Infant Safe Sleep Health Plans Initiative

Physician Office Survey Report

Tomorrow's Child and
Michigan Association of Health Plans Foundation

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Infant Safe Sleep Health Plans Initiative

Physician Office Survey Report

Summary

The purpose of this project was to assess infant sleep education practices in OB/GYN and pediatric offices. Twelve physician offices were invited to participate in this quality improvement project about safe sleep. Six offices were OB/GYN offices and six were pediatrics offices. The assessment involved a survey of the physicians, clinical staff, and non-clinical staff at each office about patient education practices. Women/parents from each office were also surveyed to obtain information about their perceptions and practices.

Surveys were completed by 273 staff members. The response rate was 67.7% (273 responses out of 403). A total of 652 surveys were completed by women at OB/GYN offices (n = 313 surveys, 48.0%) and parents at pediatric offices (n = 339 surveys, 52.0%).

Among office staff members, 44.0% indicated that they provided patient education. Of these staff, 43.3% were nurses, 25.5% were physicians, 26.7% were other clinical staff, and 5.0% were non-clinical staff. Teaching staff at pediatric offices were more likely to provide education on infant safe sleep and SIDS then teaching staff at OB/GYN offices.

Assessments of professionals' knowledge of infant safe sleep indicated areas where additional education is needed. Out of ten possible risk factors for sudden or unexpected death of an infant, physician and nurses had a mean of 7.0 correct identifications of risk factors while other clinical staff had a mean of 6.2.

Professional awareness of the AAP recommendations also needs to be increased and discussed if these recommended practices with parents increased. Of the19 topics recommended by the 2005 American Academy of Pediatrics Task Force, teaching staff at pediatric offices discussed 10 topics while teaching staff at OB/GYN offices discussed 7 topics. Teaching staff at pediatric offices were more likely to discuss crib practices with parents than teaching staff at OB/GYN offices.

OB/GYN staff members were less likely to indicate providing patient education on infant care topics than pediatric staff members with the exception of breastfeeding. Two topics specifically addressed infant safe sleep: infant safe sleep practices and Sudden Infant Death Syndrome (SIDS). Staff members at pediatric offices also were more likely to provide patient education on infant safe sleep (77.4% for pediatrics to 36.4% for OB/GYN) and on SIDS (54.8% for pediatrics and 34.58% for OB/GYN).

Teaching staff at pediatric offices said they almost always taught patients about safe sleep while teaching staff at OB/GYN offices said they sometimes taught safe sleep to their patients. The difference between office types was significant indicating that education on safe sleep most likely will come from the pediatric office.

Women OB/GYN patients and parents were diverse. Three-quarters of these respondents were white/Caucasian and about 12.1% were African American/ Black. Two-thirds of women/parents had private health insurance and a third received Medicaid or had MiChild for their child. Adult respondents' ages ranged from teens to late fifties with a mean age of about 29. Persons of Color were younger (mean = 26.6) than Caucasian/ White respondents (mean = 29.3). The average age of the children whose parents were surveyed at the pediatric offices was 4.26 months. Slightly more than half the babies were male (55.1%) with 44.9 % female babies.

Parents at pediatric offices were more likely to indicate having received education on infant care topics at the office than women at OB/GYN offices. Parents at pediatric offices were significantly more likely to indicated receiving information on health and safety issues for infants and on infant sleep practices. At pediatric offices, 73.5 percent of respondents said they had received information on safe sleep practices compared to 45.0 percent at OB/GYN offices; and 54.3 percent of respondents at pediatric offices had received information on SIDS compared to 46.6 percent at OB/GYN offices.

Women's/parents' knowledge of infant safe sleep is good but with room for improvement. Women/parents indicated that they are aware of back to sleep (83.3% put or would put their baby to sleep on his or her back) and the importance of using a crib (94.4% said their babies would sleep or slept in cribs). There is a continuing need to educate parents about bedsharing and the dangers of using soft bedding: 22.1% of women/parents indicated that their babies would sleep or slept in bed with others and 9.5% said their babies would sleep or slept on soft bedding (pillows or soft furniture).

A logistic regression was used to identify factors associated with back sleep for infants less than or equal to 13 months in age and whose parent had completed a pediatric parent survey (n = 329). The dependent variable was baby sleep position – not on back (n=69, 20.9%) or yes on back (n = 260, 79.1%). The predictor variables were first baby for the parent (no/yes), Medicaid insurance (no/yes), received education on safe sleep practices (no/yes), received education on SIDS (no/yes), and ethnicity (no/yes African American). The results indicated that the likelihood that a baby is put to sleep on his/her back is reduced by .37 times if the parent was African American; the likelihood of back sleep increases by 2.67 times if the parent reported receiving education on safe sleep; and increases by 2.21 times if the baby was a first child. This indicates that parents who are African American are less likely to practice back sleep but education on safe sleep can increase the likelihood that the parent will practice back sleep. First time non-African American parents who have received education on safe sleep have the greatest likelihood of practicing safe sleep by placing their infants on their backs. Education on SIDS was not a significant predictor of back sleeping position.

A little more than half of women/parents (54.4%) indicated that their baby slept or would sleep in a crib or bassinet in their bedroom. Sleeping in the parent's room in a bassinet or crib is considered to be the safest sleep practice. Women/parents receiving Medicaid were more likely (67.4%) to report their babies slept in their room in a crib/bassinet than non-Medicaid women/parents (47.1%). Infants that slept in their parent's room in a crib/bassinet were younger (3.1 months) compared to those who did not (5.3 months). Persons of Color were more likely to report that their babies slept or would sleep in their room in their bed than Caucasian/White respondents.

Three quarters women/parent respondents reported the cribs would have or had only sheets and 60.0% would have or had one blanket. However, 42.1% of respondents planned to use or used bumper pads. Persons of Color were more likely report that they would have or had a pillow in the crib (7.2%) compared to Caucasians/White respondents (3.0%).

Infant Safe Sleep Health Plan Initiative

Background

Tomorrow's Child received funding from the Michigan Department of Community Health in the fall of 2005 to address Infant Safe Sleep in eleven Michigan communities with the highest disparity for infant mortality. Tomorrow's Child implemented several projects aimed at addressing the goal. Among these projects was a partnership with the Michigan Association for Health Plans Foundation to explore the feasibility of establishing Infant Safe Sleep policies and curricula for physician offices affiliated with health plans. The goal of the project was to provide sustainable, evidence-based models and culturally appropriate resources that could be replicated at the community level.

In 2007, Tomorrow's Child went back to health plans to collect missing forms and information. After completion of the preliminary analysis, the Maternal and Child Health epidemiologist at the Michigan Department of Community Health reviewed the draft document and provided positive suggestions for additional data collection, analyses and revisions. However, funds were depleted and this aspect of the project could not be completed. In 2009, Tomorrow's Child provided private funds to collect additional data. In 2011, because of the importance of this information to Michigan's recent infant mortality initiative, Tomorrow's Child provided additional private funds to conduct the data analysis and prepare this report. As Michigan moves forward to address infant mortality, these findings offer an initial baseline for measuring changes in knowledge, practice and beliefs about infant sleep practices among physician office staff and patients.

Twelve physician offices were invited to participate in this quality improvement project about safe sleep. Six offices were OB/GYN offices and six were pediatrics offices. The project was an assessment of current practices related to safe sleep education. The assessment involved a survey of the physicians, clinical staff, and non-clinical staff at each office about patient education practices. Women and parents from each office were also surveyed to obtain information about their perceptions and practices regarding infant safe sleep.

Methods

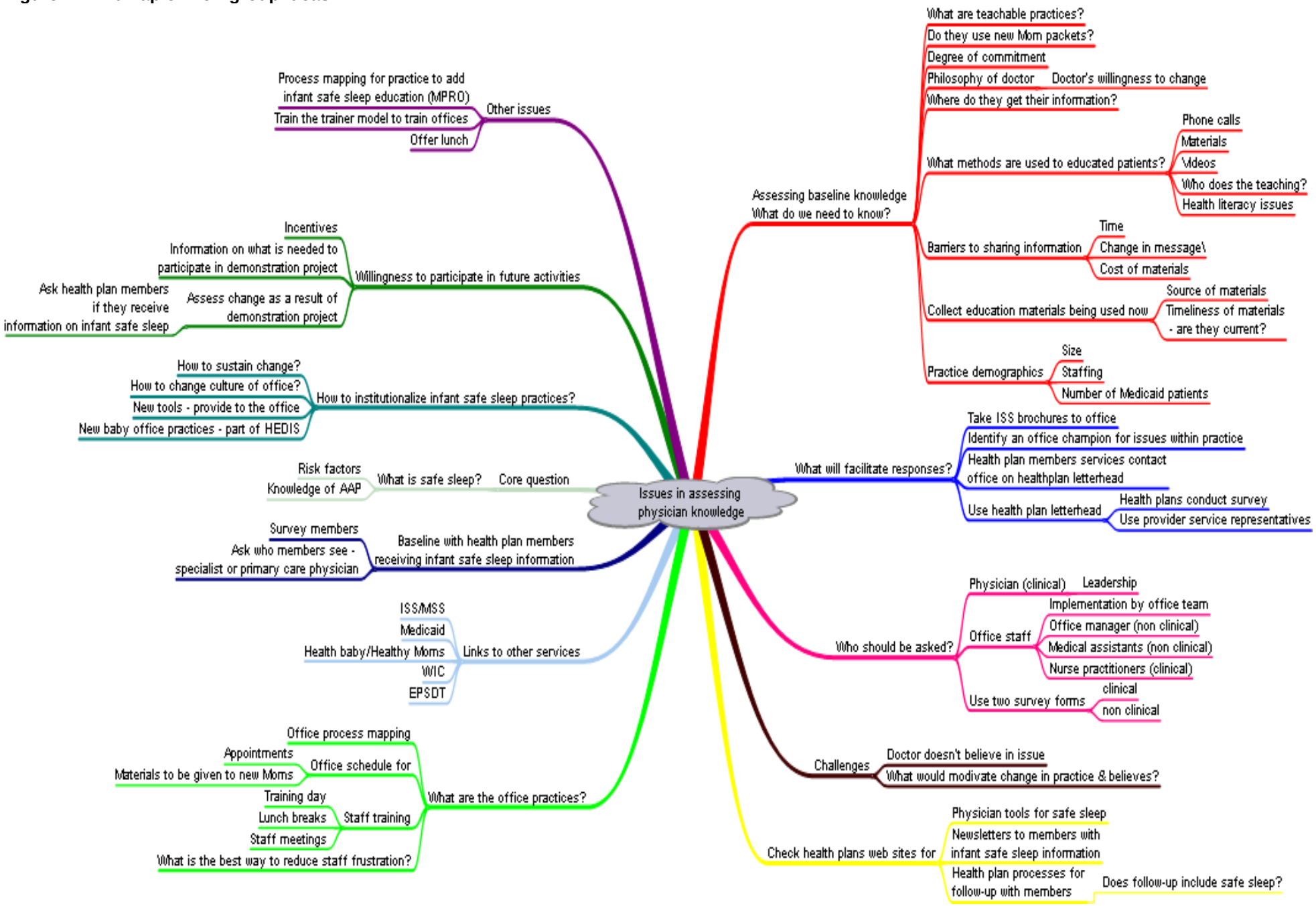
Workgroup

A workgroup of representatives from health plans, Michigan Association for Health Plans Foundation (MAHPF), and Tomorrow's Child met with the evaluator to identify issues and priorities for the study.

MindMapping, a technique to identify all issues related to a topic/task and to record them so they are visible to the group, was used to identify issues. MindMapping begins with a central question and participants are asked to state an issue and then identify where on the mindmap the issues should be located. Rules for brainstorming are followed; all ideas are valid, the facilitator accepts what is heard, the facilitator may restate the issue as needed, and the facilitator adds the statement to the map where the participant says it goes.

The questions posed to the group were: What are the issues in assessing physician knowledge? What do we need to know about current office procedures concerning infant safe sleep? Figure 1 presents the MindMap.

Figure 1 MindMap of workgroup ideas



Sample

Three health plans were invited to participate in the project because each served both commercial and Medicaid members and provided services in one or more of the eleven communities identified by the Michigan Department of Community Health as having the highest disparity in infant mortality rates.

Each health plan was asked to identify the two largest OB/GYN practices, two largest pediatric practices, and the two largest family medicine practices in the counties they served. Each health plan provided the number of new births in 2005 among their respective members for the identified practices. After reviewing these numbers, family medicine practices were dropped from the study because the number of new births identified at the largest practices was less than 30 per practice among members of the three health plans. The number of new births among members of the three health plans at OB/GYN practices and pediatric practices ranged from 45 to 196. The six OB/GYN practices and six pediatric practices were then called by the health plan representatives and invited to participate in the study. All twelve agreed to participate.

Each OB/GYN office was asked to distribute surveys to 50 women in their last month of pregnancy or who were coming in for their first postnatal follow-up visit. Pediatric offices were asked to distribute surveys to 50 parents of children who were ages 12 months or younger.

Instruments

Issues listed on the MindMap were used to develop outlines for the physician office staff, OB patients', and pediatric parents' surveys. The workgroup met with the evaluator to review draft surveys and develop data collection procedures.

Six survey instruments were created based on the brainstorming session and were reviewed by the health plan representatives: (1) clinical office staff survey; (2) non-clinical office staff survey; (3) physician practice survey; (4) patient caseload composition form; (5) OB/GYN women's survey; and (6) pediatrics parents' survey. Cover letters describing the study, extent of respondent's participation, right of the respondent to not participate, confidentiality, and instructions were provided for each survey.

The clinical and non-clinical office staff surveys asked for the respondent's role in the office and if the person provided patient education. If the person provided patient education, they were asked to review a list of 26 infant care topics and check off all those they regularly covered with the women or parents of infants. They also were asked to check off all infant sleep practices they discussed with parents or pregnant patients from a list of 19 safe sleep practices found in the 2005 American Academy of Pediatrics guidelines on infant safe sleep.

The physician practice survey was designed to collect information on the staffing pattern for the office and patient education procedures. The survey asked about the staffing of the practice in terms of roles (clinical and non-clinical jobs), how in-service training was provided, when infants were scheduled for regular check-ups, and what types of information were provided to pregnant women or new mothers/parents about

caring for their infants. The practice survey also asks several questions about the size of the patient caseload. The patient caseload composition form collected information on the number of new birth, infants under 12 months of age, types of insurance, and ethnicity of the office's caseload.

The OB/GYN women's survey and pediatrics parents' survey were similar. Each asked for the respondent's age, ethnicity, if the child in question was a first baby, type of insurance, and infant care topics covered at the doctor's office. Safe sleep questions were phrased as to future behavior for OB/GYN patients and in the present tense for parents of pediatric patients. They were asked where the infant would sleep or sleeps, sleep position to be used or used, to check off all the places their baby was likely to sleep, where the baby would or did sleep at night, and items that would be or were in the baby's crib. Respondents were asked to check off all the infant care topics from a list of 26 they had received information about from the doctor's office. The list of 26 topics was the same list used with staff. OB/GYN women's survey also asked for the number of weeks pregnant; the pediatric parents' survey asked the infant's age in months, gender, and if the infant was seen by a medical specialist.

Procedures

Representatives from the health plans, MAHPF, Tomorrow's Child, and the evaluator met to review procedures for the data collection. The health plan representatives were provided with materials for each physician office at the meeting. The MAHPF representative agreed to mail these materials to each health plan.

A representative from a health plan met with staff at each physician office to discuss the project and how the information would be collected. The clinical and non-clinical staff surveys were distributed during these meetings. Surveys were sealed by staff member respondents in envelopes coded for the practice. Surveys completed while the health plan representative was on site were returned to the health plan representative. Surveys left to be later completed were mailed to the health plan representative. All completed surveys were then mailed to the Tomorrow's Child office and delivered to the evaluator in sealed envelopes.

Each office was provided 70 patient surveys packets and asked to distribute these surveys during a one month period until 50 surveys had been turned in. Potential respondents were provided a packet, which included a cover letter, survey form, FAQ sheet, and envelope coded for the practice. Respondents returned the completed survey in the sealed envelope to the office staff. Respondents also were given an incentive bag which included information from Tomorrow's Child on safe sleep and a sippy cup. Extra surveys were provided to allow for misplaced, destroyed or partially completed surveys. Completed surveys were mailed to the health plan representative. All completed surveys were then mailed to the Tomorrow's Child office and delivered to the evaluator in sealed envelopes.

The physician practice survey had not yet been collected and patient caseload composition form was returned by two physician offices noting they could not provide the requested information. With private funding from Tomorrow's Child, the health plan representatives called the physician offices in the fall of 2007 to obtain the number of staff by role at each office and an estimate of the number of birth or infant under 12

months of ages for the last year. Information was obtained for eight of the twelve offices.

Analysis

Numeric data were entered into SPSS which was used to conduct statistical analyses. Cross-tabulation tables with chi-square statistics and analysis of variance with means were used to assess differences between office types, ethnicity groups, and Medicaid vs. non-Medicaid insurance groups. Note that totals that do not match the overall number of respondents are due to missing data. Percentages are based on the number of valid responses to each question unless the number of missing responses is listed in the table.

Text data listing the factors, which would facilitate or be barriers to changing patient education practices were entered into word processing files and then imported into Nvivo 7 for analysis. In this analysis, a grounded theory approach was used to conduct qualitative data analysis[1]. Grounded theory is an inductive approach that provides a set of coding procedures to identify and related themes that are present in the text data. Categories and themes are emergent and grounded in the cases being studied and the context in which the study is conducted[2]. The grounded theory approach began with reading the list of statements in its entirety. During the reading or open coding phase, salient categories of responses were developed and defined. Categories are expected to be represented across facilitating factors and barriers.

The open coding framework was defined in NVivo 7 software which was used to assign codes to text segments. Text segments could be assigned to more than one code if several categories were represented in the text. Codes are assigned by reading the list of statements again and marking segments of text which represent the category. After all statements were coded, text segments assigned to each coding category were examined as a group to determine consistency among the responses and the identification of sub-categories which represent different aspects of the response patterns. Text segments were assigned additional codes when sub-categories were identified.

Results

Response rates

Response rates to the clinical and non-clinical staff surveys were calculated. Table 1 presents the response rate by type of position along with the total number of persons employed and total number of surveys received by staff position. The overall response rate for the eight offices was 67.7%. The response rate was 66.9% for clinical staff and 69.5% for non-clinical staff.

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[1] Strauss, A., & Corbin, J. (1998). Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. 2nd ed. Thousand Oaks, CA: Sage.

[2] , R., & Casey, M.A. (2000). Focus Groups: A Practical Guide for Applied Research, 3rd Ed. Thousand Oaks, CA: Sage.

Table 1

Response rates for physician offices

Position	Total Number Employed	Total Number of Surveys	Response Rate
Physicians	85	45	52.9%
RN's	82	63	76.8%
Other Clinical Staff	105	74	70.5%
Non Clinical Staff	131	91	69.5%
Total	403	273	67.7%

OB/GYN offices provided information on the number of births per year and the pediatric offices provided the number of infants less than one year of age seen in one year. The population size is estimated at 10,227 and the number of surveys completed by women and parents was 492 for the eight practices providing caseload information. The confidence interval for the sample of 492 respondents is ±4.31% which means that sample estimates will be within 4.31% of the population values.

Sample demographic

Staff

A total of 273 staff surveys were completed. Each staff member was requested to identify their professional role. Staff members were divided into clinical and non-clinical roles which are presented in Table 2. Nurses (RNs and nurse practitioners) were the largest group of all respondents with 23.1% and the largest percentage of clinical staff with 43.2%.

Table 2

Staff Roles

Position	Count	% all staff respondents	% of clinical staff respondents
Physicians			
Physician	31	11.4%	21.2%
Resident	12	4.4%	8.2%
Intern	2	.7%	1.4%
Nursing Staff			
RN	54	19.8%	37.0%
Nurse practitioner	9	3.3%	6.2%
Technical Clinical Staff			
Medical assistant	36	13.2%	24.6%
Physician assistant	1	.4%	0.7%
Medical technician	1	.4%	0.7%
Total clinical staff	146		100.0%
Non-clinical staff			% of non-clinical staff respondents
Office reception staff	51	18.7%	40.2%
Other clinical staff	36	13.2%	28.3%
Other non-clinical staff	18	6.6%	14.2%

Billing staff	15	5.5%	11.8%
Medical records staff	7	2.6%	5.5%
Total non-clinical staff	127		100.0%
Total	273	100.0%	

Each person was asked if they provided patient education as part of their responsibilities. Table 3 presents the number and percentage of staff by roles and provision of patient education. Less than half of the respondents (n = 120, 44.1%) indicated that they were involved in patient education. Of the staff providing patient education, nurses were most often the educators (43.3%). Very few non-clinical staff provided patient education.

Table 3

Number and Percentage of Staff Members Providing Patient Education

	Number	%
Physicians	30	25.0%
Nurses	52	43.3%
Technical Clinical Staff	32	26.7%
Non-clinical Staff	6	5.0%
Total	120	100.0%

Women at OB/GYN Offices and Parents at Pediatric Office

The number of surveys completed varied by office and ranged from 29 to 71 with a total of 652 surveys completed by adult respondents. Nearly half the surveys were completed by women at OB/GYN offices (n = 313 surveys, 48.0%) and adult respondents at pediatric offices completed 52.0% (n = 339). Table 4 presents the relationship of the adult respondents at pediatric offices to the infants. All but five pediatric office respondents were parents and the term parents will be used to refer to this group.

Table 4

Relationship of Adult Respondent to Infant at Pediatric Offices

	Frequency	Percent
Mother	280	82.6
Father	47	13.9
Relative	3	.9
Other	2	.6
Both parents	7	2.1
Total	339	100.0

Ethnicity of adult respondents. Adult respondents' ethnicities are presented in Table 5. Three-quarters of respondents were white/Caucasian and about 12% were African American/Black. However, there was a larger percentage of white/Caucasian and small percentage of African American/Black patients among OB/GYN respondents. There were fewer African American/Black respondents in the OB/GYN category than would be expected based on their overall representation in the sample.

Adult respondents were divided into two groups: (1) Persons of Color (21.2%) who were African American (12.1%), American Indian/Native American (1.8%), Hispanic/Chicano (3.1%), Asian Pacific Islander (2.1%), Multi-racial (1.5%), and other (0.5%); (2) Caucasian/White (78.7%) who were Caucasian/White (78.4%) and Arab American (0.3%). These two categories are used to compare adult respondents on selected characteristics and responses.

Table 5

Respondents' Ethnicity

	Respondent type				Total	
	Pediatrics		OB-GYN			
Ethnicity	Count	%	Count	%	Count	%
American Indian or Alaskan Native	4	1.2%	8	2.6%	12	1.8%
Black African American	61	18.0%	18	5.8%	79	12.1%
Hispanic Chicano	9	2.7%	11	3.5%	20	3.1%
White Caucasian	246	72.6%	265	84.9%	511	78.5%
Asian Pacific Islander	8	2.4%	6	1.9%	14	2.2%
Arab American	1	.3%	1	.3%	2	.3%
Multi-racial	7	2.1%	3	1.0%	10	1.5%
Other	3	.9%			3	.5%
Total	339	100.0%	312	100.0%	651	100.0%

Age of adult respondents. Adult respondents' ages ranged from teens to late fifties (Table 6) with a mean age of about 29 for adult respondents at both pediatric and OB/GYN offices. Persons of Color were younger (mean = 26.6, SD = 6.2) than Caucasian/ White respondents (mean = 29.3, SD = 5.5) ($F_{1,647}$) = 24.0, $p < .001$).

Table 6

Age of Respondents

	Mean	Minimum	Maximum	Std Deviation
Pediatrics	28.79	14.00	58.00	6.26
OB-GYN	28.70	16.00	43.00	5.32
Total	28.75	14.00	58.00	5.82

Health insurance. Two-thirds of adult respondents had private health insurance (Table 7) and a third received Medicaid or had MiChild for their infant. Of those reporting Medicaid, 69.6% were Persons of Color and 23.7% were Caucasians/White (Chi-square = 105.7, df = 1, $p < .001$).

Table 7

Type of Health Insurance

	Respondent type				Total	
	Pediatrics		OB-GYN			
Insurance	Count	%	Count	%	Count	%
Medicaid	115	35.3%	86	27.7%	201	31.6%
MiChild	10	3.1%	4	1.3%	14	2.2%
Private insurance	199	61.0%	221	71.1%	420	65.9%
No insurance	1	.3%	0	.0%	1	.2%
Don't know	1	.3%	0	.0%	1	.2%
Total	326	100.0%	311	100.0%	637	100.0%

Age of infants. Parents at pediatric offices were asked to provide information about their children. Offices had been asked to survey parents of children 12 months or younger. Four surveys were received from parents whose children were between 16 and 48 months. The average age of the children was 4.26 months for children between less than 1 month old (0) and 13 months old. Slightly more than half the babies were male (55.1%) with 44.9 % female babies

Stage of pregnancy. Women respondents at OB/GYN offices were asked the number of weeks of their pregnancy which was converted into trimesters or post partum categories. Table 8 presents the stage of pregnancy for women respondents at OB/GYN offices. Almost eighty percent (78.2%) of these women were in their third trimester or were post partum.

Table 8

Stage of Pregnancy

	Trimester	
	Number	%
First	18	6.1%
Second	47	15.8%
Third	176	59.3%
Post partum	56	18.9%
Total	297	100.0%

Patient Education Practices

Staff members, answering yes to the question about providing patient education were given a list of 26 infant care topics and asked to check off all topics on which they regularly provided education. Women at OB/GYN offices and parents at pediatric offices were provided the same list and asked which topics they had heard about at the office.

Table 9 presents the list of topics and the percentage of staff members who provided patient education and indicated that they provided education on each topic by office type. OB/GYN staff members were less likely to indicate providing patient education on these topics than pediatric staff with the exception of breast feeding. Two

topics specifically addressed infant sleep: Infant safe sleep practices and Sudden Infant Death Syndrome (SIDS). For both topics, staff members at pediatric offices were more likely to provide education then staff members at OB/GYN offices: 77.4% for pediatrics to 36.4% for OB/GYN on infant safe sleep practices (Chi-square = 20.18, df = 1, p < .001); 54.8% for pediatrics and 34.5% for OB/GYN on SIDS (Chi-square = 4.84, df = 1, p < .05).

Table 9

Infant Care Education Topics Provided by Staff

Education topics	Type of Practice	
	OB/GYN	Pediatrics
	%	%
Infant Care		
Circumcision care***	40.0	79.0
Infant bowel & urination functions***	16.4	85.5
Diapering*	16.4	33.9
Holding an infant	18.2	32.3
Bathing an infant*	14.5	30.6
Infant Development		
Umbilical core care***	29.1	85.5
Comforting soothing an infant***	23.6	71.0
Infant developmental milestones***	23.6	71.0
Bonding with an infant	30.9	40.3
Swaddling an infant**	20.0	45.2
Thumb sucking by infants**	16.4	41.9
Infant Feeding		
Breast feeding**	96.4	80.6
Bottle feeding	60.0	75.8
Spitting up by infant***	21.8	91.9
Nutrition for infants***	23.6	82.3
Solid food feeding to an infant***	12.7	88.7
Burping an infant***	16.4	59.7
Pacifiers use by infants***	21.8	53.2
Health & Safety Issues for Infants		
Immunizations for infants***	25.5	93.5
Proper use of infant car seats***	30.9	64.5
Lead poisoning in infants***	20.0	64.5
Shaken Baby Syndrome	18.2	32.3
Safe Sleep		
Safe sleep practices***	36.4	77.4
Infant sleeping through the night***	23.6	71.0
Sudden Infant Death Syndrome (SIDS)*	34.5	54.8
Infant sleeping too much too little***	20.0	59.7

*** p < .001, ** p < .01, * p < .05 for chi-square comparisons of practice type

Table 10 presents the percentages of women at OB/GYN offices and parents at pediatric offices who received education on each topic by type of office.

Table 10

Infant Care Education Topics Received by Women at OB/GYN Offices and Parents at Pediatric Offices

	Type of Practice	
	OB/GYN	Pediatrics
Education topics	%	%
Infant Care		
Infant bowel & urination functions***	30.0	65.1
Bathing an infant***	37.4	48.5
Circumcision care***	34.8	48.7
Holding an infant	28.1	28.3
Diapering	26.5	28.3
Infant Development		
Umbilical core care***	41.9	61.9
Infant developmental milestones***	26.8	59.6
Comforting soothing an infant***	32.9	49.0
Bonding with an infant	39.6	38.6
Swaddling an infant	29.1	34.8
Thumb sucking by infants	17.3	20.6
Infant Feeding		
Breast feeding	65.8	64.9
Nutrition for infants***	46.0	70.2
Bottle feeding***	40.9	56.9
Spitting up by infant***	22.4	55.8
Solid food feeding to an infant***	20.8	52.5
Burping an infant***	28.4	44.5
Pacifiers use by infants***	25.6	40.4
Health & Safety Issues for Infants		
Immunizations for infants***	43.8	85.2
Shaken Baby Syndrome*	37.7	46.3
Proper use of infant car seats***	29.1	41.6
Lead poisoning in infants***	25.2	43.1
Infant Sleep		
Safe sleep practices***	45.0	73.5
Sudden Infant Death Syndrome (SIDS)*	46.6	54.3
Infant sleeping through the night***	25.2	54.3
Infant sleeping too much too little***	17.9	34.2

*** $p < .001$, ** $p < .01$, * $p < .05$ for chi-square comparisons of practice type

Parents at pediatric offices were more likely to indicate having received education at those offices on infant care topics than women at OB/GYN offices except for holding an infant and breast feeding where the percentage of respondents receiving

information was similar. Parents at pediatric offices were significantly more likely to indicate receiving information on health and safety issues for infants and on infant sleep practices. At pediatric offices, 73.5 percent of respondents said they had received information on safe sleep practices compared to 45.0 percent at OB/GYN offices; and 54.3 percent of respondents at pediatric offices had received information on SIDS compared to 46.6 percent at OB/GYN offices.

The number of education topics provided by staff/received by women at OB/GYN offices and parents at pediatric offices was counted. Table 11 presents the mean number of topics reported by staff and women at OB/GYN offices and staff and parents at pediatric offices. An analysis of variance found that pediatric offices (Type) provided a greater number of topics than OB/GYN offices. Women/parents and staff (Person) did not differ within office type on the number of topics reported to be provided. The interaction of office type and person was significant indicating that staff members at pediatric offices reported providing more education topics than parents reported receiving (Figure 2) while at OB/GYN offices the number of topics reported by staff and women respondents was not different.

Table 11

Number of Education Topics

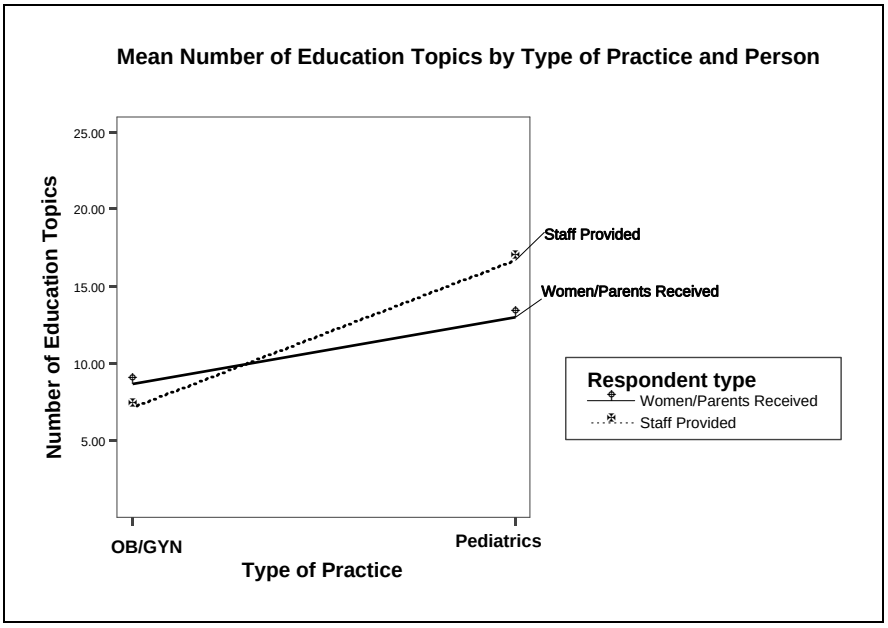
	Type of Practice			
	OB/GYN		Pediatrics	
	Respondent type		Respondent type	
	Women Received	Staff Provided	Parents Received	Staff Provided
Mean	8.65	7.11	13.00	16.36
Minimum	.00	1.00	.00	.00
Maximum	26.00	26.00	26.00	26.00
Std Deviation	8.94	7.52	7.15	7.44

Tests of Between-Subjects Effects

Dependent Variable: Number of Education Topics

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TYPE	4776.326	1	4776.326	75.404	.000
PERSON	111.595	1	111.595	1.762	.185
TYPE * PERSON	669.342	1	669.342	10.567	.001
Error	48457.571	765	63.343		
Total	149125.000	769			

Figure 2



Persons of Color and Caucasian respondents were compared on the number of education topics they reported receiving. Persons of Color reported receiving education on more topics (mean 12.8, SD = 8.1) than did Caucasian respondents (mean 10.4, SD = 8.3) ($F(1,649) = 8.79$, $p < .01$).

Over half of women were not first time mothers (57.1%). These women would be expected to have more opportunities for education on infant safe sleep practices and SIDS. However, the percentage of women who had been told about infant safe sleep practices and SIDS were not statistically significantly different between first time mothers and those with multiple pregnancies/children (Table 12).

Table 12

Infant Safe Sleep Education Provided to Mothers

		Safe sleep practices		Total	Sudden Infant Death Syndrome (SIDS)		Total
First baby		No	Yes		No	Yes	
	No	39.7%	60.3%	100.0%	51.1%	48.9%	100.0%
	Yes	40.6%	59.4%	100.0%	47.1%	52.9%	100.0%
Total		40.1%	59.9%	100.0%	49.4%	50.6%	100.0%

When first time mothers' responses about infant safe sleep practices and SIDS education are examined (Table 13), pediatrics offices were found to be more likely to provide education on infant safe sleep practices than OB/GYN offices (chi-square = 19.55, df = 1, $p < .001$). There were no significant difference between the two types of offices and the provision of education on SIDS to first time mothers.

Table 13

Infant Safe Sleep Education Provided to First Time Mothers

Type of Practice	Infant safe sleep practices		Total	Sudden Infant Death Syndrome (SIDS)		Total
	Not provided	Provided	%	Not provided	Provided	%
	%	%		%	%	
OB/GYN	55.4%	44.6%	100.0%	51.2%	48.8%	100.0%
Pediatrics	29.0%	71.0%	100.0%	43.9%	56.1%	100.0%

Safe Sleep Knowledge and Practices

Staff

Staff members were provided a list of six risk and four non-risk factors for sudden or unexpected death of an infant. They were asked to check all the factors they believed were risks for sudden or unexpected death of an infant. Table 14 presents the ten factors and the number and percent of incorrect/correct responses to each factor by staff members who provided patient education. Factors with a star (*) are risk factors for sudden or unexpected death of an infant. Eighty percent or more of the staff members who provide patient education correctly identified five of the six risk factors correctly. Less than half the staff members who provide patient education correctly identified 'warm room' as a risk factor. Staff members incorrectly identified drug and alcohol use during pregnancy as a risk factor in two-thirds or more of the surveys.

Table 14

Risk Factors[a]

	Incorrect		Correct	
	Number	%	Number	%
Maternal smoking during pregnancy*	21	18.6%	92	81.4%
Maternal illicit drug use during pregnancy	82	72.6%	31	27.4%
Maternal alcohol ingestion during pregnancy	72	63.7%	41	36.3%
Exposure to secondhand smoke in household*	16	14.2%	97	85.8%
Sleeping in a warm room (ie > 75 degrees)*	59	52.2%	54	47.8%
Advanced maternal age	20	17.7%	93	82.3%
Recent immunization	16	14.2%	97	85.8%
Sleeping in the prone (belly down) position*	5	4.4%	108	95.6%
Bed sharing with others*	13	11.5%	100	88.5%
Have soft bedding in crib*	5	4.4%	108	95.6%

a. * Risk factors

Table 15 presents the means number of correct infant safe sleep items by office type and role. Physicians and nurses identified more items correctly than did the technical clinical staff or non-clinical staff. An analysis of variance was run to test for differences in the mean number of correct items by staff role (excluding non-clinical

staff) and office type. There were significant differences in mean number of items correct by staff role and a significant interaction effect for office type and role. Figure 3 presents the interaction effect. Physicians and nurses did not differ in the mean of items correct but means for both physicians and nurses were significantly higher than those of technical clinical staff at pediatric offices. At OB/GYN offices, the technical clinical staff members were as knowledgeable as physicians and nurses.

Table 15

Practice TYPE by ROLE

Dependent Variable: Infant Safe Sleep Knowledge

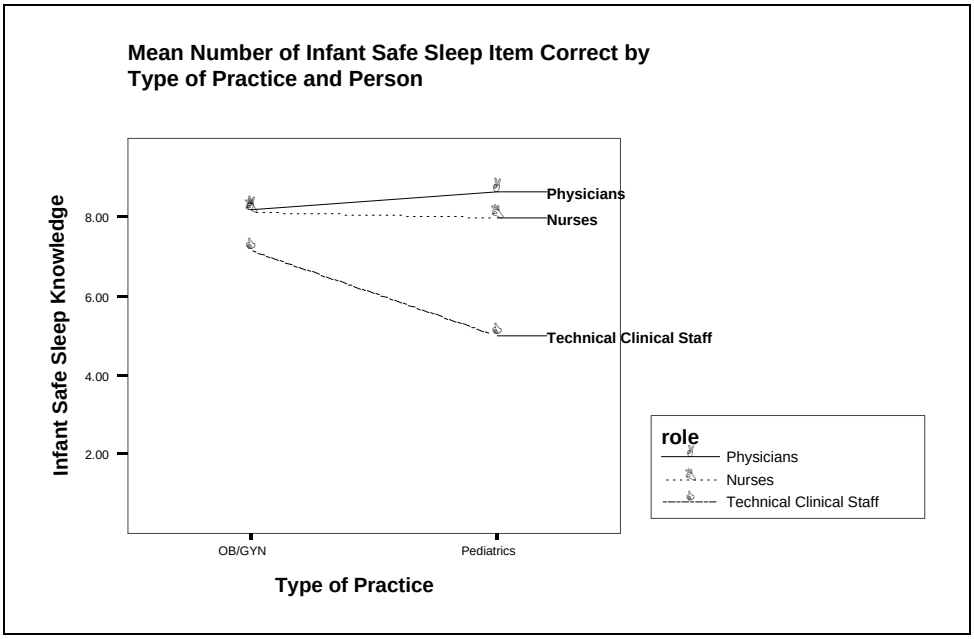
TYPE	ROLE	Mean
OB/GYN	Physicians	6.813
	Nurses	7.087
	Technical Clinical Staff	7.308
Pediatrics	Physicians	7.643
	Nurses	7.483
	Technical Clinical Staff	4.667

Tests of Between-Subjects Effects

Dependent Variable: Infant Safe Sleep Knowledge

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TYPE	5.813	1	5.813	1.622	.206
ROLE	35.930	2	17.965	5.013	.008
TYPE * ROLE	57.115	2	28.558	7.968	.001
Error	383.488	107	3.584		
Total	5809.000	113			

Figure 3



Staff members were asked to indicate which safe sleep practices they regularly discussed with women/parents from a list of 19 topics recommended by the 2005 American Academy of Pediatrics (Table 16). Back sleep and avoiding secondhand smoke were identified by over three-quarters of staff members as topics discussed with women/parents. About two-thirds of staff members indicating discussing crib conditions but only a third addressed issues related to separate but proximate sleeping environments and other sleeping environments issues. There were significant differences on several safe sleep practices by type of physician office (* items in Table 14). Most of these items related to crib practices and pediatric offices reported higher percentages of staff members who discussed these with parents. The one exception was 'not smoking during pregnancy' where OB/GYN offices reported more staff members discussing this with pregnant women.

Table 16
Safe Sleep Practices Discussed with Parents (a)

	OB/GYN	Pediatrics
	%	%
Avoiding second hand smoke for infants	80.0	77.0
Placing the infant on back for sleep*	61.8	91.8
Having the infant sleep in own bed*	58.2	77.0
Keeping soft objects out of crib*	43.6	83.6
Not smoking during pregnancy*	89.1	42.6
Removing loose bedding from crib*	45.5	80.3
Using a firm sleep surface for infant*	43.6	75.4
Proper use of car seats with infants*	41.8	73.8
Providing daily tummy time for awake infant*	36.4	72.1
Avoiding overheating*	36.4	54.1
Not sleeping with infant on couch or armchair	32.7	45.9
Separate but proximate sleeping environments	32.7	39.3
Using a pacifier at nap and bed time	30.9	29.5
Altering head positions during sleep*	18.2	41.0
Having infant sleep in same room with mother	32.7	24.6
Nursing/comforting infant in adult bed is acceptable	27.3	21.3
Use of home monitor not shown to reduce risk for SIDS	16.4	18.0
Avoiding excessive use of infant carriers & bouncers	16.4	16.4
Use of commercial devices not shown to reduce risk for SIDS	14.5	16.4
Don't talk with new mothers	7.3	4.9

a * Significant difference $p < .05$

Staff members were asked to rate how important they thought it was to teach safe sleep practice to women/parents on a five point scale (1 = very unimportant, 5 = very important). Table 17 presents the mean importance rating for staff that provided training by type of office. The mean rating for the importance of teaching safe sleep indicates that teaching staff felt it was important to teach safe sleep to pregnant women and parents. The difference between office types was not significant.

Table 17

	Importance of teaching infant safe sleep to patients		
	Mean	Standard Deviation	Median
OB/GYN	4.20	1.22	5.00
Pediatrics	4.16	1.53	5.00

Staff were also asked how often they provided information on safe sleep to women/parents on a five point scale (1 = never, 5 = always). Table 18 presents the mean rating of how often staff provided information on safe sleep. The mean rating for how often they taught safe sleep indicates that teaching staff at pediatric offices almost always taught parents about safe sleep while teaching staff at OB/GYN offices sometimes taught safe sleep to women. The difference between office types was significant (F(1,116 -14.48, p < .001).

Table 18

	How often provide information on infant safe sleep		
	Mean	Standard Deviation	Median
OB/GYN	3.11	1.27	3.00
Pediatrics	3.92	1.03	4.00

Women and Parents

Women/parents were asked several questions about how they plan to put their babies to sleep or put their babies to sleep. These included questions about sleep position, use of a crib, all the places where the baby sleeps, the room in which the baby sleeps, and items in the crib.

Sleep position. Over eighty percent of women/parents indicated that their baby was put to sleep on his or her back (Table 19). However, 16.7% of women/parents reported tummy or side sleep positions. Seventy-three percent (73.0%) of Persons of Color reported that their infant would be or was sleeping on his/her back compared to 86.1% Caucasians/Whites (Chi-square = 12.9, df = 2, p < .002). Infants sleeping on their tummy were only slightly older than those sleeping on their backs while those sleeping on their sides were the oldest infants.

Table 19

Infant Sleep Position

	%	Mean age in months
Back	83.3%	4.29
Tummy	6.5%	4.91
Side	9.9%	6.58
Back and side	.3%	1.25

Women who said they put there infants to sleep or would put their infants to sleep was compared for women who said they had received education on safe sleep practices with those who said they had not received education on this topic (Table 20).

Women who had received education on safe sleep practices were less likely to place their babies on their sides for sleep than women who did not receive education on safe sleep (Chi-square = 10.92, df = 2, p < .01).

Table 20 Sleep position by education on safe sleep

		Back		Tummy		Side	
		Count	Row N %	Count	Row N %	Count	Row N %
Education on safe sleep practices	No	207	79.3%	15	5.7%	39	14.9%
	Yes	333	86.0%	27	7.0%	27	7.0%

A logistic regression was used to identify factors associated with back sleep for infants less than or equal to 13 months in age and whose parent had completed a pediatric parent survey (n = 329). The dependent variable was baby sleep position – not on back (n=69, 20.9%) or yes on back (n = 260, 79.1%). The predictor variables are listed in Table 21.

Table 21 Predictor variables for the logistic regression

		Frequency
First baby	0 No	176
	1 Yes	153
Medicaid or MiChild	0 No	208
	1 Yes	121
Safe sleep practices education	0 No	84
	1 Yes	245
Sudden Infant Death Syndrome (SIDS) education	0 No	148
	1 Yes	181
Ethnicity	0 Not African American	243
	1 African American or person of color	86

Logistic regression results are in Table 22.The odds that a baby was put to sleep on his/her back was reduced by 0.37 times if the parent was Black; the odds increased by 2.67 times if the parent reported receiving education on safe sleep; and increased by 2.21 times if the baby was a first child. This suggests that African American parents are less likely to practice back sleep but education on safe sleep can increase the likelihood that the parent will practice back sleep. First time non-African American parents who received education on safe sleep have the greatest likelihood of placing their infants on their backs. Education on SIDS was not a significant predictor of back sleeping.

Table 22 Logistic regression results

Predictor							95.0% C.I.for EXP(B)	
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Ethnicity(1)	-.993	.336	8.734	1	.003	.370	.192	.716
Medicaid(1)	-.095	.328	.084	1	.772	.909	.478	1.730
Safe sleep practices education(1)	.981	.350	7.874	1	.005	2.668	1.344	5.295
SIDS education(1)	-.146	.326	.202	1	.653	.864	.456	1.635
First baby(1)	.793	.298	7.082	1	.008	2.211	1.233	3.966
Baby's age	-.061	.041	2.285	1	.131	.941	.869	1.018
Constant	1.014	.335	9.177	1	.002	2.758		

Use of crib. Nearly all women/parents reported that they would use or used a crib (94.4%). There were no significant differences between Persons of Color (90.6%) and Caucasians/White (96.5%) respondents in terms of use of cribs.

Sleeping locations. Women/parents were provided with a list of 14 places where babies might be put to sleep and were asked to check all the places where they put their babies to sleep or think they will put their babies to sleep (Table 23). Over ninety percent said their babies slept in cribs but only 24.2% reported putting their infant to sleep only in a crib. However, 22.1% of parents indicated that their babies slept in bed with others (their own bed, other children, other people, or pets[3]) and 9.6% said their babies slept on soft bedding (pillows or soft furniture). Persons of Color were less likely than Caucasians/Whites to report putting their babies to sleep in a: crib (86.2% vs. 97.3%; Chi-square = 27.4, df = 1, p < .001;); pack and play (21.0% vs. 48.9; Chi-square = 34.5, df = 1, p < .001); car seat (21.0% vs. 38.2; Chi-square = 14.1, df = 1, p < .001); or baby swing (20.3% vs. 37.6; Chi-square = 14.5, df = 1, p < .001). Thirty-four percent (34.1%) of Persons of Color reported that their infants slept or would sleep in the parent's bed compared to 18.6% reported by Caucasians/Whites (vs. Chi-square = 15.2, df = 1, p < .001).

Table 23

Sleep Locations

Where baby will sleep	Number	%
Crib or bassinet	617	95.5
Your bed	142	22.0
In bed with other children	6	.9
In bed with other people	10	1.5
In bed with pets	4	.6
On the floor	46	7.1
On a pillow	16	2.5
On soft furniture couch or chair	56	8.7
Pack & Play	279	43.2
Play pen	56	8.7
Portable crib	94	14.6
Infant car seat	225	34.8
Baby swing	220	34.1
Baby stroller	112	17.3
Total	646	100.0

Night sleep location. Sleeping in the parent's room in a bassinet or crib is considered to be the safest sleep practice. Women/parents were given five choices about where their babies slept at night. Over half (Table 24) indicated that their baby would sleep or slept in a crib or bassinet in the parent's bedroom. Another third indicated that the child would sleep or slept in his or her own room. Infants sleeping in their parent's room had a mean age of three months. Table 24 provides the age of the

[3] 144 parents check one or more items indicating that their baby slept with another. 144/652 = 22.1%

infants in months by night sleeping location. Infants that slept in their parent's room in a crib/bassinet were younger compared to those who slept in all other locations. Persons of Color were more likely to report that their babies slept or would sleep in their room in their bed than Caucasian/White respondents (Chi-square = 45.1 df = 4, p < .001).

Table 24

Sleeping Location at Night

	%	Mean age in months
Own bedroom	35.1%	5.94
Your bedroom in crib or bassinet	54.5%	3.21
Your bedroom your bed	5.9%	5.88
Crib or bassinet in room with other children	3.2%	6.14
Other	1.2%	4.14

Women/parents receiving Medicaid were more likely (67.8%) to report their babies slept in the parent's room in a crib/bassinet than non-Medicaid women/parents (48%). (Table 25)

Table 25

	Medicaid or MiChild	
	No	Yes
Baby's sleeping location at night	%	%
Own bedroom	43.0%	19.2%
Your bedroom in crib or bassinet	48.0%	67.8%
Your bedroom your bed	5.1%	7.5%
Crib or bassinet in room with other children	2.8%	4.2%
Other	1.1%	1.4%

Women who received Medicaid or MiChild slept with younger infants than those who did not receive Medicaid or MiChild (Table 26). The difference in mean infant age for Medicaid vs. non Medicaid was significant (F(4,330) = 7.62, p < .001).

Table 26

	Medicaid or MiChild	
	No	Yes
Baby's sleeping location at night	Mean	Mean
1 Own bedroom	5.89	6.21
2 Your bedroom in crib	2.34	4.08
3 Your bedroom your bed	6.78	4.52
4 Crib or bassinet in room	7.00	5.00
5 Other	4.50	3.67

Women/parents were given a list of 10 items and asked to check off all the items in their baby's crib or would be in the crib. Three quarters respondents reported the cribs would have or had only sheets and sixty percent would have or had one blanket (Table 25). However, 42.1% of respondents planned to use or used bumper pads. Persons of Color were more likely to report that they would have or had a pillow in the crib (7.2%) compared to Caucasians/White respondents (3.0%) (Chi-square = 13.0, df = 1, $p < .001$).

Table 25

Items in Crib

Items in crib	Number	%
Sheets	454	74.4
One blanket	366	60.0
More than one blanket	30	4.9
Toys	26	4.3
Bumper pads	257	42.1
Pillow	18	3.0
Extra diapers or clothes	9	1.5
Quilt or comforter	30	4.9
Sheep skin	5	.8
Baby bottles	17	2.8
Total	610	100.0

Limitations

Practices were selected to provide a diversity of patients in terms of demographics and type of insurance coverage (private vs. Medicaid). However, the number of practices and locations limits the generalizability of the findings to the practices studied. The pattern of results suggests that similar results would be found for other urban practices with diverse patient populations but we cannot conclude with certainty that this would be the case. The pattern of results may suggest areas where improvements in patient and medical professional.education may be needed.