance.

## Results

### *Program Characteristics*

Of the 473 family medicine residency program directors surveyed, 250 completed the survey, representing a 52.9% response rate. Table 1 shows the characteristics of the respondent family medicine residency programs, which are reflective of the expected structure and location of ACGME-accredited programs. The majority

of programs (62.3%) were community based/university affiliated. All regions of the country were represented as were community sizes ranging from <75,000 to >500,000 people. The mean age of the programs was 32.8 years with a standard deviation of 14.0 years. There were no statistically significant differences noted between residency structure, location, community size, and the presence or use of laborist services.

### *L&D Training*

The months of L&D care required of all programs ranged from 2 months (122/48.8%) to more than 4 months

**Table 1: Characteristics of Respondent Family Medicine Residency Programs**

Program Characteristics	All Programs (n=250) n (%)	Programs With Laborist (n=111) n (%)	Programs Without Laborist (n=139) n (%)	P Value
Program structure				.56
University based	45 (18.1)	20 (17.2)	25 (18.0)	
Community based, university affiliated	155 (62.3)	71 (64.0)	84 (60.4)	
Community based, non-affiliated	32 (12.9)	16 (14.4)	16 (11.5)	
Military	6 (2.4)	3(2.7)	3 (2.1)	
Other	12 (4.4)	1 (1.8)	11 (7.9)	
Program location/region				.23
North/Northeast	46 (18.4)	22 (19.8)	24 (17.2)	
South	50 (20.0)	22 (19.8)	28 (20.1)	
Central	87 (34.8)	35 (31.5)	52 (37.4)	
Mountain	22 (8.9)	8 (7.2)	14 (10.5)	
Pacific	41 (16.6)	24 (21.6)	16 (11.9)	
Size of community				.20
Less than 75,000	63 (25.2)	21(18.9)	42 (30.2)	
75,000 to 149,999	44 (17.6)	21 (18.9)	21 (15.3)	
150,000 to 499,000	66 (26.4)	36 (32.4)	30 (21.9)	
More than 500,000	77 (30.8)	33 (29.7)	44 (31.7)	
Percent international medical graduates				.54
0%–24%	137 (54.8)	64 (57.7)	71(51.8)	
25%–49%	45 (18.0)	20 (18.0)	25 (18.3)	
50%–74%	30 (12.0)	14(12.6)	16(11.7)	
75%–100%	38 (15.2)	13 (11.7)	25 (18.3)	
Program age, mean (SD)	32.8 (14.0)	31.2 (14.5)	34.0 (13.5)	.12

\* *P* values represent a comparison between programs with laborists and programs without laborists and were calculated using Pearson's  $\chi^2$  to compare categorical variables and *t* tests to compare mean values. 250 respondents, but not all categories total 250, as some questions without a response.

(32/12.8%). (Table 2) One hundred eleven programs (44.4%) noted that their main residency training hospital for L& D had a laborist service, and 103 (41.5%) reported that obstetrical residents also trained at those hospitals.

Hospitals with >2,000 deliveries per year were more likely than those with <2,000 deliveries to have a laborist service (odds ratio=2.52, 95% CI=1.47–4.35). However, there were no differences in the numbers of deliveries and the presence of obstetrical residents.

Of the 250 programs responding, 42 (16.8 %) reported that family physicians did not provide L&D services at the hospital where their residents

trained, regardless of the presence or absence of a laborist program. However, almost a third (73/29.2%) reported that family physicians who participating in L&D training also held C-section privileges. The family physicians who provided L&D care at the 111 hospitals with a laborist service were primarily (59.5%) full-time health center faculty members, with a few reporting community-based family physicians providing L&D care as well.

#### Laborist Programs

The characteristics of the 111 laborist services at the main L&D teaching hospital for the responding family medicine residency program

are shown in Table 3. The majority (92.8%) of these laborists are involved in teaching family medicine residents. However, only 16 programs (14.6%) reported that their prenatal patients were required to be delivered by the service with a third noting that the laborists would provide care by request.

The management of the 111 laborist programs was primarily carried out by the obstetrics departments/residencies (43.1%) or by the hospital (40.4%); however, five programs (4.6%) reported management by the family medicine department/residency, with the remaining 14 (11.9%) being managed collaboratively. The laborists were primarily represented

**Table 2: Respondent Programs' Labor and Delivery (L&D) Characteristics\***

Characteristics	All Programs n=250 n (%)	Programs With Laborist n=111 n (%)	Programs Without Laborist n=139 n (%)	P Value**
Months of L&D				.66
Less than 2 months	4 (1.6)	2 (1.8)	2 (1.5)	
2 months	122 (48.8)	51 (46.0)	71 (51.1)	
3 months	59 (23.6)	28 (25.2)	30 (21.5)	
4 months	33 (13.2)	13 (11.7)	20 (14.3)	
Greater than 4 months	32 (12.8)	17 (15.3)	14 (10.1)	
Deliveries/year at teaching hospital				.001
<2,000	105 (42.0)	35(31.5)	70 (50.4)	
>2,000	120 (48.0)	67 (60.3)	53 (38.2)	
Don't know	25 (10.0)	9 (8.1)	16 (11.5)	
Family physician providing L&D service at teaching hospital (check all that apply)				.27
Health center FP	159 (34.6)	66 (59.5)	93 (66.9)	
Community FP (non-health center)	25 (10.2)	14 (12.7)	11 (8.1)	
Community FP (other/non-faculty)	20 (8.1)	12 (10.9)	8 (5.9)	
FP with C-section privileges	73 (29.2)	35 (31.5)	38 (27.3)	
Family physicians do not do L&D	42 (16.8)	18 (16.2)***	24 (17.2)	
L&D included in residents first job				.49
< 30%	199 (79.6)	92 (82.9)	107 (77.0)	
> 30%	37 (14.8)	14 (12.6)	23 (16.5)	
Don't know	11 (4.5)	5 (4.5)	6 (4.4)	
Obstetrics residents also present	103 (41.2)	45 (40.5)	58 (41.7)	.78

\* 250 respondents, but not all categories total 250, as some questions without a response.

\*\* P values represent a comparison between programs with laborists and programs without laborists and were calculated using Pearson's  $\chi^2$  test.

\*\*\* Among the 18 programs where family physicians do not do L&D, 18/18 had obstetrician laborist.

**Table 3: Characteristics of Laborist Services in Main Family Medicine Teaching Hospital**

Characteristics	n=111 n (%)
Laborist involved with teaching family medicine residents	103 (92.8)
Laborist delivers family medicine prenatal patients	
No	58 (52.9)
Yes, by request	37 (33.0)
Yes, required	16 (14.6)
Laborist service management	
Obstetrics department and/or residency	47 (43.1)
Family medicine department and/or residency	5 (4.6)
Collaboratively by both departments and/or residencies	14 (11.9)
Independent by the hospital	45 (40.4)
The laborists include (all involved):	
Obstetricians	106 (95.5)
Family physicians with C-sections	13 (11.7)
Family physicians without C-section privileges	13 (11.7)
Midwives	22 (19.8)

by obstetricians and midwives, although some family physicians also worked as laborists. Thirteen programs reported that these family physicians held cesarean section privileges and an equal number (13) noted that they did not hold such privileges.

#### *Teaching Activities*

A variety of teaching activities were provided to family medicine residents by laborists (Table 4). Primary activities reported as “usually/always” included serving as attendings (41.2%), performing direct observation of residents’ L&D skills (58.3%), or “often” providing lectures (21.4%) and attending morning report with a teaching component (21.4%).

Laborists were viewed as “good/excellent educators” by nearly two-thirds (64.1%) of the residency program directors responding. About half (50.5%) felt that the laborist improved the L&D supervision for the residents, and almost as many (46.0%) noted “some or a significant” improvement in the quality of maternity training for their residents.

While the majority (54.3%) reported little or no reduction in their

departmental L&D teaching responsibilities, many (20.4%) reported a great deal of reduction for teaching responsibilities due to the use of a laborist service. Those programs were significantly more likely to report that laborists served as teaching attending always/usually versus those programs where laborists serve as family medicine attending never/sometimes (62% versus 31%,  $P=.003$ ).

Table 5 reports the relationship between laborist participation in teaching activities and perceived improvements in teaching outcomes. Laborists rated as “high-quality educators” were associated with improved supervision of family medicine residents ( $P=.005$ ) and improved quality of training ( $P=.008$ ) but not with reduction in teaching load for family medicine faculty ( $P=.96$ ). However, laborist participation in teaching activities was associated with a perceived reduction in the teaching load for family medicine faculty (service attending  $P=.003$ , L&D skill observation  $P=.03$ , providing lecture  $P=.02$ , attending morning report  $P=.009$ ).

#### *Practice Patterns*

Fifteen percent of program directors reported that >30% of residents graduating in the last 3 years chose positions that included prenatal and/or L&D care in their first practice (Table 2). We looked for factors associated with these programs and found no significant association with the presence of family physicians as laborists, program structure, or community size. Variables associated with >30% of graduates providing L&D care included being located in the Central, Mountain, or Pacific regions ( $P=.003$ ), having <24% of IMG residents enrolled in the program ( $P<.001$ ), and requiring >4 months of L&D training during the residency ( $P=.001$ ). There was a trend for these programs to not have OB residents present (19%) than to have an OB residents present (11%) in their teaching hospital ( $P=.07$ ).

#### **Discussion**

This is the first study that we are aware of that characterizes the role of laborists in family medicine residency obstetrics training. A laborist service was reported by 44.4% of programs compared to 18% reporting

**Table 4: Laborist Participation in Family Medicine Residency Teaching Activities**

<b>Programs With Laborist Services</b>	<b>n=103 n (%)</b>
Laborists are attending on family medicine resident service	
Never	29 (28.4)
Sometimes	31 (30.4)
Usually	23 (21.6)
Always	20 (19.6)
Laborists provide direct observation of L&D skills	
Never	4 (3.9)
Sometimes	39 (37.9)
Usually	32 (31.1)
Always	28 (27.2)
Laborists provide lectures to residents	
Never	26 (25.2)
Sometimes	55 (53.4)
Often	22 (21.4)
Laborists attend morning report with teaching component	
Never	53 (51.6)
Sometimes	28 (27.2)
Often	22 (21.4)
Quality of laborists as educators	
Excellent	18 (17.5)
Good	48 (46.6)
Fair	24 (23.3)
Poor	3 (2.9)
Unsure	10 (9.7)
Improvement of L&D supervision with laborist	
Significant improvement	19 (18.5)
Some improvement	33 (32.0)
No improvement	17 (16.5)
Unsure	34 (33.0)
Quality of maternity training for residents with laborist	
Significant improvement	16 (15.6)
Some improvement	31 (30.4)
Very little improvement	16 (15.7)
No improvement	10 (9.8)
Unsure	30 (28.4)
Reduction of teaching responsibilities due to use of laborist	
A great deal	21 (20.4)
Somewhat	21 (20.4)
Very little	23 (22.3)
Not at all	33 (32.0)
Unsure	5 (4.9)

**Table 5: Relationships Between Participation of Laborists in Teaching Activities and Positive Family Medicine Residency Teaching Outcomes**

	Outcomes for Family Medicine Residency Programs					
	Improved Resident Supervision,* n=52		Improved Quality of Training,** n=47		Reduction in Family Medicine Faculty Teaching,*** n=41	
	n (%)	P Value	n (%)	P Value	n (%)	P Value
<b>Laborist teaching quality</b>						
High-quality educators§						
Yes	43 (65%)	.005	39 (60%)	.008	21 (47%)	.96
No	9 (33%)		8 (20%)		12 (46%)	
<b>Frequent laborist teaching activities</b>						
Attend on family medicine service†						
Yes	23 (55%)	.42	20 (48%)	.85	24 (62%)	.003
No	28 (47%)		27 (46%)		18 (31%)	
Observe L&D skills†						
Yes	30 (50%)	.91	27 (46%)	.94	29 (53%)	.03
No	22 (51%)		20 (47%)		13 (30%)	
Provide resident lectures††						
Yes	40 (52%)	.61	36 (47%)	.66	34 (47%)	.02
No	12 (46%)		11 (42%)		8 (32%)	
Attend morning report with a teaching component††						
Yes	28 (50%)	.28	26 (53%)	.17	27 (56%)	.009
No	24 (45%)		21 (40%)		15 (30%)	

P values were calculated using Pearson's  $\chi^2$  test.

\* Response options dichotomized where "Improved supervision" (n=52)=significant improvement/some improvement, and "no improvement" (n=41)=no improvement/unsure.

\*\* Response options dichotomized where "Improved quality of family medicine training" (n=47)=significant improvement/some improvement, and "no improvement in quality of training" (n=45)=very little improvement/no improvement/unsure.

\*\*\* Response options dichotomized where "Reduction in teaching load for family medicine faculty" (n=41)=a great deal/somewhat, and "no reduction in teaching load" (n=47)=very little/not at all/unsure.

§ Response options dichotomized where "yes"=excellent/good, and "no"=fair/poor.

† Response options dichotomized where "yes"=usually/always, and "no"=sometimes/never.

†† Response options dichotomized where "yes"=often/sometimes, and "no"=never.

in 2012.<sup>11</sup> These services are more likely to be found in hospitals with more than 2,000 deliveries per year and are primarily managed by obstetrical departments or by the hospital; however, some programs are managed collaboratively with family medicine and occasionally by family medicine alone. Laborist services are primarily staffed by obstetricians and midwives, but we did find family physicians providing such services, with about half of those physicians also having c-section privileges. This

is consistent with a 2008 survey of family medicine obstetrical fellowship graduates, which revealed that half were working as residency faculty.<sup>14</sup> Additionally, the laborists are actively involved in teaching family medicine residents and generally noted to improve the quality and supervision of L&D training, which is similar to others reporting the collaborative nature of such training.<sup>11,15</sup> While we did not collect further details on the management of such services, family medicine

programs should be able to negotiate laborist models that would not only include family physicians, but enhance resident education and encourage future obstetrical practice as well.

This study reflects the ongoing lack of interest in providing future L&D care by recent graduates. Other reports have failed to show a relationship to the decline in interest with the adequacy of residency training;<sup>16</sup> however, we found that programs requiring >4 months of

L&D training were more likely to have a higher percentage of graduates incorporating such care into their practices. Whether this reflects prior, pre-residency OB interest in selecting such programs or a reflection of the increased training is unknown, as our study was not designed to understand pre-residency interest or the adequacy of residency training. Our survey did not demonstrate a relationship to the use of laborist and future obstetrical practice, but there was a trend for decreased provision of such services for graduates of programs that trained on L&D services where OB residents also trained. Other studies have shown that FM supervision is strongly correlated with graduates continuing the practice of maternity care after graduation<sup>17</sup> and while we found no association between laborists and future obstetric practice by graduates, this and other associations, deserve further study.

This study has limitations. Our definition of the laborist as “clinicians dedicated to providing L&D care services in the hospital environment for pregnant patients, regardless of who provided the prenatal care” may have been confusing for some respondents. The exact roles and responsibilities of laborists are so highly variable that looking at all programs in aggregate may be misleading.<sup>18</sup> Given the confusion over the definition and roles of “laborist,” future research may want to examine the family physician who provides prenatal care but does not deliver babies (eg, a “prenatalist”) as a better focus for understanding the evolving educational needs of family medicine residents.

Finally, although respondents to the CERA survey comprised a representative sample of programs by type, location, and size, the 52.9% response rate may over- or underestimate the involvement of laborists in family medicine training programs depending on the philosophy of the residency program director toward

laborists involvement in training family medicine residents. The survey data was self-reported and subject to recall bias and socially desirable answers. There was no attempt to verify the presence of laborists, their teaching roles, or their impact on teaching outcomes (eg, exam scores or delivery skills).

## Conclusions

This CERA survey adds to the limited literature on the growing laborist movement and generates new knowledge about the interface with family medicine obstetrical training. We have gained some information about the structure of laborist programs, and this data will help to inform program directors as they grapple with Residency Review Committee changes<sup>13</sup> and assist departments who are affiliated with hospitals that intend on developing laborist services. Further research on the educational impact that measures specific outcomes on milestones and future practice choices could help programs maximize the laborist as an educational resource to strengthen family medicine obstetrical training.

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