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# The role of the hospitalist and Maternal Fetal Medicine physician in obstetrical inpatient care

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## Abstract

**Objective—**Our objective was to evaluate the role of hospitalists and Maternal Fetal Medicine (MFM) subspecialists in obstetrical inpatient care.

**Study Design—**This electronic survey study was offered to members of the American College of Obstetrics & Gynecology (ACOG; n=1,039) and the Society for Maternal-Fetal Medicine (SMFM; n=1813).

**Results—**607 (21%) respondents completed the survey. Thirty-five percent reported that hospitalists provided care in at least one of their hospitals. Compared with ACOG respondents, a higher frequency of SMFM respondents reported comfort with hospitalists providing care for all women on Labor and Delivery (74.4 vs. 43.5%, p=0.005) and women with complex issues (56.4 vs. 43.5%, p=0.004). The majority of ACOG respondents somewhat/completely agreed that hospitalists were associated with decreased adverse events (69%) and improved safety/safety culture (70%). Seventy-two percent of ACOG respondents have MFM consultation available with 53% having inpatient coverage. Of these, 85% were satisfied with MFM availability.

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**Conclusion—**Over one third of respondents work in units staffed with hospitalists and more than half have inpatient MFM coverage. It is important to evaluate if and how hospitalists can improve maternal and perinatal outcomes, and the types of hospitals that are best served by them.

### Keywords

Hospitalist; inpatient obstetrical care; laborist; Maternal Fetal Medicine

## Introduction

Within the past decade, the obstetrical (Ob) “hospitalists”, also referred to as “laborists”, have increasingly been utilized to provide care in Labor and Delivery (L&D) units (1–3). First described in 2003 (1), the obstetric hospitalist model was introduced with the hope of decreasing physician workload and improving patient care and satisfaction. This model was initially conceptualized to include physicians who provided continuous monitoring of patients on the L&D unit (1).

Concurrent with the rise in hospitalist care, there has been increased focus on treatment of complex maternal conditions by Maternal Fetal Medicine (MFM) subspecialists (4,5). In a 2013 call to action, D’Alton emphasized the vital role that MFM physicians have in the care of complex women, and indicated that MFM physicians should be readily available to provide care to the medically complicated obstetrical inpatient (4).

With the increasing prevalence of Ob hospitalists (2,3) and the recent focus on inpatient care of the complex obstetrical patient to reduce maternal morbidities and mortality (4,5), we sought to explore the current practices regarding care of the obstetrical inpatient. This survey study was intended to evaluate the role of Ob hospitalists and MFM subspecialists in obstetrical inpatient care, to evaluate the comfort level of general Obstetrician Gynecologist (Ob/Gyn) specialists and MFM subspecialists regarding Ob hospitalist care for specific groups of inpatients, and to establish the level of satisfaction of Ob/Gyn specialists regarding MFM services available to their patients.

## Study Design

Separate surveys were offered to members of the American College of Obstetricians and Gynecologists (ACOG) and members of the Society for Maternal Fetal Medicine (SMFM) during the time periods noted below. The study was reviewed by the Institutional Review Board at the University of Pennsylvania and found to meet criteria for exemption.

### Study population and survey administration

The surveys were tailored to each organization: the ACOG survey focused on the perspective of the general Ob/Gyn specialist, and the SMFM survey focused on the perspective of the MFM subspecialist.

A computer generated random sample of ACOG fellows and junior fellows currently in practice received the email (n=611) as well as all members (n=552) of ACOG’s Collaborative Ambulatory Research Network (CARN). CARN consists of ACOG fellows

and junior fellows in practice who have volunteered to participate in survey studies without compensation. Members of ACOG were instructed to only complete the survey if they provided inpatient obstetrical care and were not an MFM physician. If respondents indicated that they did not provide inpatient obstetrical care or were an MFM physician, they were excluded from the analysis. ACOG members received an email with a link to complete the survey via Real Magnet (6). They were given 10 weeks (7/11/2014 – 9/19/2014) to complete the survey and received 5 email reminders.

All regular members of SMFM (n=1,813) were sent the email and were instructed that they were considered eligible to participate if they provided any form of obstetrical services in the inpatient setting. SMFM members received an email with a link to complete the survey via REDCap (Research Electronic Data Capture) (7). They were given 6 weeks (3/26/2014 – 5/9/2014) to complete the survey and received 2 email reminders.

### Survey design

The surveys both underwent face validation and content validation by a panel of experts from ACOG and SMFM prior to the administration. This panel included general Ob/Gyn specialists, Ob hospitalists, and MFM subspecialists. The surveys included multiple choice questions regarding demographic, hospital, and inpatient characteristics (Appendix). The SMFM survey included questions regarding the MFM physician's "main" hospital of work, as well as satellite hospitals, as many MFM physicians provide care at more than one hospital.

### Data analysis

Data were imported into Stata version 12.0 (College Station, TX) for analysis. Chi-square tests were used to compare categorical variables, t-tests were used to compare parametric data, and tests of proportions were used to compare percentages and proportions. A p-value $<0.05$ was considered statistically significant.

## Results

A total of 2,976 physicians were contacted, Figure 1. One hundred and fourteen responding ACOG members were ineligible as they were either MFM physicians or do not provide inpatient obstetrical care. Of the remainder (1,813 SMFM, 1,039 ACOG), 213 ACOG and 394 SMFM members completed the survey. The overall response rate was 21.3% (n=607). The SMFM non-responders included both MFM physicians who chose not to respond as well as those that were ineligible because they did not provide inpatient care. Therefore, the specific number of SMFM members that were ineligible is unknown.

Demographic and practice characteristics of respondents from both organizations are presented in Table 1. ACOG members were more likely to be female and were slightly younger than SMFM respondents. More than 75% of ACOG respondents practiced in a hospital with a Level II or III neonatal intensive care unit (NICU) and more than 70% are in an urban setting. Eighty-four percent of SMFM respondents practiced in a hospital with a Level III NICU with the majority (60%) at university centers. Approximately 35% of respondents reported that Ob hospitalists provided care in at least one of their hospitals, with

no difference between ACOG and SMFM respondents (39.4 vs. 32.9%, p=0.1). Overall, the majority of Ob hospitalists were employed within the past 5 years, with a variety of different employment arrangements (Table 1).

Table 2 presents information on the role of the obstetrical hospitalist. Respondents reported similar frequencies regarding the types of patients the hospitalists care for at their institution. Less than 10% of respondents reported that hospitalists care for patients with complex or high risk issues. Regarding their comfort with the types of patients that the hospitalists care for, SMFM respondents were more likely to be somewhat or very comfortable with Ob hospitalists providing care for all women on L&D, and specifically with Ob hospitalists caring for women with complex obstetrical issues. A minority of ACOG members (33–44%) were comfortable with Ob hospitalists providing care to any type of obstetric patients. Regarding the impact on L&D outcomes, the majority of ACOG respondents somewhat or completely agreed that the presence of Ob hospitalists was associated with decreased adverse events (69%), improved safety and safety culture (70%), improved house staff training (60%), and improved provider satisfaction (73%), Table 2.

In order to gain insight into respondents' interpretation of what an obstetrical hospitalist is, SMFM members were asked for their definition of a hospitalist. These definitions varied greatly and are presented in Table 3.

Table 4 presents responses from the ACOG survey regarding the MFM services available to them. Seventy-two percent of ACOG respondents had MFM subspecialist availability, with 52.5% having inpatient MFM subspecialty services available at their hospital. Nearly 80% of practicing Ob/Gyns have MFM subspecialty services available within 30 miles. Of ACOG respondents with available MFM services, more than 90% were satisfied with the availability for phone questions/consultations for women with complex conditions. Approximately 85% of respondents were satisfied with the availability of MFM subspecialists for in-person questions/consultations for women with complex conditions and for the delivery of these women. Eighty percent of respondents were satisfied with the MFM service provided for critically ill obstetrical patients. Of those who were not satisfied with the MFM services, the majority (67 %) indicated a preference for MFM availability 24 hours daily.

## Conclusion

We surveyed general Ob/Gyn specialists and MFM subspecialists to evaluate the roles of hospitalists and MFM subspecialists in the care of the obstetrical inpatient. Consistent with published data (8), approximately 35% of respondents had Ob hospitalists working at their hospital. In terms of the MFM subspecialty, 84% of MFM subspecialists practiced in a hospital with a Level III NICU with the majority (60%) at university centers. More than three quarters of Ob/Gyn specialists practice in hospitals with a Level II or Level III NICU and 72% have MFM availability for patient care, with 53% having inpatient MFM availability. It is not surprising that 28% of ACOG respondents did not have MFM subspecialists available for patient care as 23% of respondents practice in a hospital with a Level I NICU.

The definition of what an Ob hospitalist is varies, and the types of patients they care for can include both low risk and high risk patients, though less than 10% report hospitalists caring for complex patients. This significant variation in the definition and responsibilities can make studying the role of the Ob hospitalist difficult. Interestingly, in our survey, MFM subspecialists were more comfortable with hospitalists providing care to all patients on L&D units, while the majority of MFM and Ob/Gyn physicians were not comfortable with Ob hospitalists providing care to women with complex medical and complex fetal conditions. The reasons why Ob/Gyn specialists appear to be less comfortable with Ob hospitalists providing inpatient obstetric care remain to be elucidated. These differences in comfort level may be a barrier to acceptance of the role of hospitalists in inpatient obstetrical care.

Importantly, ACOG respondents indicated a perception of improved safety environment, decreased adverse events, and improved house staff training with hospitalist care. Additionally, with the continued presence of Ob hospitalists on obstetrical inpatient units and the continued push for this expanding specialty, it is important to evaluate the types and location of hospitals that would best be served by the Ob hospitalist.

We also evaluated the role of the MFM physician on inpatient care. Wenstrom et al (9) previously highlighted the areas of dissatisfaction with the MFM services provided to ACOG members, specifically noting the need for improved inpatient care coverage. Importantly, three years later, we found that 85% of ACOG respondents were satisfied with the in-person availability of the MFM service at their hospital. Nearly 80% of practicing Ob/Gyns have MFM subspecialty services available within 30 miles and 95% provide care at a hospital with a Level II or Level III NICU. This highlights the importance of developing access to subspecialty consultation through approaches by phone or telemedicine, and formal transfer agreements for Level I and II facilities that lack resources for complex care.

An important strength of this study is that we surveyed both general Ob/Gyn specialists and MFM subspecialists, allowing a more comprehensive evaluation of the role of the hospitalist and MFM physician. The surveys were rigorously created and underwent both face validation and content validation prior to distribution by a panel of experts from both ACOG and SMFM. Limitations of the study include a poor response rate (21%), with the potential that the respondents are not a representative sample of all Ob/Gyn and MFM physicians. This study was designed to evaluate the ACOG and SMFM members' perception of the role of the hospitalist in the care of the obstetrical inpatient and did not specifically target responses from hospitalists themselves. To date, there is limited published information surveying the hospitalists themselves as to the types of patients they care for and their comfort level with caring for these patients. If this evolving field of obstetrics is to continue, this would be a vital piece of information to obtain in order to proceed with appropriate training, evaluation, and distribution of Ob hospitalists.

It is important that we continue to increase understanding of the roles of different inpatient obstetric providers and to optimize communication and collaboration, with a goal of improving overall patient safety. The presence of obstetric hospitalists continues to rise (2,3), with more than one-third of respondents in this study having hospitalists present in at least one of their hospitals. If the field of hospitalists continues to be expanded, steps must

be taken to optimize how they are incorporated in practice, and to improve the comfort that general Ob/Gyns have with the care they provide.

While only a minority of ACOG respondents expressed comfort with Ob hospitalists providing care for women on L&D, the majority indicated a perception that Ob hospitalists improve safety and safety culture, decrease adverse events, and improve house staff training. It is important to evaluate if and how hospitalists can improve maternal and perinatal outcomes, and the types of hospitals that are best served by them.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgments

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## Abbreviations

| | |
|---|---|
| **MFM** | Maternal Fetal Medicine |
| **ACOG** | American College of Obstetricians & Gynecologists |
| **SMFM** | Society for Maternal Fetal Medicine |
| **Ob** | Obstetrical |
| **Ob/Gyn** | Obstetrician Gynecologist |
| **CARN** | Collaborative Ambulatory Research Network |

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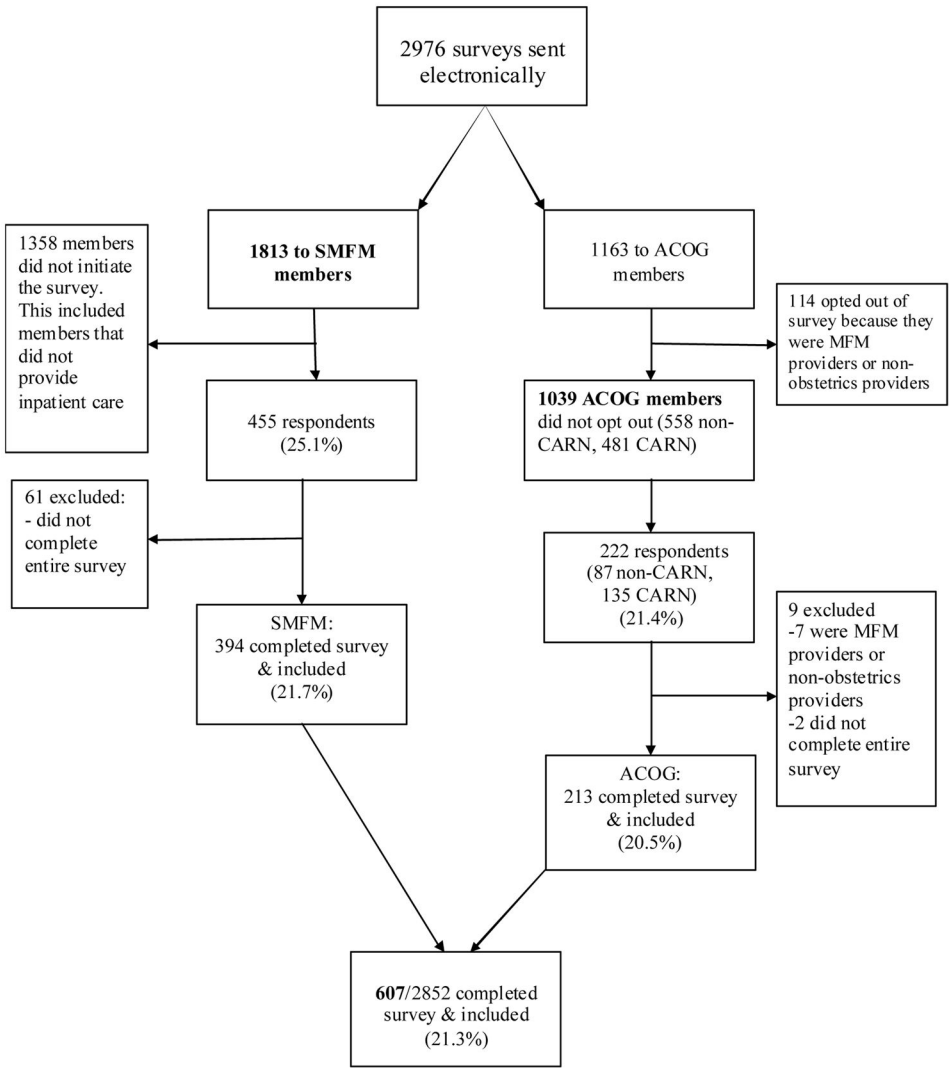


**Figure 1.**

Flow diagram of survey respondents

SMFM: Society for Maternal Fetal Medicine

ACOG: American College of Obstetricians & Gynecologists

MFM: Maternal Fetal Medicine

CARN: Collaborative Ambulatory Research Network

## Table 1

Demographic and practice characteristics of respondents

| Demographic characteristic | ACOG (n=213) | SMFM (n=394) | p-value |
|---|---|---|---|
| Female gender | 126 (59) | 117 (45) | <0.001 |
| Age† | 50.4 (9.9) | 52.6 (9.5) | 0.006 |
| Years in practice† | 17.8 (9.9) | 17.6 (9.6) | 0.8 |
| Level of hospital/NICU | | | |
| Level I | 49 (23) | 23 (6) | <0.001 |
| Level II | 70 (33) | 42 (11) | |
| Level III | 94 (44) | 329 (83) | |
| Type of hospital | | | |
| Urban university or university affiliate | 61 (29) | 237 (60) | <0.001 |
| Urban community | 92 (43) | 127 (32) | |
| Rural community | 43 (20) | 12 (3) | |
| Other | 17 (8) | 18 (5) | |
| Type of ObGyn | | | |
| MFM | 0 | 394 (100) | --- |
| Generalist | 184 (87) | 0 | |
| Hospitalist | 9 (4) | 0 | |
| Combination of generalist/hospitalist | 20 (9) | 0 | |
| Hospitalists are present in at least one of the hospitals | 84 (39) | 130 (33) | 0.1 |
| Number of years hospitalists have been employed | | | |
| 0–5 | 148 (69) | 249 (63) | <0.001 |
| 6–10 | 40 (19) | 91 (23) | |
| >10 | 25 (12) | 54 (14) | |
| Who employs the hospitalists? | | | |
| The hospital/university | 88 (41) | 192 (49) | 0.09 |
| Independent group | 37 (17) | 48 (12) | |
| A hospitalist company | 21 (10) | 19 (5) | |
| The MFM division | 5 (3) | 39 (10) | |
| Part of a private practice or multispecialty group | 27 (13) | 70 (18) | |
| Other | 21 (10) | 26 (6) | |
| Unknown | 14 (6) | 0 | |

Data presented as n (%) or

†mean (SD) as appropriate.

ACOG: American College of Obstetricians & Gynecologists, SMFM: Society for Maternal Fetal Medicine, ObGyn: Obstetrician Gynecologist, MFM: Maternal Fetal Medicine

## Table 2

Role of the obstetrical hospitalists

| ***Percentage of respondents who report that hospitalists care for the following types of patients:**** | | | |
|---|---|---|---|
| | **ACOG (n=213)** | **SMFM (n=394)** | **p-value** |
| Women with complex medical conditions | 17 (8) | 30 (8) | 1.0 |
| Women with complex obstetrical conditions | 20 (10) | 38 (10) | 1.0 |
| Women with complex fetal conditions | 15 (7) | 22 (6) | 0.6 |
| All women on L&D | 36 (17) | 53 (13) | 0.2 |
| All women on L&D except private patients | 41 (19) | 40 (10) | 0.002 |
| Patients of the MFM practice | 18 (8) | 29 (7) | 0.6 |
| Women in the intensive care unit | 16 (8) | 6 (2) | 0.001 |
| ***Percentage of respondents who were somewhat or very comfortable with hospitalists providing care to the following groups of patients:**** | | | |
| | **ACOG (n=213)** | **SMFM (n=394)** | **p-value** |
| All women on L&D | 93 (44) | 293 (74) | 0.005 |
| Women with complex medical conditions | 80 (38) | 174 (44) | 0.1 |
| Women with complex obstetrical conditions | 93 (44) | 222 (56) | 0.004 |
| Women with complex fetal conditions | 72 (34) | 115 (29) | 0.3 |
| ***What is the impact of the hospitalist on various outcomes ?†*** | | | |
| | **ACOG (n=213)** | | |
| | Somewhat/completely agree | | |
| Decreased adverse events | 147 (69) | | |
| Decreased malpractice claims | 78 (37) | | |
| Decreased cesarean deliveries | 62 (29) | | |
| Improved neonatal outcomes | 97 (46) | | |
| Improved patient satisfaction | 94 (44) | | |
| Improved provider satisfaction | 155 (73) | | |
| Improved safety and safety culture | 149 (70) | | |
| Improved house staff training | 127 (60) | | |

Data presented as indicated(%)

*These categories are not mutually exclusive

†This survey question only administered to ACOG members

ACOG: American College of Obstetricians & Gynecologists, SMFM: Society for Maternal Fetal Medicine, L&D: labor and delivery

## Table 3

What is the definition of an obstetrical hospitalist?*

| Definition | n (%) n=394 |
|---|---|
| Part of a group providing 24/7 coverage on L&D | 126 (32) |
| Maintains a full office practice but is assigned to cover unassigned patients on L&D and/or in the emergency room. Assists other providers for a particular shift, (Doc of the day). | 41 (10) |
| Covers unassigned patients on L&D and/or in the emergency room. Assists other providers for all of their shifts, having no office practice. | 69 (18) |
| Maintains a full office practice and takes call covering their group's patients as well as unassigned patients and assists other providers for a particular shift. | 41 (10) |
| No office practice but covers their group's patients as well as unassigned patients and assists other providers for all of their shifts. | 56 (14) |
| Other | 61 (15) |

* This survey question only administered to SMFM members

L&D: labor & delivery

## Table 4

Information regarding MFM services from ACOG respondents

| | **n (%) n=213** |
|---|---|
| MFM coverage at my hospital: | |
| No MFM coverage | 60 (28) |
| Outpatient coverage only | 41 (19) |
| Inpatient coverage only | 3 (2) |
| Both inpatient and outpatient coverage | 109 (51) |
| Closest MFM | |
| On-site | 94 (44) |
| Within 10 miles | 54 (25) |
| 11–30 miles | 20 (9) |
| 31–60 miles | 23 (11) |
| 61–120 miles | 16 (8) |
| ≥120 miles | 6 (3) |
| *If an MFM service is present at the hospital, below is the percentage of respondents who were satisfied with the following services:* | |
| Overall MFM service | 180 (85) |
| Phone questions/consultations for women with complex obstetrical conditions | 196 (92) |
| Phone questions/consultations for women with complex medical conditions | 193 (91) |
| Phone questions/consultations for women with complex fetal conditions | 195 (92) |
| In-person questions/consultations for women with complex obstetrical conditions | 182 (86) |
| In-person questions/consultations for women with complex medical conditions | 179 (84) |
| In-person questions/consultations for women with complex fetal conditions | 184 (86) |
| Deliveries of women with complex obstetrical conditions | 177 (83) |
| Deliveries of women with complex medical conditions | 175 (82) |
| Deliveries of women with complex fetal conditions | 180 (85) |
| Caring for critically ill obstetrical patients | 171 (80) |

MFM: Maternal Fetal Medicine, ACOG: American College of Obstetricians & Gynecologists