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Effective Health Promotion Literature:

Content Analysis of New Parent Kits

Renée Brayley

George Mason University

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### Introduction

One of the issues capturing the attention of state policy makers throughout the country in the past several years is early childhood development, as evidenced by the proliferation of state early childhood initiatives and programs to promote the well-being and optimal development of young children (National Governors Association, 2006). One product resulting from these state initiatives is the development of kits of informational materials distributed to expectant and new parents, which cover topics such as normal child development, child safety, and community resources. Two states that are currently distributing new parent kits are California and Virginia. While the assumption is made that these kits are beneficial because of the positive health and education messages that are being disseminated, there is varying evidence to support their effectiveness and suitability for the audiences for which they are intended.

### Problem Statement

The question addressed by this research is: What elements of health promotion literature make them effective for an audience of new parents that includes individuals of different cultures and persons with low levels of health literacy? Based on research establishing the effectiveness of the *California Kit for New Parents* (California Children & Families Commission, 2004), with its *Parents Guide: A Resource Book for Families* (University of California at Berkeley, 2005), it can be supposed that this kit is appealing to, and appropriate for, its intended audience of new parents. California new parents are culturally and linguistically diverse, many with low levels of literacy and health literacy. New parents from varied backgrounds, with low health literacy, comprise an important target group for parent education and health promotion campaigns. According to the literature, there are particular attributes that make written communication

effective for low health literate populations. Recommendations include content presented at an appropriate reading level, and key principles of layout and visual appeal. Since it appears that the California kit is effectively reaching this population of new parents, these attributes are expected to be evident in the printed documents included in the kit. It is therefore hypothesized that content analysis of the documents in the *California Kit for New Parents* will confirm the presence of the recommended elements. Further, it is expected that a comparison of the California kit and another set of unproven new parent materials will facilitate a more conclusive attribution of effectiveness to those elements.

### Literature Review

For health education publications to influence health promotion and disease prevention, they must first be read and understood. A great deal of health education material is written at a level that exceeds the reading ability and comprehension level of even the average health care consumer (Nielsen-Bohlman, Panzer, & Kindig, 2004). Health information is most effective if presented in clear and simple language, in an engaging way, and with examples and illustrations relevant to the reader (Osborne, 2005). Well-presented, quality information helps parents seek appropriate care and make optimal self-care decisions for themselves and their children.

Health literacy is an emerging concept and field of inquiry in health communication. Health literacy is defined in *Healthy People 2010*, a U.S. public health initiative, as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.” The ability or inability to access, understand, and apply health information impacts the health and well being of individuals and their families. Medical terminology, information and instructions are beyond the understanding of many people. In fact, a major report by the Institute of Medicine of the

National Academy of Sciences (Nielsen-Bohlman et al., 2004) noted that nearly half of the general adult population of the United States lacks the necessary basic literacy skills for full participation in society, including many health care contexts.

Studies using current measures of health literacy are uncovering relationships between health literacy and health outcomes, health related knowledge and behaviors, and economic costs. Finding 3-3 of the Committee on Health Literacy states: “Adults with limited health literacy, as measured by reading and numeracy skills, have less knowledge of disease management and of health-promoting behaviors, report poorer health status, and are less likely to use preventive services” (Nielsen-Bohlman et al., 2004). If the effects of limited health literacy are extended to the children of these adults, we may assume that the children would similarly exhibit poor health status and poor utilization of primary and preventive health care.

Misunderstanding relevant health information prevents optimal wellness, and can potentially lead to grave consequences. Lacking health knowledge and confidence in self-care decisions, parents with a low level of health literacy are prone to make inappropriate care decisions for their children resulting in either insufficient attention to potential health threats and serious illnesses or overly aggressive treatment for minor conditions. Inappropriate health care decisions by parents have consequences even beyond the wellbeing of the individual child and family. Delaying primary and preventive care leads to increased sickness and higher system-wide health care costs.

Parents who have less education and fewer financial resources may be expected to have a lower level of health literacy, given that the Committee on Health Literacy found that education level, socio-economic status, and racial or ethnic minority status are correlated to health literacy (Nielsen-Bohlman et al., 2004). Improving the quality of printed health communication material

is one of the recommended strategies to help eliminate the health literacy gap (U S Department of Health and Human Services, 2000). Therefore, it is important to ensure that all health education materials distributed to this potentially low health literate population are readable, informative, and accurate. Printed health communication materials could also address another aspect of health literacy, the ability to understand and navigate complex health care (and health insurance) systems. Reducing the problem of limited health literacy is one essential step toward meeting the larger goal of reducing health disparities.

Guidelines for developing health communication materials for a low-literate audience are set out in *Clear and Simple* (National Cancer Institute, 1994). This booklet recommends that materials written for a low-literacy audience aim for a third to fifth grade reading level. Even materials written for a general audience should be no higher than the estimated average U.S. reading level of eighth grade. Readability formulas assess the reading level of written materials, with the commonly used readability formulas including SMOG, FOG, Fry, and Flesch. Readability statistics can be generated by computer analysis as part of the Microsoft Word™ application.

Despite guidelines for plain language, recommendations for easy-to-read printed materials have not been fully implemented. Patient education pages were assessed for readability in a recently published article in the *Journal of Community Health* (Cotugna, Vickery, & Carpenter-Haeefe, 2005). These researchers found that only two of the ten pages they assessed met the goal of fifth to sixth grade reading level. Their methodology for analysis was entering text from the patient education pages into Microsoft Word™ and applying the Flesch-Kincaid Grade Level Index.

A recent article in the *Journal of Health Communication* provides insight into re-writing existing public health information, as undertaken by a health literacy team working with a highly technical government report on drinking water safety (Rudd, Kaphingst, Colton, Gregoire, & Hyde, 2004). They utilized a twelve-step process for re-writing complex reports in plain language. The procedure they employed can help guide revision of further health promotion literature.

The complexity of the written text is only one aspect that contributes to a publication's suitability for a low-literate audience. *Clear and Simple* (National Cancer Institute, 1994, p.23) lists other key principles of effective low-literacy print materials. Specific content and style recommendations include providing for interactive audience involvement with "how-to" information, using peer language, familiar words, with sentences that are "simple, direct, and written in the active voice" (p. 27). The text layout suggestions include arranging the information into short chunks, with advance organizers or simple headers preceding each section. White space should be used to balance text and illustrations. Text should use upper and lower case letters, with bolding or underlining used for accent rather than all capital letters, and the font should be easy to read and at least 12-point size. Guidelines for the visual aspects include using graphic images that are relevant and meaningful to the audience, and reflect their cultural context. Visual cues are important to call attention to important points. Color use is important and should be checked with the target audience to gauge its effectiveness and appeal. The color of the text should contrast with the background. It is easiest for most people to read if the type is a dark color on a light background (National Cancer Institute, 1994, p. 36).

Not all health communication publications fail in their efforts to reach their target audiences with appealing, readable, culturally appropriate material. In fact, two highly

acclaimed and widely distributed print resources for parents exemplify these desirable qualities. The first is *What To Do When Your Child Gets Sick* (Mayer & Kuklierus, 2001), available in English, Spanish, and Vietnamese versions. Distributed by the Institute for Healthcare Advancement, it contains information on common childhood illnesses and health problems, with clear directions for home care and guidelines for when to consult a healthcare provider. In one research study, parents receiving the book reduced both clinic and emergency room visits, and reported using information from the book to make health decisions for their children (Herman & Mayer, 2004).

The second identified print resource is *Parents Guide: A Resource Book for Families* (Mika, Kelly, Price, Franquiz, & Villarreal, ; University of California at Berkeley, 2005). It is distributed to 500,000 new parents each year, as part of the *California Kit for New Parents*. The kit, currently distributed in English and Spanish, will soon be available in Korean, Vietnamese, and Chinese versions. Research reports for the kit include *A Pilot Evaluation of the Kit for New Parents* (Neuhauser et al., 2002), *Short-Term Evaluation Results for the Kit for New Parents* (Neuhauser et al., 2003), and *Final Results for the Kit for New Parents Evaluation* (Neuhauser et al., 2004b). Research into the California kit includes an impact study, a statewide survey, and a qualitative 10 county focus group study.

One of the methods utilized to evaluate the kit was an impact study, wherein mothers were interviewed at the time they received the kit, six to nine weeks later by telephone, and again 14 months after receiving the kit. A similar group of mothers not receiving the kit was also interviewed. The kit mothers made significantly larger knowledge gains in all eight key areas tested than did the non-kit mothers, and the differences were sustained over time. The mothers receiving the kits had higher scores even after 14 months. The greatest knowledge gains were

found for the Spanish speakers, who initially had lower scores than the English speakers. By 14 months, the Spanish speakers who received the kits received knowledge scores equivalent to the English speakers who did not receive the kits. Positive differences in parenting practices found between the group of parents who received the kit and those who did not included: more childproofing measures taken, more frequent reading to children, higher scores on a well-child health scale, and higher scores on a safe bottle-feeding scale (Neuhauser et al., 2004a).

Conclusions reached from all the research conducted about the California Kit include: it was equally helpful for first-time and experienced mothers, as well as teenage and older mothers; the kit improved parents' knowledge, attitudes and parenting practices; the kit was most effective when received during pregnancy. Spanish speakers made the greatest gains from kit use (Neuhauser et al., 2004a).

### Preliminary Investigation

#### *Printed literature distributed in community health settings*

The populations of Fairfax and Prince William Counties in Virginia are becoming increasingly racially and ethnically diverse. A language other than English is spoken at home for 16.3 percent of Prince William County residents and 30 percent of Fairfax County residents (U.S. Census Bureau). The other language is predominantly Spanish. Although median household income in the area is high compared to the rest of Virginia and the United States as a whole, poverty is still an issue with at least four percent of the population living below poverty level (U.S. Census Bureau). Despite a generally high level of education in the area, a significant segment of the adult population has not achieved basic literacy competence. According to community health workers interviewed, many of their clients possess low reading skills. Many Hispanic mothers seeking health services have difficulty reading in either English or Spanish.

High quality communication materials are particularly important to this group of parents. A preliminary investigation looked into the quality of health promotion and parenting information distributed in the area.

Initial efforts to identify printed resources available to parents in the community yielded a variety of results. Health clinics in both Prince William and Fairfax counties, the Prince William County office of Northern Virginia Family Services, and Women Infant and Children (WIC) offices provided an assortment of printed materials. Informal meetings were held with the nurse manager for Prince William County Health Department and the patient education coordinator for the Healthy Families/ Early Head Start Program from Northern Virginia Family Services. A selection of the health and parenting literature handed out to new parents was collected at these meetings and the process of how new parents receive information and are referred for various health and parent education services was reviewed.

A wide range of printed literature was collected from the visited agencies. Most of the materials were available in both English and Spanish. The majority of the Prince William County Health Department clinic's clients are Spanish speaking. The clinic distributes a limited range of health promotion materials in display racks in the waiting room area. Most of it consists of photocopied one-page information sheets with contact information for various other agencies that provide free or low cost services to low income families in the area. Most of the leaflets are available in both English and Spanish. The prenatal kit of information distributed to pregnant women consists of four photocopied sheets of information, three folded pamphlets (two of them photocopies of the originals), and one small card listing the warning signs of preterm labor, all held together with a paperclip. The Spanish language version of this packet also includes a

glossy magazine-style booklet on pregnancy, and is distributed far more frequently than the English language version.

The Northern Virginia Family Services Healthy Families / Early Head Start programs provide weekly home visits to provide support and parenting education to at risk parents. Their kits of information are distributed to all new parents at both county hospitals, and a screening tool is used to identify families eligible to receive in-home services. About fifty percent of the clients using the services of this agency are Spanish speaking. Home support workers select health and parenting literature geared to the needs of each family from the dozens of brochures and booklets available in the main office. The nurses and other health support workers utilize a lessons with relevant handouts to be given to parents at each home visit (*Parents as teachers parent education curriculum*, 1999). Handouts are available in English and Spanish versions, and two different literacy levels. The “Your Child” version is written for a general audience, and the “Your Baby” version is geared to a lower literacy level audience. Both versions have simple illustrations, and concise information on one page, or two sides of one page.

#### *Virginia New Parent Kit*

During the course of inquiries, it was discovered that Virginia has a similar program to the *California Kit for New Parents*, with its *Parents Guide* produced by UC Berkeley, which was referred to earlier as an example of excellent parenting literature. Governor Mark Warner headed an initiative to distribute Virginia's *New Parent Kit* (Virginia Department of Health, 2004b) to all new parents in the state, starting in the summer of 2004. Difficulties were experienced in obtaining a *Virginia New Parent Kit* in Fairfax and Prince William counties. Interestingly, not all the hospitals and health departments currently distribute it. A kit was obtained through the mail from the Richmond office of Prevent Child Abuse Virginia, after

attempts to locate it locally were unsuccessful. Both the nurse manager of the Prince William Health Department and the Obstetrics patient education coordinator from Prince William Hospital said that the reason these agencies no longer distribute the *New Parent Kits* is lack of storage space for the quantity of kits delivered by the state at one time.

The Virginia *New Parent Kit* is available in English and Spanish versions. Reports regarding the Virginia kit include two internal focus group summaries, one of them summarizing four focus groups conducted in the Southwest and Tidewater areas of the state (Virginia Department of Health, 2004a), and the other summarizing four focus groups conducted in Central and Northern Virginia (Virginia Department of Health, 2004c). Another report reviewed by the researcher was the unpublished *Governor's New Parent Kit Progress Report: August 2004 to June 2005* (Virginia Department of Health, 2005). The Southwest and Tidewater focus groups were mostly composed of health care providers and patient educators, with only two parents included. These group members were reported to have positive impressions of the kits, and did not feel that existing resources duplicated the included materials. The positive feedback that was reported included the appealing look of the kit, and the container's organization with files to allow parents to add other papers and health records. The providers in the groups reported that the most popular items in the kit were the calendar, the storybook, *Goodnight Moon*, the *Resource Guide*, and the letter from the Governor (Virginia Department of Health, 2004a).

The Central and Northern Virginia focus groups were held with a total of 34 participants, all of whom were new or expectant parents. The aspects of the kit reported to be most appealing by these participants were the central place to organize information, the *Bright Futures Health Record*, the *Baby's First Year* calendar, the *Goodnight Moon* storybook. They liked *Parents*

*Handbook: Caring for Your Baby* because of its bullet point format and ease of reading. Some liked the content and format of a booklet called *Welcome to Motherhood*, but did not like the colors and graphics. Incidentally, no booklet with that title was identified in the currently distributed kit. The most frequently suggested topics to be included in the kit were emotional needs / stress management, car seat inspection, and poison control contact information (Virginia Department of Health, 2004a).

The progress report details distribution data related to the New Parent Kit, a summary of survey data collected from recipients of the kit, and a report of the increase in phone calls to the toll-free phone number advertised in the kit (Virginia Department of Health, 2005). Calls to the toll-free number were at a level of 52 per month in September 2004, and increased to a high of 542 per month in February 2005, when a poster campaign was conducted. The number of calls decreased to 208 per month by June 2005, the last month reported.

The same report states that 63 percent of all new parents in the state received the kit between August 2004 (when statewide distribution began) and June 2005. Distribution was through hospitals (76%), doctor or other medical provider (12%), health departments (8%), and home visits (3%). The postage-paid survey cards included in the kits asked parents to check off from a list of all the items in the kit, which had been helpful to them. The survey cards asked where they got their kit, who had talked to them about it, and whether they used any of the phone numbers and websites from the Resource Guide. The survey cards also asked if the parents had read the storybook *Goodnight Moon* to their child, and also how often they are reading to their child. The results from the 587 survey cards returned (out of approximately 55,000 kits distributed) show that the most frequently used items from the kit were *Baby's First Year* calendar, *Goodnight Moon*, *Bright Futures Health Record*, *Playing with Your Baby*, the SIDS

prevention pamphlet, and *Babies + Books = Bonding*. Sixty percent of the parent respondents reported using at least half of the items in the kits.

Over seventy percent of the parents surveyed reported reading to their child two to three times per week, the highest possible response choice. There were no comparable reading data in the report for parents not receiving the kit. Positive remarks and anecdotes about the kit from parents and health providers are included in the report (Virginia Department of Health, 2005). There are no other published reports that deal with the effectiveness of the Virginia kit. Overall, feedback from users of the *Virginia New Parent Kit* was positive, but the response rate for the mail-back survey was low, and the data that were collected do not clearly demonstrate effectiveness in terms of changed knowledge, attitudes, or behaviors associated with receipt of the kit materials.

### Methodology

This study examined the *California Kit for New Parents*, already evaluated and found effective by previous researchers, and analyzed it in terms of specific elements and attributes considered to make for good communication for low health literate audiences. For practical concerns and local application, the *Virginia New Parent Kit* was also examined and analyzed in terms of the same elements and attributes.

Existing evaluation reports of each of the two kits were reviewed, followed by an independent analysis of the two kits. Reading level, cultural inclusiveness, and layout and visual elements were analyzed for every booklet and brochure included in each of the two kits. The reading level was determined for each item, expressed in Flesch-Kincaid grade level. The content analysis research approach was utilized to analyze each page of printed material in the two kits, focusing on specific layout and visual elements, including cultural images. A sample

group of new parents was asked to look at the new parent kits. Their responses were used to validate the results of the content analysis and provide the perspective of a few members of the target population.

First, the reading level of every brochure and booklet in each of the kits was determined by creating a Microsoft Word™ document, entering the text, and then generating a Flesch-Kincaid grade level report. This procedure was repeated for every printed document in each kit. Because of the way the Flesch-Kincaid readability statistics are computed, periods were added at the ends of sentences and some sentence fragments formatted as bullet points. This was done so that these sentences and sentence fragments contained in the text would be included in the computer analysis, since only the words recognized as being contained in sentences, and the sentences count toward these readability statistics. Periods were also added at the end of the text on every page of each of the two storybooks for the same reason. Besides pamphlets and booklets, the California kit also contains six video tapes, which were omitted from the reading level analysis, as it was not applicable. The readability part of the analysis resulted in scores for readability (expressed in grade level) for every printed document in each of the two kits.

Next, content analysis was conducted to identify whether selected “key principles of effective low-literacy print materials” *Clear and Simple* (National Cancer Institute, 1994, p. 23) were being followed in each of the documents in the Virginia and California parent kits. These are some of the factors that have been recognized as effective in similar materials in influencing health knowledge, attitudes, and behaviors in the target audience. Content and style of writing in the publications were not considered. Six layout properties and three visual properties were selected for the analysis, based on their potential for objective evaluation.

The content analysis research approach was utilized to “to identify, enumerate and analyze occurrences of specific message characteristics embedded in texts” (Frey, Botan, & Kreps, 2000). A coding scheme was constructed to quantify some of the elements on each page, that are identified as contributing to the effectiveness of low-literacy materials (National Cancer Institute, 1994). The analysis considered all the booklets and brochures in the two kits. The unit of analysis was at the page level for every brochure and pamphlet in each kit. Each panel of the folded brochures was considered to be a page. The video tapes from the California kit were not included in this portion of the analysis, because it was limited to print materials. The following elements were evaluated and coded. The content analysis coding instruments, developed and utilized for this analysis, are attached as Appendices A and B.

- Layout:
- A. Material uses advance organizers or headers.
  - B. White space: at least 25 % of the page is white space.
  - C. Text uses upper and lowercase letters.
  - D. Underlining or bolding rather than all caps for emphasis
  - E. Type and style of print are easy to read; type is at least 12 point.
  - F. High contrast between background and all text on page
- Visuals:
- A. Color used for emphasis on page (besides photos and illustrations).
  - B. Graphic or Illustrations (one or multiple).
  - C. Multi-cultural illustration.

These principles are some of the ones listed in the National Cancer Institute’s publication, *Clear and Simple* (1994, p.23). It does not specify how much white space is optimal, but the researcher observed that documents with less than 25% white space appear crowded and less readable. The white space was measured by placing a large clear ruler with a grid over the page, and counting the square inches without text or illustrations, and calculating it as a percentage of the entire page. High contrast on the page was determined by whether contrast between all text and background allowed for differentiation by an optical character reader (OCR). Pages with light text on darker background were scored as zero for the contrast category. For Visuals B, if

the only illustration on a page was a small graphics repeated in the header or footer, it was not counted. Multicultural illustrations were defined as one or more illustrations on the page depicting any cultural content, other than white, non-Hispanic.

For every category listed above, each page received a score of one for a yes answer, or zero for a no answer. For multiple page documents, the page scores for each category were averaged, resulting in document-level score for each of the layout and visuals categories with a value between 0.00 and 1.00.

The analysis resulted in scores for readability (expressed in grade level), layout, and visual appeal for every document in each of the two kits. Resulting scores for the individual pamphlets were compared and ranked for each category. Results were analyzed to determine overall strengths and weaknesses of the documents in the kit, and differences between the scores for the two kits.

After the readability and content analyses were performed, the two kits were tested with members of the target audience. Feedback from members of the target audience was sought to check whether their assessments of the new parent kits, with their various components, matched responses that might be expected from the reading level and content analysis results. Interviews were conducted in the parents' homes where they looked over the items in the kits and provided feedback about the kits and their components. Responses of the interviewees served to validate the results of the readability and content analysis, and provide additional insights into the relative strengths and weaknesses of the two new parent kits. An interview guide and a survey instrument (Appendix C) were developed to facilitate information collection in the interview settings.

Before each parent looked through the kits, they were asked what information they would expect to be included in a kit for new parents, and what they would want to find included. Then they were shown each of the kits and asked to find information on one specific topic in each of the kits in turn. The parents provided feedback on the relative merits of the kit containers and the ways they were organized. They were asked their opinions about the relative suitability of the storybooks included in each kit, and the merits of video tapes as compared to printed materials.

The survey section of the interviews was conducted orally, with the interviewer asking the questions and recording the responses. This was important to eliminate reading comprehension and writing ability as variables. The parents were asked to consider each of nine items from the Virginia kit, four items from the California kit, and one book that will be included in future editions of the California kit. First, they were asked to rate each of the items for their appeal or attractiveness, on a scale of zero (not at all appealing) to five (very appealing). Next, they were asked to rate the same items for their usefulness, from zero (not at all useful) to five (very useful). Lastly, they were asked to rate the same items again, this time as to how often they would refer to the item, from zero (never) to five (often). Each of the interview sessions took approximately one hour in total.

#### Data Collection

Data for readability testing and content analysis were collected from the following publications, using the methods and instruments described in the previous section of this report. Note that the updated 2005 edition of the *Parents Guide* was substituted for the 2004 edition that was in the California Kit for New Parents; all other items were analyzed as found in currently distributed kits.

- California Kit:
1. *Healthy Pregnancy*
  2. *Healthy Baby*
  3. *Feeding Your Baby*
  4. *Ready to Learn*
  5. *First Years*
  6. *Finding Quality Care for Your Child*
  7. *Safe from the Start*
  8. *Discipline*
  9. *Parents Guide* (2005 edition)
  10. *Medi-Cal* brochure
  11. *Paid Family Leave Insurance* brochure
  12. *Animals to Count* (cardboard baby storybook)

- Virginia Kit:
1. Governor Warner Letter
  2. *1 800 CHILDREN* brochure
  3. *iparent* magazine
  4. *Caring for Your Baby: Parents Handbook*
  5. *Baby's First Year* (calendar)
  6. *Want a Happy Baby?* WIC brochure
  7. *Parents are Often the First to Know When Their Baby Needs a Helping Hand*
  8. *Selecting and Monitoring Child Care*
  9. *Choosing Quality Child Care*
  10. *Bright Futures Health Record*
  11. *Baby's First Step to Healthy Teeth*
  12. *Newborn Hearing Screening: How did your little one do?*
  13. *Know the Signs of Preterm Labor*
  14. *Preparing for Parenthood*
  15. *If you're not happy...he's not happy*
  16. *FAMIS* brochure
  17. *10 Ways to be a Better Dad*
  18. *If you do not want a baby now: Practice Birth Control*
  19. *Goodnight Moon* (storybook)
  20. *Playing With Your Baby*
  21. *Babies + Books = Bonding*
  22. *Buckle up Virginia!* (Car seat safety information)
  23. *Welcome Safety Into Your Home*
  24. *Enjoy Your Baby* (Shaken Baby Syndrome)
  25. *Hot Water Safety*
  26. *Before your baby begins to walk, learn about lead poisoning*
  27. *Babies Sleep Safest on Their Backs* (SIDS Prevention)
  28. *Getting Connected* (Resource Guide)
  29. *Virginia College Savings Plans*

All the text was entered into Microsoft Word™ for the readability analysis. As

mentioned, some periods were added so that the Flesch-Kincaid statistics would interpret some

fragments as sentences, thus increasing the proportion of the text that was taken into consideration for readability. For the longest publications, text from just half of the total pages in the document was entered and indexed for readability. One of the documents in the Virginia kit, *Getting Connected*, consisted of pages of contact information for various agencies, presented in tabular format. The only text from that document in sentence format was in the “Services” column, therefore it was the only text entered and indexed for readability.

Coding for the content analysis was carried out by two coders, using the coding instrument and categories developed. The first coder independently coded 26 of the documents and the second coded the remaining 15 documents. To determine intercoder reliability for each of the categories, coding was duplicated for 10 of the documents, with the overlap totaling 95 pages. As shown in Table 1, the agreement for the two coders ranged from 86 to 100 percent.

Layout						Visuals		
A.	B.	C.	D.	E.	F.	A.	B.	C.
89%	87%	99%	96%	89%	86%	98%	98%	100%

Table 1: Intercoder Reliability

The highest agreement between coders was for Visuals C, the presence of multi-cultural illustrations. The lowest agreement was for Layout F, for contrast between background and text. All of the reliability coefficients were considered high enough to be reliable (Frey et al., 2000), therefore, the scores obtained from the first coding of each document were retained.

The audience-testing portion of the project involved interviews with four parents chosen from acquaintances of the researcher, as a convenience sample. They were chosen because all of them had a child under eighteen months of age. Two of them also have an older child. One of the mothers completed only elementary school, in Mexico, and learned English only after

moving to the United States six years before this study was conducted. Her first child was born when she was eighteen years old. The other three mothers are white, non-Hispanic, and completed high school, with one of them also attending one year of college. Their ages at the birth of their first child were respectively 22, 25, and 33.

## Findings

### *Readability*

Flesch-Kincaid reading levels for all items ranged from 2.2 to 11.9. Tables 2 and 3 list the reading level computed for each of the items, and the mean score for the items in each kit.

Items from the California Kit		Flesch-Kincaid Grade Level
CA1	Healthy Pregnancy	<b>3.7</b>
CA2	Healthy Baby	<b>4.9</b>
CA3	Feeding Your Baby	<b>2.7</b>
CA4	Ready to Learn	<b>3.0</b>
CA5	First Years	<b>2.2</b>
CA6	Finding Quality Care for Your Child	<b>3.4</b>
CA7	Safe from the Start	<b>3.6</b>
CA8	Discipline	<b>2.5</b>
CA9	Parents Guide	<b>4.3</b>
CA10	Medi-Cal brochure	<b>9.2</b>
CA11	Paid Family Leave Insurance brochure	<b>9.4</b>
CA12	Animals to count	<b>2.3</b>
	<b>California Mean Reading Level:</b>	<b>4.3</b>

Table 2: Reading Level Scores for Individual Items in the California kit

All of the California kit printed materials were found to have a reading level under 5.0, except for the two insurance program brochures, which do not appear to have been specifically designed for the kit. Every other item in the California kit tested at or below the third to fifth

grade reading level which is recommended for low literacy print materials (National Cancer Institute, 1994). The mean reading level for the California kit, including the two brochures, was 4.3. If the scores for the two brochures are excluded, the mean reading level for the other items is even lower at 3.3.

Items from the Virginia Kit		Flesch-Kincaid Grade Level
VA1	Warner letter	6.4
VA2	1-800 CHILDREN brochure	6.3
VA3	iparent magazine	9.3
VA4	Parents Handbook	5.7
VA5	Baby's First Year	6.3
VA6	WIC brochure	2.5
VA7	Parents are often the first...	4.9
VA8	Selecting and Monitoring Child Care	9.0
VA9	Quality Child Care brochure	9.2
VA10	Bright Futures Health Record	5.8
VA11	Healthy Teeth	5.4
VA12	Newborn Hearing Screening	4.7
VA13	Preterm Labor	4.0
VA14	Preparing for Parenthood	5.2
VA15	Happy	5.4
VA16	FAMIS	8.4
VA17	Better Dad	7.4
VA18	Birth Control	7.2
VA19	Goodnight Moon	2.4
VA20	WIC Playing with your baby	3.6
VA21	Books + Babies	4.4
VA22	Buckle up Virginia!	6.9
VA23	Welcome safety into your home	6.7
VA24	Enjoy your baby	5.8
VA25	Hot water safety	4.2
VA26	Lead poisoning	5.6
VA27	Safe Sleep for your baby	6.5
VA28	Getting Connected	11.9
VA29	VA College savings plans	9.9
<b>Virginia Mean Reading Level:</b>		<b>6.2</b>

Table 3: Reading Level Scores for Individual Items in the Virginia kit

Scores for the Virginia kit contents varied widely, from a low of 2.4 to a high of 11.9, with a mean reading level of 6.2. Only seven of the 29 items in the kit tested below 5.0, meaning that the majority of the items in the kit tested above the reading level recommended for low literate populations. Six of the items exceeded the grade level of 8.0, which is often recommended for a general adult audience.

The readability ratings were grouped into grade level ranges, and the frequencies for each range are illustrated in Figure 1.

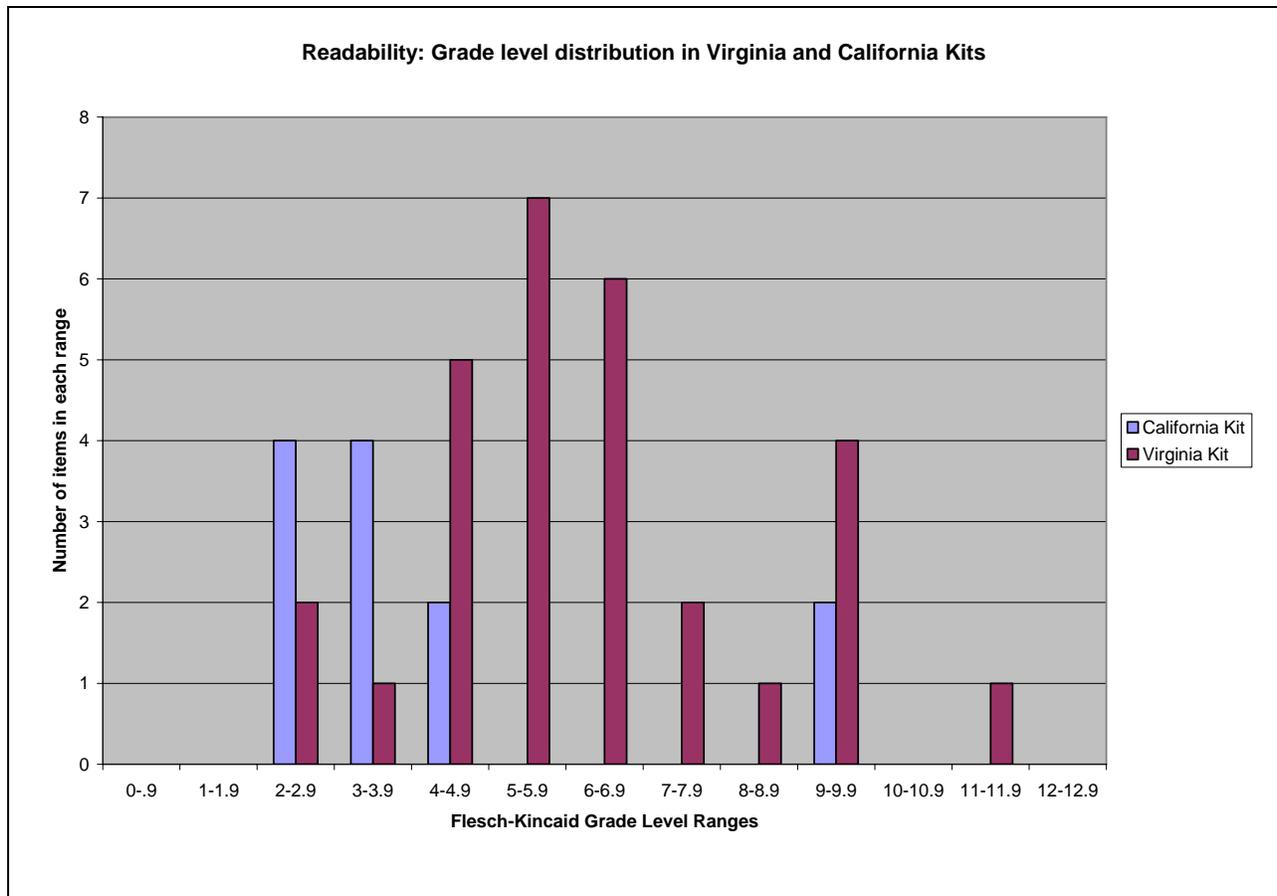


Figure 1: Reading Level Range Frequencies

Figure 1 clearly shows the difference in the grade level distribution between the two kits, with few of the Virginia kit items below 4.0 and all of the California items, except two, below 5.0.

### Content Analysis

Tables 4 and 5 list the results of the content analysis for each of the items in the *California Kit for New Parents* and *Virginia New Parent Kit* respectively. All items received scores between 0.00 and 1.00 for each attribute that was measured. Total layout scores were calculated by adding scores for the individual layout attributes, and the maximum possible layout score was 6.00 points. Total visual scores were calculated by summing the three individual attribute scores, resulting in a visual score of no more than 3.00.

Item	Layout							Visuals			
	A	B	C	D	E	F	Total Layout	A	B	C	Total Visual
CA1	0.95	0.95	0.95	1.00	1.00	0.42	<b>5.27</b>	0.95	0.64	0.32	<b>1.91</b>
CA2	0.96	0.91	1.00	1.00	0.96	0.35	<b>5.18</b>	1.00	0.83	0.30	<b>2.13</b>
CA3	0.96	1.00	1.00	1.00	1.00	0.43	<b>5.39</b>	1.00	0.83	0.39	<b>2.22</b>
CA4	0.93	1.00	1.00	1.00	1.00	0.40	<b>5.33</b>	1.00	1.00	0.27	<b>2.27</b>
CA5	0.93	1.00	1.00	1.00	1.00	0.20	<b>5.13</b>	1.00	1.00	0.27	<b>2.27</b>
CA6	0.91	1.00	1.00	1.00	1.00	0.36	<b>5.27</b>	1.00	1.00	0.27	<b>2.27</b>
CA7	0.90	0.97	1.00	1.00	0.97	0.97	<b>5.81</b>	1.00	0.90	0.26	<b>2.16</b>
CA8	0.95	0.95	1.00	0.95	1.00	0.42	<b>5.27</b>	1.00	0.58	0.26	<b>1.84</b>
CA9	0.92	0.95	1.00	0.98	0.92	0.01	<b>4.78</b>	1.00	0.92	0.56	<b>2.48</b>
CA10	1.00	1.00	1.00	1.00	0.00	0.50	<b>4.50</b>	0.00	1.00	0.00	<b>1.00</b>
CA11	0.67	0.17	1.00	1.00	0.33	0.00	<b>3.17</b>	1.00	0.67	0.50	<b>2.17</b>
CA12	0.00	0.27	1.00	1.00	1.00	0.47	<b>3.74</b>	0.07	1.00	0.00	<b>1.07</b>
CA Mean	0.84	0.85	1.00	0.99	0.85	0.38	<b>4.90</b>	0.84	0.86	0.28	<b>1.98</b>

Table 4: Content Analysis Results for California kit items

None of the items in the California kit scored 1.00 for every attribute. Eight of the California items had a total layout score over 5.00. The items with the lowest total layout scores were CA11, the *Paid Family Leave Insurance* brochure and CA12, *Animals to Count* baby board book. *Parents Guide* received only 0.01 for Layout F (contrast between print and background) but otherwise had layout scores above 0.92. The two insurance brochures CA10 and CA11, had low scores for Layout E (size and style of type font) and CA11 scored low for white space. The baby storybook did not score well in layout compared to the other publications, possibly because

the criteria used were not applicable to its genre (i.e. storybooks). Overall, the layout attribute that scored lowest for California kit contents was Layout F (the contrast between text and background), with a mean score of 0.38. The layout attributes that scored the highest were Layout C (upper and lower case letters) and Layout D (underlining or bolding instead of all caps for emphasis), with every item scoring 0.95 or above for these two attributes.

All California kit items scored 0.95 or 1.00 for Visuals A (color used for emphasis), except for CA10, the *Medi-Cal* brochure and CA12, *Animals to Count*. More than half the pages in each booklet had a graphic illustration or photo, with an overall Visuals B score for the kit of 0.84. Multi-cultural images (Visuals C) were found on 28 percent of the pages of the kit overall. All items contained multi-cultural content in their images except CA10, the *Medi-Cal* brochure, and CA12, *Animals to Count*. The animal illustrations in the storybook did not depict any particular human cultural group, so they received no score for multi-cultural content.

To predict whether the Virginia kit will be as effective with a low-literate, culturally diverse audience as the California is, the same content analysis was performed on the Virginia kit and the results were compared. The results from the already proven California kit served as a standard, against which to evaluate the corresponding elements of the Virginia version. The results from the content analysis for the Virginia *New Parent Kit* are presented in Table 5.

Item	Layout							Visuals			
	A	B	C	D	E	F	Total Layout	A	B	C	Total Visual
VA1	0.00	1.00	1.00	1.00	1.00	1.00	<b>5.00</b>	1.00	0.00	0.00	<b>1.00</b>
VA2	0.83	1.00	1.00	1.00	1.00	1.00	<b>5.83</b>	0.67	1.00	0.33	<b>2.00</b>
VA3	0.38	0.33	0.92	0.88	0.21	0.45	<b>3.16</b>	1.00	0.92	0.13	<b>2.04</b>
VA4	0.94	0.71	1.00	1.00	1.00	0.97	<b>5.62</b>	0.75	0.71	0.31	<b>1.77</b>
VA5	0.89	0.64	0.93	0.93	0.14	0.50	<b>4.03</b>	0.96	0.96	0.36	<b>2.28</b>
VA6	0.83	0.83	1.00	1.00	1.00	0.17	<b>4.83</b>	1.00	1.00	0.33	<b>2.33</b>
VA7	0.75	0.75	1.00	1.00	0.25	1.38	<b>5.13</b>	0.88	0.63	0.25	<b>1.75</b>
VA8	0.90	1.00	1.00	1.00	0.03	1.00	<b>4.93</b>	0.00	0.52	0.06	<b>0.58</b>
VA9	0.75	1.00	1.00	1.00	0.13	0.75	<b>4.63</b>	1.00	0.13	0.00	<b>1.13</b>
VA10	1.00	0.25	1.00	1.00	0.50	0.13	<b>3.88</b>	1.00	0.50	0.38	<b>1.88</b>
VA11	0.50	0.00	1.00	0.00	1.00	0.50	<b>3.00</b>	1.00	1.00	0.00	<b>2.00</b>
VA12	0.00	1.00	1.00	1.00	1.00	1.00	<b>5.00</b>	1.00	1.00	1.00	<b>3.00</b>
VA13	0.50	0.00	1.00	1.00	0.00	0.50	<b>3.00</b>	0.50	1.00	0.00	<b>1.50</b>
VA14	0.31	0.50	1.00	1.00	1.00	0.94	<b>4.75</b>	0.78	0.94	0.69	<b>2.40</b>
VA15	0.67	1.00	1.00	0.83	0.83	1.00	<b>5.33</b>	1.00	0.50	0.33	<b>1.83</b>
VA16	1.00	0.00	1.00	1.00	0.00	0.00	<b>3.00</b>	1.00	1.00	1.00	<b>3.00</b>
VA17	0.83	1.00	1.00	1.00	1.00	0.83	<b>5.66</b>	1.00	1.00	0.33	<b>2.33</b>
VA18	0.86	0.79	1.00	0.86	0.50	0.50	<b>4.50</b>	0.86	1.00	0.50	<b>2.36</b>
VA19	0.00	0.53	0.71	0.71	0.79	0.53	<b>3.26</b>	0.26	0.88	0.00	<b>1.15</b>
VA20	0.83	0.50	1.00	1.00	0.83	0.83	<b>4.99</b>	1.00	1.00	0.33	<b>2.33</b>
VA21	1.00	1.00	1.00	1.00	1.00	1.00	<b>6.00</b>	1.00	1.00	1.00	<b>3.00</b>
VA22	0.67	1.00	0.83	0.83	0.33	0.67	<b>4.33</b>	1.00	1.00	0.33	<b>2.33</b>
VA23	0.00	0.00	1.00	1.00	0.00	0.00	<b>2.00</b>	1.00	1.00	0.50	<b>2.50</b>
VA24	0.83	0.83	1.00	1.00	0.17	0.83	<b>4.66</b>	1.00	0.83	0.00	<b>1.83</b>
VA25	0.83	0.83	1.00	1.00	1.00	1.00	<b>5.66</b>	0.67	0.83	0.33	<b>1.83</b>
VA26	0.50	0.67	1.00	1.00	1.00	0.33	<b>4.50</b>	1.00	0.67	0.33	<b>2.00</b>
VA27	0.75	0.13	0.88	0.88	0.88	0.38	<b>3.88</b>	1.00	0.63	0.50	<b>2.13</b>
VA28	0.77	0.15	1.00	0.08	0.08	0.23	<b>2.30</b>	0.08	0.15	0.08	<b>0.30</b>
VA29	0.67	0.67	0.83	0.83	0.17	0.67	<b>3.84</b>	0.50	1.00	0.00	<b>1.50</b>
VA Mean	0.65	0.62	0.97	0.89	0.58	0.66	<b>4.37</b>	0.82	0.79	0.32	<b>1.93</b>

Table 5: Content Analysis Results for Virginia kit items

One of the items from the Virginia kit received 1.00 for every attribute coded. That item was VA21, *Babies + Books = Bonding*. Nine of the 29 items received scores of 5.00 or higher. The storybook VA 19, *Goodnight Moon*, was one of the lower scoring items for layout, similar to the storybook in the California kit, further suggesting that this content analysis scheme was not well suited to evaluating storybooks. Mean scores for every layout attribute were lower for the Virginia kit than for the California kit, except for Layout F (the contrast between text and

background) which was higher. The mean scores for Visuals A and Visuals B were slightly lower than the scores for the California kit, and Visuals C was slightly higher.

T-tests were performed to determine which attributes had significantly different scores for the items in the California and Virginia new parent kits. Results for each attribute are shown in Tables 6 to 14.

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Layout-A</i>	<i>California Layout-A</i>
Mean	0.64762069	0.84
Variance	0.100032762	0.076745455
Observations	29	12
Hypothesized Mean Difference	0	
df	23	
t Stat	-1.938891865	
P(T<=t) one-tail	0.032440087	
t Critical one-tail	1.713871517	
P(T<=t) two-tail	0.064880174	
t Critical two-tail	2.068657599	

Table 6: t-Test Results for Layout A

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Layout-B</i>	<i>California Layout-B</i>
Mean	0.624251724	0.8475
Variance	0.133922916	0.087202273
Observations	29	12
Hypothesized Mean Difference	0	
df	25	
t Stat	-2.047814309	
P(T<=t) one-tail	0.025610243	
t Critical one-tail	1.708140745	
P(T<=t) two-tail	0.051220486	
t Critical two-tail	2.059538536	

Table 7: t-Test Results for Layout B

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Layout-C</i>	<i>California Layout-C</i>
Mean	0.968724138	0.995833333
Variance	0.005084707	0.000208333
Observations	29	12
Hypothesized Mean Difference	0	
df	33	
t Stat	-1.952902079	
P(T<=t) one-tail	0.029677586	
t Critical one-tail	1.692360258	
P(T<=t) two-tail	0.059355171	
t Critical two-tail	2.034515287	

Table 8: t-Test Results for Layout C

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Layout-D</i>	<i>California Layout-D</i>
Mean	0.890068966	0.994166667
Variance	0.061813638	0.000226515
Observations	29	12
Hypothesized Mean Difference	0	
df	28	
t Stat	-2.244829856	
P(T<=t) one-tail	0.016431294	
t Critical one-tail	1.701130908	
P(T<=t) two-tail	0.032862589	
t Critical two-tail	2.048407115	

Table 9: t-Test Results for Layout D

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Layout-E</i>	<i>California Layout-E</i>
Mean	0.580068966	0.848333333
Variance	0.172432281	0.107433333
Observations	29	12
Hypothesized Mean Difference	0	
df	26	
t Stat	-2.197801848	
P(T<=t) one-tail	0.01853376	
t Critical one-tail	1.705617901	
P(T<=t) two-tail	0.037067521	
t Critical two-tail	2.055529418	

Table 10: t-Test Results for Layout E

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Layout-F</i>	<i>California Layout-F</i>
Mean	0.657793103	0.3775
Variance	0.126289956	0.062875
Observations	29	12
Hypothesized Mean Difference	0	
df	29	
t Stat	2.861562852	
P(T<=t) one-tail	0.003871975	
t Critical one-tail	1.699126996	
P(T<=t) two-tail	0.00774395	
t Critical two-tail	2.045229611	

Table 11: t-Test Results for Layout F

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Visuals-A</i>	<i>California Visuals-A</i>
Mean	0.824162069	0.835
Variance	0.08444164	0.140063636
Observations	29	12
Hypothesized Mean Difference	0	
df	17	
t Stat	-0.089745312	
P(T<=t) one-tail	0.464769242	
t Critical one-tail	1.739606716	
P(T<=t) two-tail	0.929538485	
t Critical two-tail	2.109815559	

Table 12: t-Test Results for Visuals A

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Visuals-B</i>	<i>California Visuals-B</i>
Mean	0.785486207	0.864166667
Variance	0.087268235	0.024335606
Observations	29	12
Hypothesized Mean Difference	0	
df	36	
t Stat	-1.108591576	
P(T<=t) one-tail	0.137478941	
t Critical one-tail	1.688297694	
P(T<=t) two-tail	0.274957881	
t Critical two-tail	2.028093987	

Table 13: t-Test Results for Visuals B

t-Test: Two-Sample Assuming Unequal Variances

	<i>Virginia Visuals-C</i>	<i>California Visuals-C</i>
Mean	0.323689655	0.282916667
Variance	0.089675597	0.027120265
Observations	29	12
Hypothesized Mean Difference	0	
df	36	
t Stat	0.557317869	
P(T<=t) one-tail	0.290379622	
t Critical one-tail	1.688297694	
P(T<=t) two-tail	0.580759244	
t Critical two-tail	2.028093987	

Table 14: t-Test Results for Visuals C

At the level  $p = .05$ , the two kits were found to be significantly different for all layout attributes. The Virginia kit materials scored significantly lower than the California kit materials for Layout A (advance organizers or headers), Layout B (white space), Layout C (upper and lowercase letters), Layout D (Underlining or bolding rather than all caps for emphasis), and Layout E (size and style of type font). However, for Layout F (contrast between text and background), the Virginia kit materials scored significantly higher than the California kit materials. There was no significant difference found between the two kits at the  $p = .05$  level for Visuals A (color for emphasis), Visuals B (graphics or illustrations), or Visuals C (multicultural content).

The Virginia kit materials, as a group, failed to meet the standard set by the California kit for all but one of the layout attributes. The Virginia kit materials exceeded the standard set by the California kit for one attribute, contrast between text and background. The Virginia kit materials, as a group, met the standard set by the California kit for all three visual attributes.

#### *Audience Validation*

Results of readability testing and content analysis suggest that the *California Kit for New Parents* is superior to the *Virginia New Parent Kit*. This assumption was tested with a small

sample of parents in their homes, following the procedure detailed in the earlier discussion of methodology.

Before they had the opportunity to look at the contents of the two kits, the parents were each asked what they thought would be in the kit, and what they would like to see included in the kits. Incidentally, none of the mothers had seen either of the kits before, or received a Virginia *New Parent Kit*, even though three of the four lived in Virginia during their pregnancy and gave birth in a Virginia hospital. The topics that one or more of the parents expected to find covered in the new parent kits were breastfeeding, what to eat during pregnancy, safety and accident prevention, immunizations, baby care, sleeping position, how care for a sick child, feeding babies, and interaction with baby. Suggestions for other information that they would like to see included updated health knowledge and trends in baby care, symptoms of common illnesses and how to treat them, and CPR for babies. The Hispanic, lower literate mother thought that a breast pump should be included in the kit, as well as a video tape on how to do CPR on an infant.

Each parent was asked to look for one specific topic in each of the parent kits, either something they had suggested as probably being in the kits, or breastfeeding. Each of the parents went to the largest book in the kit first, most often finding the topic in the *Caring for Your Baby: Parents Handbook* of the Virginia Kit, and the *Parents Guide* of the California Kit. In looking for information on a specific topic, the folders and small pamphlets were only consulted on one occasion, by one mother looking for SIDS prevention information. She looked in the “Staying Safe” folder of the Virginia kit first. One topic that was not found anywhere when looked for in the California kit was information about how to care for a sick baby. Similarly, information about infant illnesses was covered only briefly in the *Parents Handbook* of the Virginia kit.

The parents generally liked the container the Virginia kit came in best, with its files for organization and a sturdy re-closeable box with handle. It was considered most likely to remain intact after it was brought home, and some mothers thought they would add pamphlets and information to the kit. One mother thought that she might take the folders out of the box and put them into her file cabinet. The materials in the California kit were considered more likely to be removed from the box and kept in different places; for example, the video tapes stored near the video cassette player, and the baby board book with other books.

There was a difference in opinion on the value of the video tapes compared with printed materials. The Hispanic mother, who also had lower reading skills, was most enthusiastic about the video tapes. She thought that new mothers would be more likely to watch a video than read a book. The others thought they would be more likely to look for printed information. Change of format to DVD was suggested by one mother, as a way to both reduce storage space, and provide a means to locate information quickly through a menu. All four mothers had both VHS and DVD players in their homes. All four were given the opportunity to choose one of the video tapes to watch, and they each chose the same one, the tape titled *Discipline*.

Recently approved for inclusion in the *California Kit for New Parents* is the book, *What To Do if Your Child is Sick* (Mayer & Kuklierus, 2001). All of the mothers rated it highly for all categories. The lower literate mother was most excited about it, and said that if she had that book, she would use it when friends call for advice, even after her own babies are grown. She said that the most of the pamphlets in the kits would only be useful for a short time, while the baby is small, but this book would be useful for a long time.

There was a marked difference in opinion about the relative value of the two storybooks included in the two different kits. The Hispanic, lower literate mother was much more in favor

of the *Goodnight Moon* storybook from the Virginia kit. She said, “It is really hard to make up a story, but it is really easy to count”. The three other mothers each said that the *Goodnight Moon* book was not appropriate for a young baby, and preferred the *Animals to Count* book from the California kit because it can stand up to the use of babies and toddlers.

The Hispanic, lower literate mother gave a consistently low score to *Playing with Your Baby*, which is written below fourth grade level, has large print, lots of white space, and multiple, colorful illustrations. She indicated that there was no point in reading such a pamphlet, as it had little useful information, and everyone should know it already. She was much more impressed with larger books, filled with information she considered to be important. She thought the California kit would be improved if the baby board book was replaced with the *Goodnight Moon* book, and the Virginia kit would be improved if the video tapes were added. In her opinion, both would be improved with the addition of the *What to Do if Your Child Gets Sick* book. In fact, all four parents thought *What to Do if Your Child Gets Sick* would be a valuable addition to new parent kits.

After looking through the California booklet, *Your Healthy Baby*, one of the mothers remarked that she would not want to read it because of the white printing on a dark purple background on some of the pages. The same mother said that the dark blue text and small font size of the Virginia booklet *Selecting and Monitoring Child Care* would not deter her from reading it.

The mean scores for each of the survey questions are presented in Table 15. Each item was ranked from zero to five for appeal, usefulness and frequency of use.

Items	Appeal	Usefulness	Frequency of use	Reading Level
What to do if your child gets sick (CA)	4.75	5.00	4.50	3*
Parents Guide (CA9)	4.50	5.00	4.25	4.3
Baby's First Year (VA5)	4.50	4.25	3.75	6.3
Buckle up Virginia! (VA22)	4.25	3.50	2.00	6.9
Parents Handbook (VA4)	4.00	4.00	3.00	5.7
Bright Futures Health Record (VA10)	4.00	3.25	2.50	5.8
Safe Sleep for your baby (VA27)	4.00	3.25	1.75	6.5
California Video tapes (CA)	3.75	4.00	3.00	----
Safe from the Start (CA7)	3.50	3.50	2.50	3.6
Playing with your baby (VA20)	3.50	3.25	1.75	3.6
iparent magazine (VA3)	3.25	3.25	1.50	9.3
Getting Connected (VA28)	3.25	2.75	2.50	11.9
Medi-Cal brochure (CA10)	2.75	2.50	0.75	9.2
FAMIS brochure (VA16)	2.75	2.25	0.75	8.4

Table 15: Mean survey results from all respondents

\* As reported by the Institute for Healthcare Advancement

The item rated highest in all three categories was *What to Do if Your Child Gets Sick*, the book that is going to be included in future editions of the *California Kit for New Parents*.

*Parents Guide* from the California kit was the only other item that received the highest score from all four respondents for usefulness, and the mean score for appeal and frequency of use was second highest. The parents' responses to these two items validate research findings attesting to the effectiveness of the publications, which were developed specifically for a low literacy audience. However, *Safe from the Start* and *Playing with Your Baby* did not get similarly high ratings by the parent respondents, even though they have a comparable reading level, and rated highly for Layout and Visuals in the content analysis.

*Ip parent magazine*, *Getting Connected*, and the *Medi-Cal* and *FAMIS* health insurance brochures were rated the lowest in all categories overall. These items had the highest reading levels of all the items rated by the parent respondents. Each of them had the lower scores for layout in the content analysis than the average for their respective kits. *Getting Connected* and the *Medi-Cal* brochure scored the lowest for visuals for the Virginia and California kits

respectively, although the *FAMIS* brochure and *Iparent magazine* scored higher than average for visuals.

The shorter brochures were rated with low scores for frequency of use, probably due to their short length and limited content. Once these brief documents have been read, they are not as likely to be referred to again. The mother with lower reading ability scored the video tapes highly in all three categories (appeal, usefulness and frequency of use) while the other three mothers gave the video tapes moderate to low scores in all three categories. The perceived value of audio-visual content over books may be related to the literacy level of the respondent.

### Conclusions and Recommendations

The *California Kit for New Parents* exhibited, in varying amounts, all of the elements identified and measured in this study, which contribute to superior print communication in materials for low health literate audiences. Most of the same elements were evident in the *Virginia New Parent Kit*, but not all of the elements were exhibited to the same extent in the Virginia kit as in the California kit.

Nearly all of the printed items in the California kit demonstrated a reading level appropriate for a low literate audience. The two brochures (*Medi-Cal* and *Paid Family Leave Insurance*) that appear to have been added to the kit after its design are the only items whose reading level exceeds the recommended range. Therefore, it is recommended that caution be exercised when inserting extra items into a packet of materials designed for a particular purpose and audience. Efforts should be made to ensure that the style and content of any additions do not distract from the objectives of the existing kit.

Unlike the California kit, the majority of the Virginia kit materials tested beyond the recommended reading level range for low health literate audiences. The mean reading level of

the Virginia kit items was nearly two full grade levels above the mean reading level of the California kit items.

Content analysis confirmed the presence of specific layout and visual principles in the California kit. While the Virginia kit items and the California kit items equally demonstrated evidence of all of the visual principles, they did not equally demonstrate any of the layout principles. The Virginia kit items failed to reach the standard set by the California kit for five of the six layout attributes. In only one attribute did the Virginia kit items exceed the standard set by the California kit items, that being in contrast between text and background.

Since the analysis found that the Virginia kit materials were generally inferior to the California kit materials in demonstrating some key attributes that are known to make health promotion materials effective for a low literacy audience, it might be expected that the Virginia kit is less effective with this audience than is the California kit. When this assumption was tested on a small sample of parents, their responses to the kit items were generally consistent with the findings of the readability testing and content analysis. However, the parents' reaction to a few of the items was contrary to that which would be predicted by the analysis alone. Some items that scored well in readability and the content analysis did not test as well with the sample audience, those being two of the shorter pamphlets and booklets.

Interesting observations and insights were gained from the parent interviews and warrant further investigation. These observations include the low literate mother's strong preference for books over pamphlets. She seemed to look for practical tools to help her in parenting, as evidenced by her suggestions for a breast pump and infant CPR instruction to be included in new parent kits. Her choice of the *Goodnight Moon* storybook over the small counting book was consistent with her strategy to seek practical assistance. She thought she

needed more help in telling stories than in teaching her child to count. Clearly, caution should be exercised in generalizing the results of the parent interviews and survey results because of the small sample size, with only one low literate parent from a differing culture and language background. Some other observations relating to the responses of the parent sample audience that warrant further investigation include the differing preference for audio visual materials over printed literature, the differing opinions about the choice of storybook, and the consistent preference for lengthier, more substantive documents over short pamphlets.

This study treated all attributes (of layout, visuals, and readability) as having equal weight in contributing to effective health promotion literature for a low literacy audience. Future research could determine the relative contribution of each attribute to the effectiveness of a piece of literature. This study focused on readability, and layout and visual principles, but future research could examine the role of the style of content and the messages in the text in contributing to effective health promotion literature. Further research should utilize a larger and more culturally diverse validation sample, with more low literate individuals, and some expectant parents.

There are long-term positive consequences to be gained by developing health promotion materials that are appropriate for the audiences of consumers for whom they are designed, and by taking into account the levels of health literacy and communication orientations of these audiences. Effective health promotion literature for new parents was found to follow specific principles recommended for low literacy print materials. It is recommended that these principles be used to refine existing new parent kits, and be incorporated into the development of similar new parent materials.

## Appendix A: Coding form for content analysis of new parent kits

Kit: VA or CA

Item number: \_\_\_\_\_

## I. Readability score \_\_\_\_\_

Grade level of text (for the entire brochure or booklet containing the page)

-Expressed in Flesch-Kincaid grade level

## II. Layout

- A. Material uses advance organizers or headers.  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_
- B. White space: at least 25 % of the page is white space.  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_
- C. Text uses upper and lowercase letters.  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_
- D. Underlining or bolding rather than all caps for emphasis.  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_
- E. Type and style of print are easy to read; type is at least 12 point.  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_
- F. High contrast between background and all text on page (determined by whether contrast between all text and background allows for differentiation by OCR)  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_

## III. Visuals

- A. Color used for emphasis on page (besides photos and illustrations)  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_
- B. Graphic or Illustrations (one or multiple)  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_
- C. Multi-cultural  
Culture (other than white, non-Hispanic) is represented in any illustration?  
Each page gets 1 for yes; 0 for no  
Average of all pages \_\_\_\_\_

Appendix B: Coding table for multiple page documents

(attach one to each coding form)

Item: \_\_\_\_\_

Page	Layout						Visuals		
	A	B	C	D	E	F	A	B	C
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
total:									

Add more lines for documents exceeding 20 pages

## Appendix C: Interview Guide and Survey Instrument (to be filled in by interviewer)

## A. Preliminary information:

1. Purpose of study- evaluate materials given to new parents, to see if they are helpful, and how they could be better.
2. Confidentiality, permission to record.
3. Demographics  
Number of Children \_\_\_\_ & ages \_\_\_\_\_
4. Parent's age when first child born \_\_\_\_\_
5. Education level \_\_\_\_\_
6. Ethnicity \_\_\_\_\_

## B. Introduce the two parent kits

1. What information would you expect to find in a Kit for New Parents? (top 3-5)
  
2. What information would you really like to find included? (top 3-5)

## C. Look for information about one topic in each kit. (one of her suggestions, or breastfeeding)

1. Virginia Kit- what process did you go through? How easy was it to find?  
time to find \_\_\_\_\_
  
2. California Kit- what process did you go through? How easy was it to find?  
time to find \_\_\_\_\_

## D. Browse through kits, look at each section and item. Watch a few minutes of one video.

General comments about parts of kit:

Organization- folders, topics,

Videotapes- useful or not? What about DVDs?

Story books-

## E. Packaging: Does the packaging contribute to the usefulness &amp; appeal?

VA-

CA-

Where would you store the kits?

Store together, or broken up?

Would you keep every item?

F. Rate items for their appeal, how attractive (pleasing, inviting) it is  
Zero to Five (0: not at appealing; 5: very appealing)

VA Iparent magazine:	0	1	2	3	4	5
VA Caring for your Baby	0	1	2	3	4	5
VA FAMIS brochure	0	1	2	3	4	5
VA Babies First Year	0	1	2	3	4	5
VA Getting Connected	0	1	2	3	4	5
VA Bright Futures Health Record	0	1	2	3	4	5
VA Sleep Safe	0	1	2	3	4	5
VA WIC Playing with your baby	0	1	2	3	4	5
Buckle up Virginia!	0	1	2	3	4	5
CA Video tapes:	0	1	2	3	4	5
CA Keeping your child safe	0	1	2	3	4	5
CA Medi-Cal brochure	0	1	2	3	4	5
CA Parents Guide	0	1	2	3	4	5
CA What to do if ... sick	0	1	2	3	4	5

G. Rate items for usefulness (for yourself, both when baby was new and now, how informative)  
Zero to Five (0: not at all useful; 5: very useful)

VA Iparent magazine:	0	1	2	3	4	5
VA Caring for your Baby	0	1	2	3	4	5
VA FAMIS brochure	0	1	2	3	4	5
VA Babies First Year	0	1	2	3	4	5
VA Getting Connected	0	1	2	3	4	5
VA Bright Futures Health Record	0	1	2	3	4	5
VA Sleep Safe	0	1	2	3	4	5
VA WIC Playing with your baby	0	1	2	3	4	5
Buckle up Virginia!	0	1	2	3	4	5
CA Video tapes:	0	1	2	3	4	5
CA Keeping your child safe	0	1	2	3	4	5
CA Medi-Cal brochure	0	1	2	3	4	5
CA Parents Guide	0	1	2	3	4	5
CA What to do if ... sick	0	1	2	3	4	5

## H. Rate items for how often you would refer to them:

Zero to Five (0: never read/look at; 5: refer to often)

VA Iparent magazine:	0	1	2	3	4	5
VA Caring for your Baby	0	1	2	3	4	5
VA FAMIS brochure	0	1	2	3	4	5
VA Babies First Year	0	1	2	3	4	5
VA Getting Connected	0	1	2	3	4	5
VA Bright Futures Health Record	0	1	2	3	4	5
VA Sleep Safe	0	1	2	3	4	5
VA WIC Playing with your baby	0	1	2	3	4	5
Buckle up Virginia!	0	1	2	3	4	5
CA Video tapes:	0	1	2	3	4	5
CA Keeping your child safe	0	1	2	3	4	5
CA Medi-Cal brochure	0	1	2	3	4	5
CA Parents Guide	0	1	2	3	4	5
CA What to do if ... sick	0	1	2	3	4	5

## I. Additional comments:

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