Evaluation of an Office Protocol to Increase Exclusivity of Breastfeeding

abstract

OBJECTIVE: The purpose of this study was to determine whether implementing a program based on a clinical protocol affects breastfeeding rates within a pediatric primary care setting. Increasing breastfeeding rates is an important public health initiative identified by multiple agencies.

METHODS: The Academy of Breastfeeding Medicine (ABM) clinical protocol (“The Breastfeeding-Friendly Physician’s Office, Part 1: Optimizing Care for Infants and Children”) was used as a template for the provision of breastfeeding services within a pediatric primary care clinic. There were 757 mother–infant pairs included in the study. A retrospective before-and-after study design was used. Data collection points included the hospital stay, the newborn visit, and the 2-, 4-, and 6-month health maintenance visits. The 2 groups were compared to estimate the protocol’s effectiveness as a method of increasing breastfeeding rates.

RESULTS: The results of this evaluation were positive for exclusive breastfeeding, with group comparisons showing a statistically significant increase in exclusive breastfeeding rates at all 5 time points.

CONCLUSIONS: Our diverse patient population within a pediatric practice had increased initiation rates and exclusive breastfeeding rates after implementation of the ABM’s breastfeeding-friendly protocol. Families who receive care in a pediatric primary care setting that has implemented the ABM clinical protocol may have increased rates of exclusive breastfeeding. Pediatrics 2013;131:942–950
Increasing breastfeeding exclusivity and duration is an important public health initiative. The Centers for Disease Control and Prevention’s 2012 Breastfeeding Report Card reveals 76.9% of women are initiating breastfeeding in the early postpartum period; however, exclusivity and duration of breastfeeding rapidly decline within a short time period.

The American Academy of Pediatrics (AAP), the World Health Organization (WHO), the United Nations Children’s Fund, and the US Department of Health and Human Services have established increasing breastfeeding rates as imperative.

The 2011 US Surgeon General’s Call to Action to Support Breastfeeding endorses breastfeeding as the best nutrition for infants and details action items for the health care system as a mechanism for supporting breastfeeding families. The Call to Action implementation strategy for health care specifically states “models should be established to integrate assistance with breastfeeding into routine practice settings.”

The Academy of Breastfeeding Medicine (ABM) has published a clinical protocol, “The Breastfeeding-Friendly Physician’s Office, Part 1: Optimizing Care for Infants and Children.” This protocol provides guidance for implementing breastfeeding support in the primary care setting and was developed based on the WHO and United Nations Children’s Fund Baby-Friendly Hospital Initiative. The literature describes this initiative as a systematic intervention providing a positive predictor of breastfeeding initiation and duration.

Education of pediatricians was also identified as effective, along with lactation consultant support and maternal self-efficacy. The ABM protocol was chosen for the current study because it includes all of these components.

Cardosa et al implemented the Brazilian Breastfeeding-Friendly Primary Care Initiative, which is based on the WHO’s “Ten Steps to Successful Breastfeeding” in their pediatric primary care setting and found an increase in the rates of breastfeeding as well as reduced rates of disease in infants aged < 1 year. The primary care setting is well situated for the extension of hospital-based breastfeeding support in combination with the established AAP’s health maintenance visits. However, there are no known studies regarding the effect of a “breastfeeding-friendly” protocol in pediatric primary care in the United States.

The goal of the current study was to determine whether the use of a breastfeeding-friendly clinical protocol in a multicultural, suburban/rural US pediatric primary care setting would increase breastfeeding rates.

METHODS
Design
A retrospective before-and-after design was used. Retrospective data were collected from 2 groups of patients. The preintervention group included families visiting the primary care setting with their infant for regular health maintenance visits before implementation of the breastfeeding-friendly clinical protocol, and the postintervention group included those families cared for after the protocol was in place. The source of feeding was collected via record review by using 5 time points: the hospital stay, the initial outpatient newborn visit, and the 2-, 4-, and 6-month health maintenance visits.

For the purpose of this study, breastfeeding definitions are described as exclusive or any breastfeeding. Exclusive breastfeeding was defined as breast milk (including milk expressed) combined with any food or liquid including any non-human milk and formula.

Setting
The study was conducted within a pediatric primary care setting at 2 locations of a single practice. Both locations are in northern Virginia, 1 in a suburban area and the other in a rural setting. The populations accessing both offices comprise a general mix of socio-economic classes from upper-income families to poverty-level families. Because of its proximity to the Washington, DC, metropolitan area, there is a large commuter population, and families from many ethnicities are well represented. Populations accessing the rural setting also include families from West Virginia.

The clinics are staffed by 13 medical providers. The total practice population is ~13 000 patients with a patient flow of ~45 newborns entering the practice each month. The practice uses electronic medical records (EMRs), and specific information regarding nutrition is gathered at each health maintenance visit.

Sample
Power was calculated by using nQuery Advisor version 7.0 (Statistical Solutions Ltd, Cork, Ireland). For exclusive breastfeeding at 6 months, the anticipated 280 dyads per group would have 84% power to detect a pre–post increase in rates of 10 percentage points; that is, from the rate of 13% as estimated according to the 2010 CDC Report Card to 23% (a 77% rate increase). Larger samples were actually obtained, increasing the power to detect that same increase to 93%. Criteria for inclusion in the study were: healthy infants, ≥37 weeks’ gestation at time
of birth, singleton birth, who entered the practice within the first week of life, remained in the practice for at least the first 6 months of age, and returned for their health maintenance visits at 2, 4, and 6 months. Exclusion criteria included infants with congenital birth defects, preterm infants, multiple birth, infants not residing with their birth mother, who left the practice before 6 months of age, entered the practice at >1 week of age, had missing EMR data, or had mothers with a known contraindication to breastfeeding.

Convenience samples were obtained. For the preintervention group, all newborn records for the year 2008 were included, resulting in 516 mother–infant dyads. After applying exclusion criteria, 376 records remained for review. For the postintervention group, record review began in September 2010 and continued through June 2011, for a total of 509 mother–infant dyads. Once exclusion criteria were applied, 381 records remained for review. There were 140 newborns excluded from the preintervention group and 128 excluded from the postintervention group. Primary reasons for exclusions were: born at <37 weeks’ gestation, multiple births, and left the practice before 6 months of age (Table 1).

It was expected that due to the nature of EMRs and strict staff training, most data would be recorded. The University of Virginia institutional review board approved the study as exempt before any data collection.

### Intervention

Implementation of the protocol began in December 2009 and continued for 10 months. This protocol included staff training, written policies, on-site lactation consultant support, community outreach, and data tracking (Table 2). Major components of this protocol included use of an AAP/WHO-approved breastfeeding curriculum for training medical staff32 and direct support with an on-site International Board Certified Lactation Consultant (IBCLC) for all breastfeeding dyads. At the initial outpatient newborn visit, an EMR template was used to uncover and document indicators for professional lactation support such as excessive infant weight loss, breastfeeding concerns, or inadequate output of stool (Table 3).33,34 Subsequent health maintenance visits include components of this template to stimulate medical providers to refer for lactation services through 6 months of age. Treatment fidelity monitoring was conducted by a committee of nurse practitioners who were also IBCLCs. They monitored staff training, audited charts for protocol adherence, tracked newborn scheduling to maintain consistency, and ensured integrity of data collection.

Patients enter the practice at birth from the local hospital or outlying hospitals at their initial outpatient newborn visit. All breastfeeding dyads are scheduled with a registered nurse (RN), who is also an IBCLC, at the same time as their initial newborn appointment. This scheduling results in an extended visit allowing focused time with an IBCLC, followed by the established standard of care assessment by the medical provider. Specifically, breastfeeding dyads begin their visit with the RN-IBCLC who provides up to 1 hour of breastfeeding support comprising an initial assessment, direct assistance, and plans for continued support. They are seen in a specially equipped room that includes a precision scale to measure milk transfer, a comfortable chair, breastfeeding pillow, and supplies that may be needed by the IBCLC. On completion of this portion of the newborn visit, the IBCLC presents her findings to the medical provider who subsequently performs a standard newborn visit. The medical provider includes International Classification of Diseases, Ninth Revision, Clinical Modification billing codes associated with newborn feeding to submit this paired encounter to insurance for reimbursement.35,56 Mothers are instructed to return for additional support, as needed, throughout their breastfeeding time frame.

For all subsequent health maintenance as well as acute visits, any concerns regarding breastfeeding are expected to generate a referral for lactation services by the medical provider. Follow-up lactation visits are also scheduled for 1 hour, coupled with an examination by a medical provider, and billed to insurance.

A monthly “meet and greet” session is advertised to the community as an opportunity for families to view the setting and meet the providers. Breastfeeding services are highlighted; a tour of the facility is provided, along with provision of information regarding a monthly prenatal breastfeeding class and a weekly drop-in moms’ support group.

### TABLE 1 Excluded Mother–Infant Dyads

<table>
<thead>
<tr>
<th>Exclusion Criteria</th>
<th>Preintervention</th>
<th>Postintervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Born at &lt;37 wks’ gestation</td>
<td>24 (4.7)</td>
<td>28 (5.5)</td>
</tr>
<tr>
<td>Multiple birth</td>
<td>34 (6.6)</td>
<td>21 (4.1)</td>
</tr>
<tr>
<td>Left the practice before age 6 mo</td>
<td>54 (10.5)</td>
<td>44 (8.6)</td>
</tr>
<tr>
<td>Congenital birth defect</td>
<td>4 (0.8)</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Not living with birth mother</td>
<td>2 (0.4)</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Contraindication to breastfeeding</td>
<td>0% (0.0)</td>
<td>13 (2.6)</td>
</tr>
<tr>
<td>Entered practice at &gt;1 wk of age</td>
<td>10 (1.9)</td>
<td>4 (0.8)</td>
</tr>
<tr>
<td>Missing data</td>
<td>12 (2.3)</td>
<td>14 (2.8)</td>
</tr>
<tr>
<td>Total excluded</td>
<td>140 (27.1)</td>
<td>128 (25.1)</td>
</tr>
</tbody>
</table>

Data are presented as n (%).

a Percent excluded from the original sample of n = 516.
b Percent excluded from the original sample of n = 509.
TABLE 2  ABM Clinical Protocol Number 14 (Abbreviated)

<table>
<thead>
<tr>
<th>No.</th>
<th>ABM Guideline</th>
<th>Operationalized ABM Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Establish a written breastfeeding office policy</td>
<td>A lactation team was formed consisting of 3 nurse practitioners and 1 RN who are also IBCLCs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>An office policy manual was developed by the team inclusive of clinical protocols established by the ABM.</td>
</tr>
<tr>
<td>2</td>
<td>Encourage exclusive breastfeeding</td>
<td>Staff training includes encouragement of mothers to feed only breast milk, unless medically necessary. Medical care providers are required to complete a breastfeeding training program approved by the AAP.</td>
</tr>
<tr>
<td>3</td>
<td>Culturally competent care</td>
<td>Spanish interpreters are available. Staff members are culturally diverse. Parents’ cultural beliefs are supported.</td>
</tr>
<tr>
<td>4</td>
<td>Offer a prenatal visit</td>
<td>A prenatal breastfeeding class is offered and executed by the lactation team members. A monthly meet and greet session is available for families to learn about the pediatric clinic, breastfeeding services, and meet the providers.</td>
</tr>
<tr>
<td>5</td>
<td>Collaborate with local hospital and the community</td>
<td>Local hospital staff and obstetricians are made aware of the breastfeeding services. Medical providers encourage mothers to use hospital lactation services before discharge.</td>
</tr>
<tr>
<td>6</td>
<td>Schedule newborn visit within 48–72 h and provide access to a lactation consultant</td>
<td>Mothers are scheduled for up to 1 h of direct lactation support with an RN who is an IBCLC as part of their first outpatient newborn visit with their medical provider. Follow-up visits continue on-site throughout breastfeeding as needed by mother.</td>
</tr>
<tr>
<td>7</td>
<td>Provide educational resources</td>
<td>Handouts are provided by using International Lactation Consultant Association and AAP-endorsed resources.</td>
</tr>
<tr>
<td>8</td>
<td>Encourage open breastfeeding</td>
<td>Breastfeeding in the waiting room is supported, and space is provided for mothers who prefer privacy.</td>
</tr>
<tr>
<td>9</td>
<td>Discourage formula marketing</td>
<td>Formula is only provided if there is a medical need. Formula and advertisements of formula are not displayed.</td>
</tr>
<tr>
<td>10</td>
<td>Telephone support</td>
<td>A “Warm Line” is available for mothers to call; messages are returned within 24 h by the IBCLC.</td>
</tr>
<tr>
<td>11</td>
<td>Commend breastfeeding</td>
<td>Staff offers praise and acknowledgment for continued breastfeeding.</td>
</tr>
<tr>
<td>12</td>
<td>Recommend exclusive breastfeeding to 6 mo</td>
<td>The ABM guideline for exclusive breastfeeding up to 6 mo is recommended to all parents.</td>
</tr>
<tr>
<td>13</td>
<td>Work site lactation policy</td>
<td>A work site policy was established and described as part of the Breastfeeding Policy Manual. Space and break-time are provided for mothers to pump and store milk.</td>
</tr>
<tr>
<td>14</td>
<td>Establish community resources</td>
<td>A weekly moms’ support group is offered, an information packet regarding local community resources is provided.</td>
</tr>
<tr>
<td>15</td>
<td>Insurance and billing</td>
<td>Lactation consultant visits are billed to insurance by using AAP breastfeeding CPT and ICD-9 billing codes.</td>
</tr>
<tr>
<td>16</td>
<td>Assist with workplace support</td>
<td>A “going back to work” class is available to working mothers and is taught by the IBCLC.</td>
</tr>
<tr>
<td>17</td>
<td>Formal staff training and on-site IBCLC services</td>
<td>Support staff received training regarding the breastfeeding-friendly office environment specific to their roles. Medical care providers completed the Wellstart International’s Lactation Education Program (<a href="http://www.wellstart.org">www.wellstart.org</a>).</td>
</tr>
<tr>
<td>18</td>
<td>Mentor health care providers</td>
<td>Medical care providers act as preceptors to residents, nurse practitioners, and physician assistants.</td>
</tr>
<tr>
<td>19</td>
<td>Data tracking</td>
<td>Breastfeeding rates are tracked for surveillance and entered into a database by a lactation team member.</td>
</tr>
</tbody>
</table>


Data Collection

De-identified data were collected via retrospective record review and entered into the SPSS version 19 program (IBM SPSS Statistics, IBM Corporation, Armonk, NY). Feeding data were recorded from the hospital, the initial newborn visit (defined as ≤1 week), and the 2-, 4-, and 6-month health maintenance visits. Demographic data abstracted included gender of the infant, birth weight, type of delivery, age of the mother, parity, and type of insurance. Although an attempt to obtain race/ethnicity data was made, this information was not routinely collected as part of the medical record, but the distribution was expected to be similar in both groups.

No feeding data were missing for the 1-week or 2-, 4-, and 6-month health maintenance visits. In-hospital newborn feeding data were missing for 23 (6.1%) of 376 infants in the pre-intervention group and 11 (2.9%) of 381 infants in the post-intervention group.

Statistical Analysis

The pre-intervention and post-intervention groups were compared on demographic characteristics and on their rates of exclusive and any breastfeeding at each of the 5 time points. Comparisons used Student’s t test for continuous variables and $\chi^2$ tests with continuity correction for categorical variables.

Logistic regression analyses were conducted on each of the 10 outcomes (exclusive breastfeeding and any breastfeeding recorded at each of the 5 time points) to determine if a bivariate intervention effect, if any, would persist when other risk factors were taken into account. A factor was included in
TABLE 3 Indicators for Professional Lactation Support

| Characteristic                        | Preintervention (n = 576) | Postintervention (n = 381) | P*
|---------------------------------------|---------------------------|---------------------------|--------
| Mother’s age, y                       |                           |                           | .125   |
| Mean ± SD                             | 31.69 ± 5.32              | 31.11 ± 5.12              | .125   |
| Range                                 | 16–46                     | 19–47                     |        |
| Parity, n (%)                         |                           |                           | <.001b |
| 1                                     | 152 (40.4)                | 205 (53.8)                |        |
| 2                                     | 129 (34.3)                | 110 (28.9)                |        |
| 3                                     | 68 (18.1)                 | 47 (12.3)                 |        |
| ≥4                                    | 27 (7.2)                  | 19 (5.0)                  |        |
| Insurance, n (%)                      |                           |                           |        |
| Private                               | 329 (87.5)                | 328 (88.1)                | .641   |
| Medicaid                              | 47 (12.5)                 | 53 (13.9)                 |        |
| Type of delivery, n (%)               |                           |                           |        |
| Vaginal                               | 240 (63.8)                | 239 (62.7)                | .811   |
| Cesarean delivery                     | 136 (36.2)                | 142 (37.3)                |        |
| Infant gender, n (%)                  |                           |                           | 1.000  |
| Female                                | 181 (48.1)                | 183 (48.0)                |        |
| Male                                  | 195 (51.9)                | 198 (52.0)                |        |
| Birth weight, g                       |                           |                           | .099   |
| Mean ± SD                             | 3414 ± 456                | 3468 ± 445                |        |
| Range                                 | 1802–4000                 | 2240–5401                 |        |

*P value comparing the 2 groups by using t tests for continuous variables, \( \chi^2 \) tests with continuity correction for dichotomous variables, and the Pearson \( \chi^2 \) test for the 4-level parity variable.

b \( P < .001 \) for a test of a 2-level parity variable (primiparous [yes/no]) versus group; \( P = .002 \) for a test of the 4-level parity variable versus group.

Parameters were adapted from the Massachusetts Breastfeeding Coalition.34

all 10 models if it was significantly different in the preintervention and post-intervention or if it had a significant effect at \( \alpha = .10 \) on ≥1 of the 10 outcomes in bivariate analyses performed on the whole sample. In all of the models, the factors were entered together.

Because race/ethnicity information was not available for 58% of the records, no imputation was done and no statistical tests were conducted on this factor.

RESULTS

There were no significant differences between the groups for infant gender, birth weight, type of delivery, age of the mother, or type of insurance. A pre–post increase in the proportion of primiparous mothers from 40.4% to 53.8% (\( P < .001 \)) was noted (Table 4).

Rates for exclusive breastfeeding were higher in the postintervention group than in the preintervention group at every time point, and the differences in the rates were statistically significant at all 5 time points (\( P < .01 \)). Of particular note, when comparing exclusive breastfeeding, the postintervention group rates were at least 10 percentage points higher than those in the preintervention group at all 5 time points (Fig 1).

Rates for any breastfeeding were higher in the postintervention group than in the preintervention group at every time point, but the differences in the group rates were statistically significant only at the 1-week time point (\( P = .021 \)) (Fig 2).

The finding that the percentage of first-time mothers was significantly higher in the postintervention group versus the preintervention group raised the question as to whether this had an effect on the results. The \( \chi^2 \) tests comparing rates of exclusive breastfeeding and any breastfeeding preintervention versus postintervention, at all 5 time points, were conducted separately for primiparous and multiparous mothers. The results were almost the same as for the parity groups combined, the only exception being that at week 1 for the multiparous mothers, the increase in the exclusive breastfeeding rate was only 9.6 percentage points, which, with \( P = .059 \), fell just short of significance at the \( \alpha = .05 \) level.

Logistic regression analyses were conducted on each of the 10 outcomes: exclusive breastfeeding (1 = yes, 0 = no) and any breastfeeding (1 = yes, 0 = no) recorded at each of the 5 time points. The risk factors included in each model were: group (1 = postintervention, 0 = preintervention), primiparous (1 = primiparous, 0 = multiparous), birth method (1 = cesarean delivery, 0 = spontaneous vaginal delivery), insurance (1 = Medicaid, 0 = private), birth weight (100-g units), and mother’s age (years). The primiparous factor was included because the rates for this differed significantly between the preintervention and postintervention groups. Each of the other 5 factors had a significant effect at the \( \alpha = .10 \) level in bivariate analyses on the whole sample for ≥2 of the 10 breastfeeding outcomes.

The group indicator was highly significant for exclusive breastfeeding at every time point (\( P < .001 \)) but not significant for any breastfeeding except at week 1 (\( P = .016 \)). The estimated odds of exclusive or any breastfeeding for those in the postintervention group
were higher in every case than for those in the preintervention group; odds ratios varied between 1.67 and 2.66 for the 5 exclusive breastfeeding outcomes, and they varied between 1.1 and 1.77 for the 5 any breastfeeding outcomes.

The primiparous indicator was not significant in any of the 10 regressions, with P values ranging from .163 to .862. However, the insurance indicator was highly significant in all 10 regressions (P < .004 in every case), with the estimated odds of any or exclusive breastfeeding for those receiving Medicaid being only 28% to 47% of the odds for those with private insurance. The effect of birth weight on breastfeeding was significant at 2, 4, and 6 months after birth. At 2 and 6 months, the estimated odds of exclusive breastfeeding increased by 4% to 5% with every additional 100 g of birth weight. At 2, 4, and 6 months, the estimated odds of any breastfeeding increased 4% to 6% with every additional 100 g of birth weight. The only other predictor that was significant at any time was birth method. In the hospital, the odds of exclusive breastfeeding were significantly lower for those who had a cesarean delivery compared with those with vaginal delivery (odds ratio: 0.51; P < .001). But birth method was not a significant predictor of exclusive breastfeeding at 1 week or at 2 and 4 months. It was significant again at 6 months (odds ratio: 0.661; P = .017). Birth method was not a significant predictor of any breastfeeding at any time point. Mother’s age was not significant in any of the 10 models, despite its effect (P < .10) on 5 of the 10 outcomes in bivariate analyses.

DISCUSSION
The χ² tests and logistic regression analyses showed that rates of exclusive breastfeeding were significantly higher for those in the postintervention group. Although exclusive breastfeeding increased significantly, the increases in rates for any breastfeeding were not significant except for the 1-week time point. One possible explanation is, for mothers who were exclusively breastfeeding in the early postpartum period, breastfeeding persisted because formula was not introduced. Forster et al.37 found a negative association between introduction of formula in the hospital and breastfeeding duration. Hörnell et al.38 reported that the earlier an infant was given formula,
the shorter the duration of breastfeeding, while introduction of solids for the exclusively breastfed infants had no association with total breastfeeding duration.

The initiation rate for the exclusively breastfeeding postintervention group was much higher compared with the preintervention group (78% and 59%, respectively). This finding might be explained by 1 of the features of the protocol, which provides a prenatal meet and greet session to expose parents to an environment that supports breastfeeding mothers. Mothers who entered the practice after the breastfeeding-friendly office protocol was in place may have had increased motivation to initiate breastfeeding because they knew they would have continued support. Alternatively, it may be that mothers who were interested in breastfeeding sought out a supportive environment, therefore creating the potential for selection bias. Measurement of predelivery intention to breastfeed could have eliminated this as a concern.

The literature suggests primiparous women have more difficulty sustaining breastfeeding and they may breastfeed longer if they are knowledgeable and self-confident.39–41 We found similar results; when the primiparous mothers were compared preintervention and postintervention for exclusive and any breastfeeding, both rates increased at every time point, and the pre–post increases for exclusive breastfeeding were statistically significant (P < .05) at every time point. Therefore, the ABM protocol may have had a positive effect on exclusivity for the primiparous mothers in this study.

The literature describes mothers’ pre-delivery intention to breastfeed as a strong predictor of initiating breastfeeding and continuing through early obstacles.39–44 The ABM protocol provided a mechanism for extending components that support breastfeeding into the primary care setting, creating an environment that supports a mother’s intention to breastfeed. Continued lactation consultant support is emphasized in the Surgeon General’s Call to Action and is called for as part of the breastfeeding-friendly office protocol. Direct support for breastfeeding dyads can be time intensive. Pairing IBCLC services with medical professionals who are also educated in breastfeeding creates a vehicle for access and reimbursement, and it teams health professionals with shared intentions.

This study was limited by a lack of data regarding other parameters that may affect exclusivity and duration of breastfeeding such as mother’s educational level, social support, smoking, work, and socioeconomic status.43,44

CONCLUSIONS

The results from this study suggest that the use of a breastfeeding-friendly clinical protocol in the primary care setting may help increase exclusive (no formula) breastfeeding rates up to 6 months of age. The risks associated with not providing breast milk are numerous.45–52 The ABM protocol provides a template that encompasses interventions supported by the literature to increase breastfeeding rates.

Although not a randomized controlled trial, implementation of the ABM clinical protocol with preintervention and postintervention data collection provided an important evaluation of this program with useful data for clinical practice. This study provides an example of how the protocol can be operationalized. Further studies should explore use of this protocol, inclusive of patient populations and/or regions known to have low breastfeeding rates, to help expand its use and address this important public health initiative.

ACKNOWLEDGMENTS

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34. Massachusetts Breastfeeding Coalition. Approach to early breastfeeding: a guideline for healthy term newborns, 48 hours to 2 weeks. Available at: http://massbreastfeeding.org/providers/earlyBF.html
HEARING LOSS AND CEREBRAL QUIET: Among the elderly, hearing loss is very common. Nearly 66% of Americans over the age of 70 are hearing impaired. New evidence indicates that hearing loss might lead to declines in other health measures. As reported by CNN (Health: January 22, 2013), a new study shows an association between hearing loss and the rate at which aging individuals experience cognitive and memory decline. Researchers followed approximately 2,000 older adults with normal cognitive and memory function and performed audiometric, cognitive, and memory assessments at time of entry and then three, five, and six years later. Those with hearing impairment experienced significantly faster rates of cognitive decline. Moreover, the study showed greater cognitive and memory decline in those with increasingly severe hearing loss. Researchers theorize that the connection between hearing loss and cognitive decline may result from increased social isolation, a state associated with cognitive decline. Alternatively, there is the theory that the brain may devote additional cognitive resources in its attempt to remedy hearing loss or that the biologic mechanism of hearing loss might also be responsible for changes in cognition. Regardless of the underlying cause of this connection, further research should be done to learn if moderating hearing loss can aid in the prevention of impaired cognition.

Noted by Leah H. Carr, BS, MS-III
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