Evaluating Educational Needs of Parents at Newborn Discharge: A Pilot Study

Alanna Staiman, Brendan D. Crawford, MD, Kyle K. McClain, BA, Theresa B. Gattari, BA, Kerry P. Mychaliska, MD

OBJECTIVE: The delivery of anticipatory guidance regarding newborn care is a standard practice for pediatricians. The purpose of this prospective study was to analyze the preexisting knowledge of routine newborn care in postpartum mothers.

METHODS: Inclusion criteria included all postpartum mothers of live-born infants at least two hours following delivery that had not yet received formal instruction in newborn care. Each eligible mother that agreed to the voluntary survey was asked four multiple-choice questions which evaluated her knowledge of newborn care. The four questions addressed knowledge of safe sleep, car seat position, feeding behavior, and neonatal fever. A standardized template was used to ensure validity. Results were recorded in Microsoft Excel.

RESULTS: Of the study population, 42% (55/131) of surveyed mothers were first-time mothers. Overall, results of the survey demonstrated that postpartum mothers answered the surveyed questions correctly 88% of the time previous to receiving anticipatory guidance.

CONCLUSIONS: Postpartum mothers appear to have a high preexisting knowledge of routine newborn care in this study. Further studies are needed to determine if postpartum mothers’ knowledge base increases with inpatient education.
The hospital stay of the mother and her healthy term newborn infant should be long enough to allow identification of early problems and to ensure that the family is able and prepared to care for the infant at home. According to the American Academy of Pediatrics (AAP) guideline, the discharge readiness checklist includes a normal physical examination, 2 successful feedings of the infant, sleep schedules, when to bathe, the mother’s knowledge and confidence to provide adequate care for her infant, and a safe home environment. At many academic medical centers, standard practice also involves a discharge discussion that traditionally covers feeding, elimination, bathing and umbilical cord care, sleep habits, and injury prevention.

Early newborn discharge, the practice of discharging newborns and mothers from the hospital at <48 hours after delivery, resulted in one of the most widely discussed public policy changes affecting pediatrics in the past decade. Although mother-infant dyads used to remain inpatient for several days after the birth of the infant, they are now being discharged much earlier. In the western United States, stays of 12 to 24 hours or less after uncomplicated vaginal birth and 48 to 72 hours after uncomplicated cesarean delivery are now standard. With early newborn discharges, the same number of tasks recommended by the AAP need to be performed in a shorter period of time, requiring that we use that time in the best way possible to prepare the family for discharge home.

The purpose of our study was to examine mothers’ preexisting knowledge of newborn care to better determine the needs of anticipatory guidance via an educational talk during a short inpatient newborn stay.

**METHODS**

The Institutional Review Board at the University of Michigan Medical School (IRBMED) HUM000589494 approved this Health Insurance Portability and Accountability Act–compliant study. This 12-month prospective study collected data at the University of Michigan C.S. Mott Children’s Hospital in Ann Arbor, Michigan on weekdays, including weekends. Inclusion criteria included any English-speaking inpatient mother who gave birth to a live infant, was admitted to the hospital newborn medicine service, and was >2 hours postpartum. Exclusion criteria included any inpatient mother who was non-English speaking, had already received a newborn educational talk by a member of the pediatric team, as well as newborns admitted to private community pediatrics or transferred to the NICU. Informed consent was obtained from all mothers; participation was strictly voluntary.

Each day, a member of the study team identified eligible mothers via TraceVue (Koninklijke Philips Electronics N.V., Germany), an electronic medical system that records the date and time of every newborn’s birth, as well as all demographic information and patient location. A study team member obtained consent from eligible mothers. If mothers were unavailable, a study team member returned at a later time, making a maximum of 3 attempts.

Each consented mother was administered a standardized 4-question survey designed to assess her infant care knowledge (Fig 1). The survey was scripted and included an introduction and the purpose of the study. These 4 questions were chosen as they were determined to present the greatest risk to the neonate if the parents were uneducated on these topics: proper car seat usage, sleep positioning, fever threshold (defined as 100.4°F/38°C), and proper feeding intervals during the first week of life.

The verbal answers recorded by hand on the paper survey sheets were then transferred to a Microsoft Excel (Microsoft, Redmond, WA) spreadsheet. The data were analyzed and presented as descriptive statistics. A further subanalysis related to the mother’s parity was performed in the same manner. A $\chi^2$ test was conducted to evaluate the statistical difference in question responses between primiparous and multiparous mothers.

**RESULTS**

During the 12-month study period, 131 postpartum mothers were determined eligible and informed consent was obtained. Fifty-five (42%) of the 131 surveyed mothers were first-time mothers.

Overall, 461 (88%) of 524 questions were answered correctly; individual question responses answered correctly are presented in Fig 2. A subanalysis of the data looking specifically at primiparous and multiparous mothers is also included in Fig 2. A $\chi^2$ test comparing multiparous ($n = 76$) and primiparous ($n = 55$) mothers’ correct responses to the 4 survey questions revealed no statistically significant difference in their responses ($P = .8118$).

Our study population was a random sample; however, demographic data of all postpartum mothers during our study period at C.S. Mott Children’s Hospital are recorded in Table 1.

**DISCUSSION**

The immediate newborn period represents a critical time for recovery and formation of newborn infant feeding practices. Therefore, providers should be thoughtful as to how this postpartum hospital time is used. This study examined mothers’ preexisting knowledge of newborn care to better determine the needs of anticipatory guidance via an educational talk in the inpatient newborn hospital setting. This prospective study demonstrated that, overall, mothers possess infant care knowledge regarding safe sleep position, car seat safety, newborn feeding behavior, and neonatal fever 88% of the time before receiving inpatient newborn education. Given the high background knowledge observed in this survey study, the necessity of giving an educational discharge talk to mothers during their brief postpartum hospitalization may need to be reconsidered.

The AAP policy statement on hospital stays for healthy term newborns states that the pediatrician’s primary role is to ensure the health and well-being of the infant in the context of the family. As such, the policy recommends that 17 minimum criteria are met before discharge of a term newborn, defined as an infant born between 37-0/7 and 41-6/7 weeks of gestation after an uncomplicated pregnancy, labor, and delivery. In terms of maternal education, the policy recommends that the providers document the mother’s knowledge, ability, and confidence to provide adequate care for her newborn in 7 specific areas: breastfeeding, urination/stooling, umbilical cord care, temperature
assessments, signs of illness, infant safety, and hand hygiene. The policy does not, however, provide specific guidelines regarding content, timing, or mode of delivery. In examining how to accomplish this recommendation, the literature was reviewed. Currently available literature provides little scientific evidence to guide discharge planning for most apparently well newborns and their mothers.

Cochrane Review (2013) assessed the effects of postnatal education related to general infant health and concluded that the benefits of educational programs to participants and their newborns remain unclear. In contemporary times, providing preventive advice is called anticipatory guidance, and it is an integral part of well-child care. Anticipatory guidance is the cornerstone of child health supervision, and along with growth/development, monitoring, and immunizations, it forms the core of pediatric prevention. Schuster et al. reported that parents value anticipatory guidance and most parents in their study would be willing to pay for more information. This observation supports the idea that parents like clinicians to provide anticipatory guidance. Although current literature suggests that pediatricians and parents agree anticipatory guidance is important, they do require an element of time and may not be most effectively relayed during a short, busy inpatient hospitalization. It takes time to cover multiple aspects of anticipatory guidance and to answer parents’ follow-up questions.

FIGURE 1 “Neonatal Anticipatory Guidance” survey.
Nevertheless, it behooves providers to find the best mechanism to provide this information, as anticipatory guidance has been shown to improve health outcomes and it has the potential to completely change the course of a patient’s care. Like any study, our project had limitations. For our study patient population, marital status, age, and race were not self-reported. This may have limited the generalizability of our results. However, demographic data of all postpartum mothers during our study period at C.S. Mott Children’s Hospital and Von Voigtlander Women’s Hospital were obtained and reported. Second, newborn birth times were variable; whether birth time affected a mother’s ability to answer questions correctly was not addressed in this study. Third, in the current climate of short hospital stays, it is a challenge for health care providers to accomplish all of the postpartum newborn care. Discharge talks given by a health care provider were not timed during this study; therefore, it is not possible to report whether the length of the talk negatively affected the inpatient newborn hospital stay. Furthermore, there were 2 problems with the phrasing of the final survey question regarding neonatal fever threshold. First, the question was written in Fahrenheit and some mothers preferred Celsius. Second, due to poor wording, all mothers reported an answer that demonstrated they would call their pediatrician at or below the temperature of a neonatal fever. Due to the structure of the question, we created a situation in which we could not assess if some mothers had a threshold for calling the pediatrician at a temperature >100.4°F.

Last, future studies are needed to examine whether inpatient education increases parental knowledge, whether knowledge affects behavior and outcomes, and the most effective mechanism for delivering anticipatory guidance. Reich et al assessed whether embedding pediatric anticipatory guidance into books read to infants was an effective way to educate low-income, first-time mothers about injury-prevention and health-promotion practices. The authors concluded that books read by mothers to infants seemed to be an effective way to provide anticipatory guidance. However, they stated that future work is needed to determine if increased knowledge translates into safer and more developmentally appropriate parenting practices. Using video-based interventions, Paradis and colleagues studied the effects of different media forms on neonatal anticipatory guidance. The authors found that media-based learning in the primary care office is feasible and well accepted, and can have a positive impact on its target audience. Parents receiving the video intervention rated higher confidence with specific infant care skills and reported feeling better prepared to care for their infant compared with parents in the control group who received anticipatory guidance via standard methods. Videos, mobile phone applications, Web sites, and other venues should be explored as options for providing anticipatory guidance to families.

In conclusion, postpartum mothers appeared to have a high preexisting...
knowledge of routine newborn care in our study. As mentioned previously, future studies are warranted to best determine how and when to provide newborn parental education.

REFERENCES


Evaluating Educational Needs of Parents at Newborn Discharge: A Pilot Study  
Alanna Staiman, Brendan D. Crawford, Kyle K. McLain, Theresa B. Gattari and  
Kerry P. Mychaliska  
*Hospital Pediatrics* 2016;6;310  
DOI: 10.1542/hpeds.2015-0197 originally published online January 1, 2016;

<table>
<thead>
<tr>
<th>Updated Information &amp; Services</th>
<th>including high resolution figures, can be found at: <a href="http://hosppeds.aappublications.org/content/6/5/310">http://hosppeds.aappublications.org/content/6/5/310</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>References</td>
<td>This article cites 10 articles, 6 of which you can access for free at: <a href="http://hosppeds.aappublications.org/content/6/5/310#BIBL">http://hosppeds.aappublications.org/content/6/5/310#BIBL</a></td>
</tr>
</tbody>
</table>
| Subspecialty Collections      | This article, along with others on similar topics, appears in the following collection(s):  
Patient Education/Patient Safety/Public Education  
| Permissions & Licensing       | Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://hosppeds.aappublications.org/site/misc/Permissions.xhtml |
| Reprints                      | Information about ordering reprints can be found online: http://hosppeds.aappublications.org/site/misc/reprints.xhtml |
Evaluating Educational Needs of Parents at Newborn Discharge: A Pilot Study
Alanna Staiman, Brendan D. Crawford, Kyle K. McLain, Theresa B. Gattari and Kerry P. Mychaliska
Hospital Pediatrics 2016;6;310
DOI: 10.1542/hpeds.2015-0197 originally published online January 1, 2016;

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://hosppeds.aappublications.org/content/6/5/310

Hospital Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 2012. Hospital Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2016 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 2154-1663.