

Newborn Anticipatory Guidance Delivered at Office-based vs. Home Nurse Visits

Jessica S. Beiler^{1*}, Eric W. Schaefer², Nancy Alleman³ and Ian M. Paul^{1,2}

¹Department of Pediatrics, Penn State College of Medicine, 500 University Drive, Hershey, Pennsylvania, USA

²Public Health Sciences, Penn State College of Medicine, Hershey, Pennsylvania, USA

³Visiting Nurse Association of Central Pennsylvania, Harrisburg, Pennsylvania, USA

Abstract

Objective: To compare anticipatory guidance delivery at primary care office and Home Nursing Visits (HNV) in the first week after birth.

Methods: As part of a randomized, controlled trial comparing office-based care with a model where the initial outpatient encounter was a HNV, data were collected on visit content. During the study's 2 week telephone interview, mothers were asked whether selected items from the textbook, *Bright Futures*, were covered at their initial post-discharge visit. Questions covered each of the first week anticipatory guidance categories: newborn sleep, newborn care, safety, and nutritional adequacy. Chi-squared tests were used to compare frequency of anticipatory guidance delivery between randomized groups.

Results: Of the 1154 mothers enrolled, 1077 (93.3%) completed the telephone interview. Mothers in the HNV group were significantly more likely to report receiving information on anticipatory guidance topics: Infant Sleep Position (67.4% vs. 84.9%; $p < .001$), Umbilical Cord Care (72.8% vs. 84.9%; $p < .001$), Fever/Temperature Taking (69.0% vs. 84.0%; $p < .001$), Car Seat Position (50.3% vs. 64.5%; $p < .001$), and Feeding (82.2% vs. 89.0%; $p < .002$).

Conclusions: In a comparison of two models of care after nursery discharge, significantly more mothers recalled receiving newborn anticipatory guidance at HNVs than those attending newborn office-based primary care visits.

Keywords: Newborn; Health service utilization; Health care delivery/access; Anticipatory guidance; Maternal and child health

What's New

A single home nursing visit after the newborn hospital stay provides mothers with significantly more newborn anticipatory guidance than a routine office-based visit.

Introduction

Anticipatory guidance provided at pediatric health maintenance visits is considered part of the core of preventive pediatric care that helps parents know what to expect as their child grows and become better caregivers [1,2]. Unfortunately, primary care providers have little time to discuss guidance topics at routine health care visits [2-4] and parents have difficulty retaining the information given [4]. Alternatives to primary care providers delivering anticipatory guidance at office visits have been explored. A few recent examples include baby books with safety information [3] or computer centers in the waiting room [5].

A critical time for the delivery of anticipatory guidance is the initial office visit that follows the newborn nursery hospitalization. At these office visits, primary care providers usually perform a medical history and physical examination, assess the family psychosocial status, and provide anticipatory guidance. Anecdotally, these visits are typically 10-20 minutes long. An alternative model of care for the initial newborn outpatient visit utilizes a Home Nursing Visit (HNV). The HNV has the advantage of being in the family's home, providing similar care as an office-based visit with fewer time constraints and potentially fewer distractions for the healthcare provider. As such, the objective of this analysis was to compare maternal recall of outpatient newborn anticipatory guidance delivery in two different models of care: typical Office-Based Care (OBC) and HNVs.

Methods

Participant

Mother-newborn dyads with deliveries at the Penn State Milton S. Hershey Medical Center (Hershey, PA) between September 12, 2006 and August 1, 2009 were screened for participation in the Nurses for Infants Through Teaching and Assessment after the Nursery (NITTANY) study [6]. Eligible newborns were singletons and twins born at ≥ 34 weeks gestational age to English-speaking mothers attempting to breastfeed during the maternity stay and with intent to continue breastfeeding after discharge. Additional inclusion/exclusion criteria and other details are provided in the study's primary outcome manuscript [6]. The study was approved by Penn State College of Medicine's Human Subjects Protection Office, and registered at <http://www.clinicaltrials.gov> prior to the first participant's enrolment.

Study design

Participating mothers and their newborns were randomized to either the OBC or HNV groups after informed consent was obtained. Following recommendations of two AAP policy statements at the time the trial began [7,8]. HNVs were scheduled to occur within 48 hours of

***Corresponding author:** Jessica S. Beiler, MPH Department of Pediatrics, SB35, Penn State College of Medicine, 500 University Drive, Hershey, PA- 17033, USA, Tel: 717-531-1260; Fax: 717-531-0486; E-mail: jbeiler@hmc.psu.edu

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discharge, typically 3-5 days after childbirth. All HNV were conducted by one of seven maternal-child health nurses employed by a single, private home health nurse organization. Before hospital discharge, an office visit was also scheduled for HNV group newborns approximately one week following the HNV in order to establish a medical home for the newborn and to ensure recovery from expected, initial weight loss after birth. Depending on individual circumstances (e.g. day of week, gestational age, early discharge), these visits were scheduled to occur 5-14 days after birth. Post-discharge visit timing for OBC newborns was determined by the newborn nursery physician, and maternal office follow-up was scheduled by the obstetricians for both study groups.

HNVs followed a standard, maternal/child newborn visit protocol that included anticipatory guidance topics for both the mother and the infant. HNVs lasted approximately 90 minutes with an average of 45 minutes spent on the infant portion of the visit. OBC was provided by primary care providers.

Data collection

Mothers were contacted by blinded study staff for both care models at a 2 week (post-delivery) telephone survey. Mothers were asked if selected anticipatory guidance topics from the AAP textbook *Bright Futures* were discussed at their initial post-discharge visit [9]. Selected infant topics included newborn sleep (specifically infant sleep position), newborn care (umbilical cord care and fever), safety (car seat position), and nutritional adequacy (feeding their baby).

Selected maternal guidance topics including pain, breastfeeding, stress/anxiety/depression, social support, and nutrition/diet were also recorded for the HNV group.

Statistical analysis

Chi-squared tests were used to test whether the percentages of mothers that reported receiving information about anticipatory guidance topics differed between randomized study groups (HNV vs. OBC) and between parity groups (primiparous vs. multiparous mothers). The analysis by parity group was done separately by study group. All comparisons were done using the intent-to-treat paradigm.

Results

1154 mothers intending to breastfeed during the maternity stay participated in the trial, of whom 576 (49.9%) were randomized to receive a HNV after discharge. As reported previously, the mean maternal age was 29.0 ± 5.5 years, and the majority of women were married, privately insured, and non-Hispanic, White [6]. Nearly 50% were primiparous, and study groups were similar with respect to education, breastfeeding experience, depression and anxiety.

With 15 (1.3%) twin deliveries, 1169 newborns participated in the trial with a mean gestational age of 39.2 ± 1.2 weeks. The median newborn length of stay was 49 hours (interquartile range 40-63 hours) and 77.4% of mothers planned to exclusively breastfeed after discharge.

Anticipatory guidance topics

1077 of the 1154 enrolled mothers (93.3%) completed the 2 week telephone interview. Among those completing the interview, significantly more newborn anticipatory guidance was provided to mothers at the initial visit in the HNV group than to those in the OBC group (Table 1). Information on both infant sleep position and umbilical cord care was recalled by 462 mothers (84.9%) in the HNV group compared with 359 (67.4%) and 388 (72.8%) mothers respectively in the OBC group ($p < .001$). Fever temperature taking advice was reported by 457 (84.0%) mothers in the HNV group and 368 (50.3%) mothers in the OBC group ($p < .001$). Guidance on car seat position was reported by 351 (64.5%) mothers in the HNV group and 268 (50.3%) mothers in the OBC group ($p < .001$). Finally, feeding information was given to more than 80% of the mothers in both groups, but the HNV group had a larger percentage (89.0% vs. 82.2%; $p = .002$).

Anticipatory guidance topics by parity

Parity between groups was similar with 46.4% (OBC) and 48.6% (HNV) being primiparous. To test the hypothesis that first time mothers received more guidance in both care models than mothers with previous child rearing experience, anticipatory guidance categories (sleep, care, safety, nutrition) were compared by parity group, separately, within each care model group (Table 2). Primiparous mothers in the OBC group reported receiving significantly more guidance on umbilical cord care than multiparous mothers (78.9% vs. 67.7%, $p = .004$). Feeding advice was non-significant but marginally different by parity in the OBC group with more advice given to primiparous mothers (85.5% vs. 79.4%, $p = .06$). No significant differences were seen in the HNV group based on parity. The differences in percentages receiving guidance between parity groups for OBC were greater (0.8%, 3.3%, 3.7%, 6.1%, and 11.2%) compared with HNV (0.3%, 0.7%, 1.2%, 1.5% and 1.9%), indicating that mothers in HNV were more likely to report similar guidance advice regardless of parity group.

Maternal anticipatory guidance at HNV

Maternal anticipatory guidance was recorded only for mothers receiving a HNV. A majority of the mothers reported being asked if they were having pain (79.2%) and if they had enough support or were experiencing any anxiety or depression (68.4%). 62.5% of mothers reported being given information on their nutrition and diet, and a breastfeeding session was observed for 47.0% of these mothers.

Discussion

The results of this study show that newborn anticipatory guidance was more likely to be reported by mothers receiving HNVs than OBC during the first visit after maternity/nursery discharge. In addition, the percentage of mothers reporting anticipatory guidance was more similar between multiparous and primiparous mothers in the HNV group than in the OBC group. These findings may help to explain the significantly greater parenting sense of competence 2 weeks after delivery that we have previously reported among participating mothers in the HNV group of this randomized trial [6].

Bright Futures Guidance Category	Office- Based Care (n=533)	Home Nursing Visit (n=544)	p
Newborn Sleep- Infant Sleep Position, N (%)	359 (67.4)	462 (84.9)	<0.001
Newborn Care- Umbilical Cord Care, N (%)	388 (72.8)	462 (84.9)	<0.001
Newborn Care- Fever & Temperature Taking, N (%)	368 (69.0)	457 (84.0)	<0.001
Safety- Car Seat Position, N (%)	268 (50.3)	351 (64.5)	<0.001
Nutritional Adequacy- Feeding your baby, N (%)	438 (82.2)	484 (89.0)	0.002

Table 1: Anticipatory Guidance Reported by Mothers at 2 weeks Post-delivery by Group.

Bright Futures Guidance Category	Office-Based care (n=533)	p	Home Nursing Visit (n=544)	p
Newborn Sleep- Infant Sleep Position, N (%)				
-First time mother	162 (66.9)	0.85	225 (84.6)	0.83
-No Guidance recalled	80 (33.1)		41 (15.4)	
->1 child	197 (67.7)		237 (85.3)	
-No Guidance recalled	94 (32.3)		41 (14.7)	
Newborn Care- Umbilical Cord Care, N (%)				
-First time mother	191 (78.9)	0.004	228 (85.7)	0.62
-No Guidance recalled	51 (21.1)		38 (14.3)	
->1 child	197 (67.7)		234 (84.2)	
-No Guidance recalled	94 (32.3)		44 (15.8)	
Newborn Sleep- Fever & Temperature Taking, N (%)				
-First time mother	171 (71.1)	0.35	226 (85.0)	0.55
-No Guidance recalled	70 (28.9)		40 (15.0)	
->1 child	197 (67.4)		231 (83.1)	
-No Guidance recalled	95 (32.3)		47 (16.9)	
Newborn Sleep- Car Seat Position N (%)				
-First time mother	126 (52.1)	0.45	170 (63.9)	0.77
-No Guidance recalled	116 (47.9)		96 (36.1)	
->1 child	142 (48.8)		181 (65.1)	
-No Guidance recalled	149 (51.2)		97 (34.9)	
Newborn Sleep- Feeding your baby, N (%)				
-First time mother	207 (85.5)	0.06	237 (89.1)	0.93
-No Guidance recalled	35 (14.5)		29 (10.9)	
->1 child	231 (79.4)		247 (88.8)	
-No Guidance recalled	60 (20.6)		31 (11.2)	

Table 2: Anticipatory Guidance: First time Mothers compared with mother of at least 1 child.

Our data demonstrating that fewer multiparous mothers received advice in the OBC group is somewhat concerning. Changes over the past 25 years regarding recommendations for newborn sleep position, vitamin D supplementation, and child safety seat use (rear facing until 2 years) all reinforce the need for guidance delivery with each new child.

One reason for incomplete or inconsistent delivery of anticipatory guidance in OBC may be the time constraints of these visits [10]. Multiple studies have shown that paediatricians have very limited time to discuss guidance topics at well child visits, averaging about 10-60 seconds per topic [11,12] or less than 2½ minutes total [2,13-16]. Surveys of paediatricians indicate a struggle to provide all of the recommended advice in the allotted time [17]. Indeed, Sanghavi has suggested that the time constraints of office visits are “perhaps the greatest barrier to effective anticipatory guidance” [5]. HNVs conducted for this study were typically 60-90 minutes by report with approximately half of the visit devoted to each the infant and the mother. While our study did not collect data on the content of maternal anticipatory guidance and care at OBC visits, the data demonstrating receipt of such care at HNVs demonstrates the additional benefits gained through the extra time spent by nurses. In comparison, though the average time of the OBC initial newborn visit was not collected as part of this study, a 2011 publication reported that nearly half of parents (47.1%) reported their well child visit lasting between 11-20 minutes [18].

Surveys also found that with regard to anticipatory guidance delivery, a majority of pediatricians (54-60%) agreed that in “an ideal system... non-physicians would provide these services” [4] and suggest outsourcing to community partners as a viable option to providing guidance [15]. A survey of parents on anticipatory guidance provided by pediatricians show that parents want more information and concludes that the “American system of providing anticipatory guidance in the medical setting may not be the most beneficial and effective” [19].

The results of this study are limited due to maternal report and the potential for recall bias as some studies suggest that parents do not retain guidance information given at pediatric appointments [14,19]. Alternatively, a survey done by Combs-Orne found that the majority of caregivers can recount specific anticipatory guidance information

delivered by their healthcare providers [19]. Information was not collected on guidance given at pre-natal or nursery visits, that may impact maternal recall if provided prior to the OBC or HNV defined in this study. It is also possible that primary care providers may be giving appropriate guidance but without sufficient time to discuss or reinforce the information and, therefore, parents may have difficulty absorbing the messages. One final limitation is that parents were not blinded to their study group.

Conclusions

HNVs are more effective than OBC for anticipatory guidance delivery following newborn hospital discharge.

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References

- Nelson CS, Wissow LS, Cheng TL (2003) Effectiveness of anticipatory guidance: recent developments. *Curr Opin Pediatr* 15: 630-635.
- Rosenthal MS, Lannon CM, Stuart JM, Brown L, Miller WC, et al. (2005) A Randomized Trial of Practice-Based Education to Improve Delivery Systems for Anticipatory Guidance. *Arch Pediatr Adolesc Med* 159: 456-463.
- Reich SM, Bickman L, Saville BR, Alvarez J (2010) The effectiveness of baby books for providing pediatric anticipatory guidance to new mothers. *Pediatrics* 125: 997-1002.
- Coker T, Casalino LP, Alexander GC, Lantos J (2006) Should our well-child care system be redesigned? A national survey of pediatricians. *Pediatrics* 118: 1852-1857.
- Sanghavi DM (2005) Taking well-child care into the 21st century: a novel, effective method for improving parent knowledge using computerized tutorials. *Arch Pediatr Adolesc Med* 159: 482-485.
- Paul IM, Beiler JS, Schaefer EW, Hollenbeak CS, Alleman N, et al. (2012) A randomized trial of single home nursing visits vs office-based care after nursery/

- maternity discharge: the Nurses for Infants Through Teaching and Assessment After the Nursery (NITTANY) Study. Arch Pediatr Adolesc Med 166: 263-270.
7. American Academy of Pediatrics (2004) Hospitals stay for healthy term newborns Committee on Fetus and Newborn. Pediatrics 113: 1434-1436.
 8. American Academy of Pediatrics Committee on Fetus and Newborn. (2010) Hospital stay for healthy term newborns. Pediatrics 125: 405-409.
 9. Hagan JF, Shaw JS, Duncan PM (2008) Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents. (3rd edn), American Academy of Pediatrics.
 10. Galuska DA, Fulton JE, Powell KE, Burgeson CR, Pratt M, et al. (2002) Pediatrician counseling about preventive health topics: results from the Physicians' Practices Survey, 1998-1999. Pediatrics 109: E83-83.
 11. Manning KM, Ariza AJ, Massimino TK, Binns HJ; Pediatric Practice Research Group (2009) Health supervision visits of very young children: time addressing 3 key topics. Clin Pediatr (Phila) 48: 931-938.
 12. Gielen AC, McDonald EM, Forrest CB, Harvilchuck JD, Wissow L (1997) Injury prevention counseling in an urban pediatric clinic. Analysis of audiotaped visits. Arch Pediatr Adolesc Med 151: 146-151.
 13. Glascoe FP, Oberklaid F, Dworkin PH, Trimm F. (1998) Brief Approaches to Educating Patients and Parents in Primary Care. Pediatrics 101: e10.
 14. Reisinger KS, Bires JA (1980) Anticipatory guidance in pediatric practice. Pediatrics 66: 889-892.
 15. Taylor JA, Davis RL, Kemper KJ (1997) Health Care Utilization and Health Status in High Risk Children Randomized to Receive Group or Individual Well Child Care. Pediatrics 100: e1.
 16. Goldstein EN, Dworkin PH, Bernstein B (1999) Time Devoted to Anticipatory Guidance During Child Health Supervision Visits: How are we doing? Ambul Child Health 5: 113-120.
 17. Belamarich PF, Gandica R, Stein RE, Racine AD (2006) Drowning in a sea of advice: pediatricians and American Academy of Pediatrics policy statements. Pediatrics 118: e964-978.
 18. Halfon N, Stevens GD, Larson K, Olson LM (2011) Duration of a well-child visit: association with content, family-centeredness, and satisfaction. Pediatrics 128: 657-664.
 19. Combs-Orne T, Nixon BH, Herrod HG (2011) Anticipatory Guidance and Early Child Development: Pediatrician Advice, Parent Behaviors, and Unmet Needs as Reported by Parents from Different Backgrounds. Clin Pediatr 50: 729-737.

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