THE CONTRIBUTION OF INFORMATION LEAFLETS TO
ADVICE AND PRACTICE IN INFANT CARE
IN A REGION OF HIGH COT DEATH

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The needs of children have an urgent quality about them. Children do not keep. They are exquisitely sensitive to time. The food they demand, the love they require, and the stimulation they need cannot be put off without harm to their growth. Developmental needs must be met or development is stifled. Providing the best care we know how to give is no guarantee of a trouble free future. Nothing is. But that care will make it more likely that our children will be equipped to face the problems that are an inescapable part of the human condition.

Leon Eisenberg (1987)
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ABSTRACT

The study investigated the contribution of information leaflets to advice and practice in infant care within the wider context of parent learning. Two leaflets about reducing possible risks of cot death were of particular interest. The practices selected for study were infant feeding, sleep position and warmth assessment choices. As well the clothing, bedding and heating arrangements of babies in bed at night were described and compared with practices of Christchurch parents in 1986.

Ninety seven maternity patients at Christchurch Women's Hospital were interviewed in hospital and 53 of these, who were new mothers, were interviewed again at home when their babies were about three months old. The hospital interviews gathered information about promoted behaviours, sources from which written and verbal advice were received, women's perceptions of written and verbal advice received and their intended choices for infant feeding, sleep position and warmth assessment. The home interviews gathered information about written and verbal advice sought and received since the baby's birth, women's perceptions of this advice and of their learning experiences, actual infant feeding, sleep position and warmth assessment choices. Evidence of behaviours was obtained by three consecutive days of diary recording for infant feeding and sleep position, and by observation for infant warmth assessment. Details of clothing, bedding and heating arrangement for babies in bed at night were also gathered.
Promoted behaviours were breastfeeding, the side sleeping position, and to a lesser degree, feeling the torso to assess an infant's warmth. These behaviours were consistent with those promoted in the cot death-related leaflets. Doctors in particular, and health professionals in general were women's most trusted sources for advice about infant care. Written information reported to have been seen was generally reported to have been read by hospital subjects and readers were representative of the total sample. Materials in the Plunket information pack were well read and more than half the home subjects reported reading most of the materials. The cot death related leaflets were amongst those most often reported to have been read (by more than three quarters of subjects), perceived to have been helpful and thought worth recommending to other parents. Hospital subjects' intended choices of infant care were breastfeeding for 85, the side sleeping position for 89, and feeling the torso to assess infant warmth for 34 subjects. By the time their babies were three months old a significant number of home subjects had changed from their intended practices. Twenty five women had changed from fully breastfeeding (chi²=26.0, df 1, p<0.005), 16 from intending the side sleep position only to including the back (chi²=21.0, df 1, p<0.005) and 31 subjects changed to feeling the torso to assess infant warmth (chi²=40, df 1, p<0.005). Knowing that the prone sleep position was a risk factor for cot death was the reason given by 17 of 19 experienced mothers for changing from choosing the prone sleep position for their last baby to choosing the side or back for the new baby. There were significant changes in clothing and bedding practices for home subjects compared to practices in 1986 with 1990 parents more likely than 1986 parents to have used 6 or less layers of total coverings on their infants in bed at night (chi²=20.9,
df 1, p<0.005). Readers of the cot death related leaflets were representative of the total hospital sample and were more likely than non-readers to have had an intended warmth assessment method (chi²=9.3, df 1, p<0.005). Actual infant sleep position and thermal care practices of readers of the two leaflets were consistent with those promoted in the leaflets.

The study's findings suggest that information leaflets have made a useful contribution to advice and practice in infant care. In this way leaflets have the potential to contribute to reducing infant deaths and they deserve an important place in education programmes to improve infant care and prevent cot deaths.
CHAPTER I

INTRODUCTION

I. GENERAL INTRODUCTION

Cot death is an enormous public health problem. In New Zealand it is the major cause of death of children aged less than twelve months and contributes to more than one quarter of all deaths of children under fifteen years (de Boer, Saxby and Soljak, 1990). Although the internationally accepted definition of cot death is "the sudden death of any infant or child which is unexpected by history and in which a thorough postmortem fails to demonstrate an adequate cause of death" (Beckwith, 1970) most deaths occur when an infant is aged between one and five months, with a peak incidence at two to three months (Valdes-Dapena, 1980; Nelson, Williams, Taylor, Morris and Ford, 1989).

In Canterbury the problem is particularly severe and one baby in every one hundred and fifty born, is likely to die suddenly, unexpectedly and without explanation (Ford, 1986). Theories about possible causes are often aired in the media, where attention to cot death in general has grown in recent years. Many of these theories question the safety of modern infant care practices and such public exposure of these theories can undermine the confidence of parents and others in knowing how best to care for a baby.
II. THE PROBLEM AND ITS IMPORTANCE

The raised community awareness in Canterbury has led to increased recognition, funding support and attention to the problem of cot death, but on an individual basis it has made people very frightened for the babies in their care. Evidence that differences in lifestyle and child care practices may contribute to cot death (Nelson, Taylor and Mackay, 1989) has major implications for the role of parent education about infant care.

In New Zealand, a variety of educational resources for parents have been produced (see appendix 1 to 6) to support Plunket nurses, doctors, midwives and others who are giving advice on infant care and who are dealing with the associated problem of anxious parents. However, the influence of these materials on that advice and on parents' knowledge, attitudes, infant care practices and on infant mortality itself, has not been assessed.

As well as their evaluation, the design of education programmes is important and will influence their effectiveness. To promote changes in parental practice that encourage people to reduce possible risks of cot death, more information is needed of how parents learn and of why they make the infant care choices that they do. The need for more statistical and research information so that effective action can be taken to improve children's health, was stressed in the foreword of the Department of Health's "Child Health Profile" (Hassall, 1990). The futility of recent examples (not specified) of action, proposed and taken on the basis of inadequate information was seen as wasting
resources and perhaps undermining by association programmes that were more rationally based.

Evidence of what parents already know and do, who they trust for advice, the sources from which they seek and receive advice, their perceptions of how helpful is the information and advice they get, whether or not they read what they see and apply what they know, whether or not they sustain a behaviour change, any difficulties in practicing promoted behaviours, and evidence of other potential influences would all be useful in planning such programmes yet there is little evidence of this kind available.

If education about reducing risks has a place in the prevention of cot death then the importance of the design and evaluation of education initiatives is obvious.
CHAPTER II

REVIEW OF THE LITERATURE

I. VARIATIONS IN COT DEATH RATES

There are wide variations in cot death rates between races, places and seasons (Peterson, 1988), even within New Zealand (de Boer et al, 1990). Being maori, living in the southern regions of New Zealand and being winter or spring are all factors that put babies at increased risk (Borman, Fraser and de Boer, 1988). Even within the city of Christchurch the suburb of Linwood has been singled out as an area of high risk for cot death, (Ford, 1990) a finding that received alarming headlines in the city's newspapers (Christchurch Star, June 26 1990).

Other factors consistently linked to an increased risk are cigarette smoking by parents, low birth weight and premature babies, babies born to younger mothers especially to teenage mothers, and babies of mothers who are unmarried, of mothers who have minimum education, and of families who are economically stressed (Peterson, 1988; Borman et al, 1988; McGlashan, 1989). These risk factors interrelate to some degree and are not specific to cot death. The single, most consistent characteristic, unique to cot death, is the age distribution at death (Peterson, 1988).

Identifying high risk groups can be misleading. Although those babies whose weight at birth is less than 2500 grams, are at higher
risk of cot death, 86% of cot death babies in the 1983 to 1985 period in New Zealand weighed more than 2500 grams at birth (National Health Statistics Centre, 1986). Similarly, for the same period in New Zealand, babies of teenage mothers had a high cot death rate of 7.5 per 1000 live births, but 85% of cot death babies in that period had mothers who were older than 20 (National Health Statistics Centre, 1986). A large proportion of cot deaths show no association with identified risk factors. It is in these larger low risk groups that there is the greatest potential for prevention.

II  RELATIONSHIP BETWEEN COT DEATH AND INFANT CARE

The wide variations in cot death rates strongly suggest that many deaths are preventable yet the idea of preventing cot deaths has been highly controversial because of the uncertainty surrounding its causes. Several theories have been put forward to explain these mysterious deaths in terms of care practices that may disadvantage babies (Stanton, 1984; Nelson and Taylor, 1989; McGlashan, 1989). Where research can identify high risk behaviours, as well as high risk groups of babies, the hope of preventing at least some of these deaths is more likely, for behaviours are more amenable to change.

As early as 1978 (Beal and Blundell, 1978; Kravitz, 1978) it was suggested that certain infant sleep positions increase the risk of cot death, but evidence suffered from a lack of normal population data. More recently, there has been growing support for a statistical association between the prone (tummy) sleeping position for infants and
increased risk of cot death (Beal, 1988; Nicholl and O'Cathain, 1988; McGlashan, 1989). Yet in Scandinavian countries were infants normally sleep prone, the cot death rate is very low (Norvenius, 1988). In Hong Kong, where cot death rates are also low (Lee, Chan, Davies, Lau. Yip, 1989), babies are traditionally put down to sleep on their backs due to a common belief that it prevents suffocation. These contradictory findings suggest that sleeping position alone cannot explain cot deaths and it is thought that prone sleeping, together with other factors, may contribute to overheating (Nelson, Taylor and Weatherall, 1989) or make breathing difficult for some babies (Tonkin, 1975; Thach and Stark, 1979).

Several studies have suggested a link between overheating and cot death for some infants (Bacon, Scott and Jones, 1979; Stanton, 1980; Stanton, 1984). The increased incidence in colder months and in colder regions (Borman et al, 1988), combined with raised parental anxiety, may contribute to inappropriate thermal care of infants by their parents. Bacon (1988) described how overheating could lead to death and hypothesised that "over-zealous attempts to protect babies from cold may possibly be doing more harm than cold itself" (p.19). Stanton (1984) summarised several studies which gave supporting evidence for the overheating hypothesis, but they did not supply evidence of infant warming practices in the normal population.

A recent study in Avon, England, investigated the interaction between infant sleep position and thermal care in relation to cot death. (Fleming, Gilbert, Azaz, Berry, Dudd, Stewart and Hall, 1990). The study included 72 cot death victims and 144 age-matched controls from the same neighbourhood. The authors found that both factors were
independently associated with an increased risk of cot death. Their results showed that for infants more than seventy days of age, sleeping prone and being heavily wrapped increased the risk of cot death by a factor of 166 times, compared with infants of the same age who were sleeping on their back, or on their side, and lightly wrapped. Cot death babies were also more likely to have had heating on all night. Fleming et al (1990) concluded that educating parents about appropriate thermal care and appropriate sleeping position of infants may help reduce the incidence of cot death.

The Avon study (1990) confirmed a theoretical suggestion by Nelson et al (1989c) of Dunedin, that in the presence of excess bedding the risk of cot death is higher for infants who are sleeping prone.

It has already been mentioned that there is a strong and consistent association between smoking and cot death (Peterson, 1988; McGlashan, 1989). In the seven year prospective Tasmanian study McGlashan (1989) found that although nearly half (46%) of the mothers in the study population normally smoked, nearly half of these again were able to give up during pregnancy and while their babies were very young. Mothers of cot death babies were less likely than control mothers to have done this. Only 27% of control mothers smoked during pregnancy compared to 62% of mothers of cot death babies. This study also found that paternal smoking, smoking by visitors in the presence of a baby and the number of cigarettes smoked, all added to the risk of cot death, suggesting an effect of passive smoking by the baby. McGlashan concluded from this that no one should smoke in the presence or surroundings of a young baby.

There are contradictory findings of the relationship between
breastfeeding and cot death. In a review of cot death research (Golding, Limerick and Macfarlane, 1985,) it was reported that earlier studies had found that very few cot death babies were breastfed. Golding et al (1985) suggested that such an association was not surprising for the prevalence of breastfeeding had been shown to be linked to social variables that were themselves linked to cot death. More recently the seven year prospective study in Tasmania (McGlashan, 1989) found that breastfeeding to age of death (or equivalent age for control babies) reduced the risk of cot death very significantly. Of the total sample of 489 babies, 73.2% were initially breastfed, slightly more of these were controls than cot death babies. By the date of death, or its equivalent for controls, 32.9% of cot death babies and 56.5% of controls were being breastfed. At the time of the design of the present study, no major studies, that had controlled for social factors in their analysis, had found an association between breastfeeding and a reduced risk of cot death. It is generally agreed that breastfeeding is best for babies and is worth promoting on those grounds, but there was not enough evidence at the time this study was designed, to suggest that breastfeeding has a major role to play in reducing cot deaths.

In November 1990 the results of the first year of the New Zealand Cot Death Study, a three year, multicentred epidemiological study, were reported to the Annual Scientific Meeting of the Paediatric Society of New Zealand (Mitchell, Scragg, Stewart, Becroft, Taylor, Ford, Hassall, Barry, Allen, Roberts). One hundred and twenty eight cot death babies were compared with 503 control infants who were a representative sample of all hospital births in the study region. The
findings confirmed many of the social risk factors for cot death as well as maternal smoking and the prone sleeping position for infants. Breastfeeding was also found to reduce significantly the risk of cot death. These risks appeared to be independent of all other variables and of each other. The authors suggested that if New Zealand parents stopped putting their infants down to sleep in the prone position, did not smoke and if mothers breastfed their infants, 79% of cot deaths in this country may be prevented.

The strong association between cot death and the practices of infant sleep position, thermal care, parental smoking and to a lesser degree, breastfeeding would suggest that infant care education has an important role to play in cot death prevention.

III NORMAL INFANT CARE PRACTICES

To design and evaluate health education initiatives it is necessary to consider normal infant care practices, in order to identify educational needs, to compare practices and to measure any change in practice with time.

In March 1983, a national survey of infant sleep position was carried out in New Zealand, under the auspices of the Plunket Society and the Department of Health (Hassall and Vandenberg, 1985). The survey included 4041 infants, aged one to four months, which was 32% of those born live during the study period. Parents were shown illustrations of infant sleep positions and asked to identify which illustration best described how their baby was usually put down to
sleep and how their baby usually ended up sleeping. Infants of all ages were put down to sleep in two common positions: on their sides (43%) and on their fronts with the face to one side (46%). For three month old infants 40% were usually put down on their sides, 49% on their fronts and 8% on their backs. Three per cent had no set pattern. The study showed that many babies changed position during sleep and that the proportion of infants in the different sleep positions changed with age. By far the most common position that babies of all ages ended up sleeping was on the front (45%). Three month old babies usually ended up sleeping on their fronts (47%) or backs (31%) with only 16% on their sides.

It has already been reported that parents in many Asian cultures traditionally sleep their babies on their back, but many Western cultures avoid the back because of a common belief that babies might be in danger of inhalation of vomit (Nelson et al 1989a). Prone sleeping has been replacing side sleeping in recent years due to documented benefits of prone sleeping for newborn preterm infants (Orenstein, Whittington, Orenstein, 1983; Stothers and Warner, 1984; Lee, Davies and Chan. 1988). A French study found regional differences in infant sleep positions depending on maternity advice (Senecal, Roussey, Defawe, Delahaye, Piquemal, 1987).

Several studies have described what parents do to keep their babies warm at home. Eiser, Town and Tripp (1985) found that most of the 199 Exeter mothers interviewed responded appropriately to temperature regulation in their healthy babies, but tended to keep their unwell infants in environments that were too warm. Nelson and Taylor (1989) also found Otago parents responded to perceived illness
in their infants by increasing the bedding, but Fleming et al (1990) showed no evidence for such a trend in Avon parents.

Nicoll and Davies (1986) found that about one third of the 200 infants in their study were wearing more than Stanton's (1984) "normal maximum requirements" of equivalent to a vest, stretchsuit, cardigan, sheet and three single blankets. This was despite being in rooms at (or higher than) his recommended 18°C. They pointed out that it was therefore not surprising that histories of overheating were associated with some cot deaths.

In 1986 a local study looked at how 235 Christchurch babies, aged between two and four months, were kept warm in bed on cold nights (Cowan, 1990a). The study described parental practice and not the impact of such measures on babies' thermal comfort. The mean number of clothing layers covering the torso of sleeping infants was 3.3 (range 2 to 6, SD 0.85) and of bedding layers was 3.7 (range 1 to 8, SD 1.42). The combined number of layers of clothing and bedding covering the torso of infants ranged from 3 to 12 with a mean of 7.0 (SD 1.8), which is one layer more than Stanton's "normal maximum requirements". Fifty-nine per cent of babies in this study were reported to be wearing more than Stanton's recommended 6 layers of clothing and bedding combined. More than half the babies slept in rooms with thermostatically controlled heating on all night and only 28% of babies slept in essentially unheated houses. The mean daily minimum temperature for the study nights was 1.64°C (range -3°C to 7°C, SD 2.36). The mean daily maximum temperature for the days preceding the nights of the study was 11.9°C (range 7 to 20, SD 3.15). The main finding of this study was that the use of heating in a baby's room was not related to the amount of total coverings (or to outside weather temperatures), a
practice that could put some babies at risk of thermal stress. An unexpected finding was the difference in parental practice between Plunket clinics, a finding which suggests that the Plunket nurse may have considerable impact on what care parents give. The author concluded that there was a need for better understanding, by parents and health professionals, of how to combine appropriately the factors that kept a baby warm.

In a more recent English study Wailoo, Peterson, Whittaker and Goodenough (1989) investigated the thermal environment in which three to four month old infants sleep at home and also found that many babies are commonly put to bed under excessive amounts of bedding.

There have been no reports of previous studies of how parents decide whether their baby is too hot or too cold.

Of the 402 fathers in the Tasmanian study (McGlashan, 1989) mentioned earlier, 62.5% were regular cigarette smokers although 15% smoked fewer than ten cigarettes per day. Nearly half the mothers in this study also usually smoked, but as has also been mentioned, nearly half of these again were able to stop while pregnant and while their babies were young.

The Royal New Zealand Plunket Society monitors breastfeeding levels of babies under its supervision which includes more than 80% of New Zealand babies (de Boer et al, 1990). Over the 1982-1986 period 89.2% of infants were breastfed when first seen by a Plunket nurse (de Boer et al, 1990). The most recent breastfeeding statistics for the Christchurch Plunket District (Mayo, 1991), where Plunket supervises 96.7% of the regions' babies (Mayo, 1991), showed that 83% of women
were breastfeeding their babies at the time of the first Plunket visit. This dropped to 61% by the time an infant was 3 months old.

Studies of normal infant care practices, in New Zealand and elsewhere, tend to support the conclusion of Fleming et al (1990) that there is a need for educating parents about appropriate infant sleep positions and appropriate thermal care, as well as indicating the need for programmes to support women to continue breastfeeding for longer and to support parents to stop smoking.

IV. HEALTH EDUCATION

The relationship between cot death and infant care puts education about infant care in the realm of health education. A number of health education models (Rawson and Grigg, 1988) have been proposed that attempt to provide a framework for linking theory to practice. Models tend to simplify reality to a greater or lesser degree and the fact that Rawson and Grigg identified 17 health education models is an indication of how complex health education is. However, it is possible to identify from models, principles for effective health education and apply these principles to planning and evaluating education initiatives involving the use of information leaflets.

When a medical problem has an educational solution there is the risk that the conventional medical role of diagnosing and treating, results in medical model assumptions of health education. Such a model assumes that information leads to increased knowledge, attitude and behaviour changes which in turn improve health and prevent sickness
(Fowler, 1985a). Fowler discussed the problems of this model of health education and its failure to acknowledge that an individual's health perceptions, beliefs and expectations, and his social, cultural and educational background can be major obstacles to healthy behaviour. He suggested that a more extensively validated model of health behaviour was the "health belief model" (Rosenstock, 1966).

The essential features of this model were personal motivation, perceived vulnerability, perceived seriousness, perceived benefits and costs and cues to action (events which precipitate a response). These perceptions were necessarily subjective and might be considerably influenced by misconceptions and bias. Fowler (1985a) suggested that they were partly influenced by information from health professionals, too, and that health professionals must acknowledge their potential influence on these perceptions.

Related to the "health belief model" of health education is the concept of "locus of control" which Fowler (1985a) explained as the extent to which an individual feels he has some or no control over his health. It was the degree of control that determined whether an individual was likely to pursue healthy behaviour, with those who believed they had some control being more likely than those who did not believe this, to pursue healthy behaviour.

Within the health belief model Fowler (1985a) described the individual most likely to comply with advice as being one who felt concerned about his future health, felt vulnerable, felt able to influence his health and felt that the benefits outweighed the disadvantages. Hence, in this setting, health education literature might enhance the effectiveness of advice giving by health professionals.
Several definitions of health education appear in the literature (Green, 1980; World Health Organisation, 1982; Davidson-Rada, Hill and Yarrall, 1986). Green's (1980) definition was "any combination of learning experiences designed to facilitate voluntary adoption of behaviour conducive to health" (p.7). In this way Green saw that health education could strengthen and appeal to existing motives but did not in itself motivate behaviour. This concept is consistent with the "health belief model". The World Health Organisation definition (1982) was "Health education ... aims to persuade people to adopt and sustain healthy life practices, to use judiciously and wisely the health services available to them, and to take their own decisions both individually and collectively, to improve their health status and environment." Another definition (Davidson-Rada, Hill and Yarrall, 1986) stated that the aims of health education should be to help people achieve health by their own actions and effort. To do this, the recommended behaviour needed to be compatible with the value system and culture of the target group and the reasons for behaviour change needed to be understood and accepted by those for whom it was intended. Davidson-Rada et al (1986) stressed that the design and implementation of materials or programmes was as important as the health content itself.

Digby (1985) also stressed the importance of the context within which health messages were presented and suggested that, to be effective, health education needed to rely on public cooperation. He made several criticisms of health education and cautioned against the "missioning social engineer" (p.43) impatient for wholesale change rather than modest reform. He also cautioned against unintended
consequences of education efforts and against treating people as idiots and their choices as "ignorant, weak muddlings" (p.43). His final caution was that content be honest and not used as propaganda.

Ashton (1985) discussed the principles in common between marketing and health education. Marketing demanded a close match between the product or service and the need. Where a product closely met a need there was a higher value placed on the product. This led to a stronger relationship between the product and the need and better performance. Information is the cornerstone of marketing and if the parallels between marketing and health education were valid then information leaflets about infant care that closely matched the needs of parents to know and understand their baby, should be more likely to be effective in influencing parental practice.

Offer (1989) discussed the relationship between people's beliefs and the expert's diagnosis. Because health education was in competition with changing fashions and the logic of fatalism, it needed to dislodge attitudes and beliefs that worked against it. It needed to impress on people their ability to control their health status or that of their dependents.

The role of general practitioners in health education has been discussed in Health Education literature (Fowler, 1985a, 1985b; Tapper-Jones, Smail, Pill and Davis, 1990). In an English study to find out why some doctors were more effective in educating about alcoholism than others it was found that how doctors perceived their role was the determinant, rather than their pessimism about the outcome of education (Rowland, Maynard, Kennedy, Stone, Wintersgill, 1988). It was not that the less effective doctors felt that education would make little impact
on their patients' health, but that they didn't see health education as their role and therefore did not assume that role.

There is evidence of a shift in acceptance by general practitioners of their role as health educators, from not very active in 1983 (Boulton and Williams) to general acceptance more recently (Tapper-Jones et al, 1990). Using a random sample of 106 general practitioners, Tapper-Jones et al (1990) found that 95% agreed that patient education was important and that doctors should provide more, but most reported that they had had difficulties. Problems with communicating information appropriately and time restraints were the main obstacles and only 4% thought educating patients was not their role. The doctors in this study rated television (77%), a doctor's personal advice (66%) and nurses or health visitors (45%) as effective ways to educate parents and leaflets (8%) as least effective of all.

Their perceptions of their own potential to be effective was at variance with that of the general public in a study by Tapper-Jones (1985). In this study, people thought that education from the doctor was the most effective and reliable method of educating patients.

Fowler (1985a) saw the doctor's role in education as relatively new and an extension of curing and caring to include education and prevention. He discussed their potential to be very effective educators since consultations with doctors generally arose out of fear or anxiety about sickness and people may be more receptive to advice at such times and change their behaviour. Also, doctors as health education sources can reverse the law that those most in need of health education are least likely to get it, especially in the case of infant care education. Very few women would go through pregnancy, birth and their baby's infancy without some contact with a doctor. Fowler
(1985a) believed that one to one teaching was most effective and that a one to one communication with a trusted professional from whom advice was expected had the potential to be very effective.

Information leaflets are widely used in health education as a medium for communicating health messages. While some justified criticism has been targeted at health education leaflets, several authors (Gray, 1982; Fowler, 1985b; Hamlin, Hamlin, Johnson, 1986)) believe that a well prepared leaflet that is used appropriately can make a contribution to treatment and prevention.

Gray (1982) offered guidelines to general practitioners for preparing leaflets for use with their own patients. He suggested that a well prepared leaflet is one in which the content emphasised the seriousness of the problem but offered hope, allowed the reader to assess his personal level of risk, described the association and also how to reduce risks, and anticipated difficulties in carrying out the advice suggesting compromises. He also offered suggestions about writing style and a suitable context for use such as, as a complement to the doctor's spoken advice. Gray did emphasise, however, that clear simple writing that does not patronise the reader, was very difficult to write.

Fowler (1985b) suggested that the benefits of action rather than the consequences of inaction be emphasised and that the leaflets be as personalised as is reasonably possible so that the inhibitory effect of fear does not distance people from the problem and advice. He argued that an appropriate leaflet that is properly used in general practice, could reinforce and supplement spoken advice, save time, provide reference material and act as a reminder.
Several studies have tried to evaluate the effect of leaflets in health education (Russell, Wilson, Taylor, Baker, 1979; Jamrozik, Vessey, Fowler, Wold, Parker, van Vunalcus, 1984; Amos and Ineson, 1986; Hamlin et al., 1986). In one such study of the use of leaflets with smoking advice from general practitioners, Russell et al (1979) found that the smoking leaflets improved the effectiveness of advice given. The proportion of those who had stopped within one month of advice and were still not smoking one year later, had increased by about 50% from 3.3% to 5.1%. Another study of the use of leaflets in a comprehensive food policy for the Hampstead Health Authority, England, found that a leaflet giving advice about healthy eating added very little, if anything, to peoples' attitudes to food or their eating behaviours (Amos and Ineson, 1986). The evaluation raised questions about the way the leaflet had been produced and the wider context in which it was used. There had been no involvement from non-dietary experts in producing the leaflet and what it was recommending was not being practiced in the hospital in which subjects were patients.

Local radio and a back-up leaflet were used to reach women during pregnancy in a third study, in Birmingham (Hamlin et al., 1986). The radio series followed through a real pregnancy and the leaflet gave information relevant to pregnancy, labour and birth. The study was evaluated in terms of knowledge and attitude changes about pregnancy and antenatal care. The radio series and the leaflet were both found to be successful in meeting their stated aims for the radio series reached the intended audience of women pregnant for the first time, and knowledge about antenatal care was found to be adequate. Most of the subjects knew where the leaflet was when the interviewer called and the authors suggested that this could mean that women found it to be a
useful resource. There was evidence of an independent effect on attitude change between readers and non readers of the leaflet, all of whom had not heard the radio series.

Leaflets were also found to be effective in a controlled trial of three anti-smoking interventions (Jamrozik et al, 1984), a programme to teach parents about child health (Pike, 1980) and in educating patients about the management of minor illness (Mornell, Avery and Watkins, 1980)

These studies suggest that leaflets can play a part in health education, but effectiveness depends on how the leaflets are prepared and the context in which they are used.

V. PARENTAL LEARNING

While it is important to understand the factors that are likely to enhance the effectiveness of health education materials and programmes, professional perceptions of these efforts may be at variance with the needs of people and at variance with peoples' perceptions of materials and programmes designed for them.

How parents learn is not well understood yet parent education interventions ought to be based on such knowledge. Newberger (1979), building on the work of Sameroff (1975), developed a model of parent thinking. Using structured interviews with 102 randomly selected parents, she found by analysis that parent perceptions could be arranged into four increasingly comprehensive and psychologically orientated levels. These she termed:
1. Egoistic orientation where the child is understood as a projection of the parent's experience and the parent role is organised around parent needs.

2. Conventional orientation where the child is understood in terms of externally derived definitions such as traditions or culture, and the parent role is organised around socially defined notions.

3. Subjective-individualistic orientation where the child is considered unique and the parent role organised around identifying and meeting the needs of the child.

4. Process or interactional orientation where the child is understood as a complex changing psychological self and both parent and child grow in their roles balancing each others needs.

Newberger (1979) found that parent reasoning appeared to be organized on one dominant level with some thinking in the orientations one level above or below. There was a relationship found between years of experience and reasoning, and parents of older children tended to reason at higher levels. The results are not yet available of a longitudinal study by Newberger (1979) to determine how development in parent reasoning occurs, why people begin at different levels and how it differs from awareness and moral judgement in other areas. In a programme to improve problem solving techniques in childrearing Shure and Spivack (1987) reported that mothers became more aware of their own and others feelings and of the effects of their behaviour on others. The authors inferred from this that parental awareness could be developed with intervention.

Antenatal education in New Zealand is probably the most used parent education forum and generally has two aims: to improve the
quality of birth experiences and to help parents understand the physical care of a new baby. In 1983 Fisher and Gunn assessed the birth experiences of 196 new mothers in a two month period in Dunedin, 78% of whom had attended antenatal classes. They found that mothers who attended classes took significantly longer in second stage labour and had more forceps deliveries than non-attenders, and there was no difference between the two groups in the need for pain relief. This led the authors to question the effectiveness of antenatal classes with regard to the first aim, and if this aspect was ineffective, then the second aim needed to be equally researched. They questioned the appropriateness of the medical "expert" model of teaching in such classes.

In 1982 the Society for Research on Women in New Zealand examined the extent that prospective parents prepared for parenthood, the preparation provided by maternity units, and how parents evaluated their preparation. Twenty percent of Christchurch new mothers were contacted six to twelve weeks after the birth. The sample was not representative and included more women who were married, educated to School Certificate or more and previously employed in professional or skilled occupations than expected. Ninety-four percent of women had tried to find out more about pregnancy and childbirth, eight-nine percent about baby and child care and very few sought information on psychological care of babies. Thirty percent said they found information received was either wrong or unhelpful. Sources used for getting information about baby and child care was reported to be antenatal classes for 76%, books for 59%, relatives for 36%, family for 27% and doctors for 8%. Less than half the mothers were interested in baby care classes after hospital, yet this was the time that Morris (1979)
found women were the most open to learning about child development.

In a study to compare the professional and consumer evaluations of a book about pregnancy "The Pregnancy Book" (Hibbard, Owen, Robinson and Thomas, 1985) it was found that the consumers found the book to be helpful and the professionals thought it would be of little use to parents. The authors concluded that professional perceptions could underestimate peoples' general abilities of concentration and understanding and be at variance with their needs.

Obstacles to applying knowledge and adopting healthy practices may not always be able to be directly overcome by parents. Tones (1990) pointed out that "genuine freedom of choice was a relatively rare commodity" p.2 and that it was not just lack of knowledge that hampered people from adopting healthy behaviours, but also low self esteem, addictions and structural barriers that existed in our unequal society. Peoples' immediate social and financial needs could be so great that future health ranked low among personal priorities.

There could be other hidden factors too and the notion that health is a social product was evident in a joint WHO/UNICEF statement (1989) on the role of maternity services in protecting, promoting and supporting breastfeeding. Ten steps to successful breastfeeding were listed which suggested that maternity practices such as giving newborn infants no food or drink other than breast milk, allowing mothers and infants to be together 24 hours a day and encouraging breastfeeding on demand, all directly enhanced a woman's ability to initiate, establish and continue to breastfeed successfully.

Due to the strong and consistent relationship between smoking and cot death it is important to understand how smoking interrelates
with other infant care practices, but few studies have investigated this. There is evidence of a relationship between maternal smoking and breastfeeding (Lyon, 1983). In a study to investigate the effects of smoking on breastfeeding Lyon (1983) found that smoking women were less likely to choose to breastfeed their baby and if they did that they were more likely to change to bottle feeding before the baby was six weeks old. These differences were not related to socio-economic factors.

The main reasons given for changing to bottle feeding, by both smoking and non-smoking women, reported by Lyon (1983) was an inadequate milk supply or an unsettled baby. These are common reasons given by women for stopping breastfeeding (Starling, 1979). It has been shown, however, that nicotine is excreted in breast milk (Ferguson, 1976), but little is known of its effects on the behaviour of the breastfed infant. Little is also known of the effects of the behaviour of infants on a woman's decision to change to bottle feeding, or on other infant care practices of parents, or indeed, of the effects of parent behaviour on infant behaviour.

While self report studies are open to criticism there is evidence to suggest that caution is needed when making assumptions about the needs and abilities of people for whom education is designed and that factors that are beyond the direct control of individuals may interfere with peoples' ability to do what they know is best for their baby.
VI. EDUCATION TO REDUCE THE RISKS OF COT DEATH

Education to reduce the risks of cot death is in its infancy due to the very recent and as yet untested idea that reducing deaths by reducing risks may even be possible at all. Entrenched attitudes, insufficient information, and the uncertainty surrounding the cause of cot death pose difficulties in applying the principles for effective health education to the design and evaluation of materials and programmes aimed at encouraging people to reduce the risks of cot death.

In a report to the Winston Churchill Fellowship Trust (1989) Price gave details of cot death education by major cot death organisations in other countries, and of how New Zealand compared internationally. Information about cot death and its impact on grieving families was similar to that available in New Zealand and in most cases, New Zealand material was derived from materials produced in the United States and Britain. However, in the area of preventative education New Zealand was setting a precedent and there was no information available elsewhere suggesting ways for parents to reduce risks.

The idea of linking infant care advice to cot death is controversial. Although this is not documented, it is often thought that making such a link, raises anxiety in parents and that the alternative way of presenting the advice as "best for baby" is preferable, within the context of uncertainty of cause that surrounds cot death. There have been no reported studies of the best context in which to educate parents about reducing the risks of cot death which is
understandable when there is still uncertainty that cot deaths can be prevented at all. The dilemma of wanting cot death acknowledged so as to attract funding and research support, and the desire to minimise publicity to protect parents from becoming anxious, is an international one (Price, 1989).

Another difficulty for cot death education is media publicity. While publicity can support education, publicity given to fad theories may distract from other theories that fit the facts about cot death more closely and, in so doing, publicity may undermine education efforts that are more soundly based. Despite all these difficulties, planned efforts have been made to reduce cot deaths in New Zealand using education interventions and these are described below.

The Canterbury Cot Death Society has been active since 1987 in educating parents and health professionals about cot death and ways to reduce risks and advantage babies (Cowan, 1990b). Two information leaflets produced by the Society have been central to these efforts.

The first of these "Cot Death - you can reduce risks" was released in Canterbury in May 1987 (see appendix 1). The leaflet contained information about cot death and the needs of babies, and suggested ways to advantage babies and reduce possible risks. The leaflet stressed the importance of appropriate thermal care, infant sleeping arrangements (side sleeping was suggested), a smoke-free start to life, protection from infection, early detection of illness and other suggestions. Advice was related to information about cot death.

Cowan (1990b) described how the leaflet was prepared, what it hoped to achieve and the community reaction to it. She stressed that by far the most important part of the programme was the preparation of
those who would pass on the leaflet to parents, namely doctors, nurses, midwives, pharmacists and others. As measured by demand for copies, the leaflet was well received and a national distribution through the Health Department was arranged in 1988.

Early in 1990 the original cot death leaflet was revised to be in line with current research findings and for the purposes of this study (see appendix 2). Prone sleeping was emphasised as a strong risk factor for cot death and parents were advised to sleep their babies on the side or back. The leaflet continued to stress many of the factors in the original leaflet including the importance of a smoke-free start to life and appropriate thermal care for infants.

The cot death age range corresponds to the time when profound maturational changes and adaptations occur in infants and Peterson (1988) in describing these has written:

The rate of growth is greater than it will ever be again, which requires both efficient anabolic processes and adequate energy sources. Circadian rhythm and sleep cycles become established. The content of the diet changes frequently with concomitant changes in the intestinal flora. The infant is exposed to a host of antigens while the immunologic legacy from its mother is diminishing exponentially, and it is increasingly exposed to an ever expanding array of pathogenic agents. Neuronal circuits proliferate and integrate with rapid development of both motor and sensory function. (p.11)

These changes identify functions that are potentially vulnerable to failure and in May of 1988 the Canterbury Cot Death Society produced another leaflet for Canterbury parents, "Your Changing Baby" (see appendix 3), which focused on these windows of vulnerability in the developing infant. The leaflet gave information on changes a normal young baby is making in the areas of immunity, breathing patterns,
temperature control, sleep states, growth, body rhythms and sickness. As well, it suggested responses that parents might make to this information in order to help their baby adjust more easily during the first six months of life. Advice was not related to cot death in this leaflet, but was related to information about the changing needs of the developing infant in the hope that compliance with advice would advantage babies during the vulnerable age for cot death and, in so doing, possibly reduce deaths (Cowan, 1990b).

In the Spring of 1989 the Department of Paediatrics and Child Health at Otago University, produced a leaflet for Otago parents, "Keep Cool Baby" (see appendix 4), giving information and advice about the best sleep position for infants, appropriate thermal care and appropriate responses to fever and illness in infants. Advice was not related to cot death in this leaflet, but was based on the work of Nelson and co-workers to do with infant care practices in relation to cot death (1989b). The hope of the intervention was to reduce the incidence of cot death (Taylor, 1990). This leaflet was distributed through maternity outlets in Otago and from 1990, through Flunket in Canterbury as well (Mayo, 1991). Details of its distribution in other New Zealand centres is not known.

In November 1989 the Department of Health produced an education package for parents "Baby Health Care" which included six items:

1. a video modelling good infant care and emphasising breastfeeding, side sleeping, a warm, but not too hot, environment, smoke-free air for babies and other advice

2. a wall frieze (see appendix 5), visually reinforcing advice
about an infant's basic needs, promoting breastfeeding, side sleeping and warm, smoke-free environments for babies, as well as the need to seek help when something seems wrong

3. a leaflet, "Health Care For Your Baby" (see appendix 6), advising parents how best to use the health service for their baby and reinforcing messages in the video

4. a phone list for parents to record important social and health contacts

5. a users' guide for those using the resource with parents and

6. a poster promoting the package

None of the advice in the resources for parents was related to cot death, but information in the handbook for health professionals was. The introduction of this handbook states that cot deaths can possibly be prevented and infant health improved by increasing parent education, but that parents need to be made aware of the advice in the materials of the package without increasing their anxiety about cot death. The "Baby Health Care" package was distributed to almost all obstetric/maternity units, all Health Development Units, the Royal New Zealand Plunket Society, Kohanga Reo and other parent support organisations for showing in the postnatal or antenatal periods (Soljack and Tonkin, 1989).

There has been no formal evaluation of any of these materials, their distribution, perceived helpfulness to parents or impact on knowledge, attitudes, beliefs, parental practice or infant mortality.
VII. RESEARCH PROBLEMS

There are two major problems for infant care education research which hinder evaluating the effectiveness of preventative cot death education programmes and materials: a methodology for measuring effectiveness and ethical considerations.

There is a lack of consensus in the literature about what constitutes a measure of effectiveness in health and parent education. Davidson-Rada et al (1986) described successful health education as securing a change to healthy behaviour by planned efforts. They believed that, to achieve this, there needed to be expertise in identifying priorities, defining appropriate behaviours, designing and implementing educational strategies and assessing the impact of these on the defined behaviours.

Clarke-Stewart (1979) believed that the relationship between knowledge and behaviour was a complex one and that all the links in the chain needed to be identified and evaluated separately. She drew attention to the chain process involved in parent education and suggested that there was little empirical evidence to support the assumption that better knowledge about children led to better parent behaviour and child outcomes.

It has been argued by Eisenberg (1987) that the benefits of preventative paediatrics should not be measured in terms of distant outcomes for this places a "terrible burden of proof" (p.420) on childhood interventions. This idea is especially pertinent to babies in relation to cot death where their needs are urgent and their time of risk is short. Cowan (1990a) in defending education initiatives to
reduce possible risks of cot death, within a context of uncertainty about its cause, argued that reducing deaths must not be the only measure of the worth of such efforts. She stressed that, in relation to education about appropriate thermal care, it was justification enough that aware parents could improve the quality of life of their babies in the here and now.

Evaluating parent education is also hampered by a lack of instruments for assessing parent learning and behaviour. Most home based intervention studies use traditional experimental analyses of variance and pre-post test design which Gray and Wandersman (1980) believe is too restrictive. Appropriate instruments for longer term study are particularly lacking.

As well as problems in defining and measuring effectiveness, there are moral and ethical problems in infant care education research. Of particular concern to Ethics Committees reviewing research proposals and treatment protocols are the three criteria of perceived degree of risk to subjects, the obtaining of informed consent and the scientific validity of the proposed study.

Risk is defined, in a report on research on healthy volunteers of the Royal College of Physicians, London, (1986), as considering the seriousness of an adverse effect as well as the probability of its happening. The working party making the report advised that a risk greater than minimal is not acceptable in a healthy volunteer study. Minimal is defined as either a small chance of an adverse effect which is itself trivial, or an extremely remote chance of a serious effect. These ethical considerations are relevant to infant care education
research because of the association between infant care and cot death. They pose difficulties for experimental study designs because the ethics of a control group becomes questionable. If education is effective and treatment groups are more likely to take on behaviours that lessen the risk of cot death, then, by comparison, the control group is disadvantaged and babies of these parents are less protected from cot death.

The moral dilemma for the researcher is in deciding how much emphasis to place on a link with cot death for behaviours that have been shown to have a statistical association in some studies. This degree of emphasis will determine the degree of perceived risk to the control group and will influence an Ethics Committee’s decision on the ethical acceptability of the proposed study.

The issue of obtaining informed consent is particularly sensitive in New Zealand following the Cervical Cancer Inquiry of 1988. Informed consent is relatively easy to obtain in a medical trial of two drugs to find out which one is better at treating a specific disorder. Subjects can be appropriately informed about the purpose of the trial without interfering with its objectivity. In an educational trial of two ways to present information that will possibly reduce the risk of cot death, subjects cannot be adequately informed about the purpose of the study without interfering with its objectivity. The Canterbury Area Health Board’s Ethics Committee handbook (1990) describes the essential elements for informed consent and states that information to subjects must describe potential risks and describe benefits to be expected. To do so would destroy the scientific validity of an educational trial and so render it unethical on the grounds that a study that is not scientifically valid cannot be ethical.
The ethical difficulties for controlled studies suggest that an acceptable design, for evaluating effectiveness, would be a whole population intervention in which all subjects receive the same treatment. In such a study it is more difficult to attribute effects to a particular variable. In the case of evaluating information leaflets in this way, much more data would need to be gathered and would need to include descriptions of the wider context of information and advice being received and of parents' perceptions of that advice, as well as of parental practice. Such descriptive data would also be useful for the design and implementation of future programmes.

Evaluating education efforts aimed at preventing cot death is fraught with difficulty in defining suitable measures of effectiveness and because of the ethical restraints placed on research design.

VIII. PURPOSE OF THIS STUDY

This study investigated likely influences on parents' infant care choices with particular attention to information leaflets designed, to encourage parents, either directly or indirectly, to reduce the risks of cot death. More specifically, its aims were threefold: to describe (1) the advice and information about infant care that parents sought and received, (2) their perceptions of how useful was the information and advice they did receive and (3) their intended and actual choices of infant care and reasons for behaviour changes. In order to describe these three areas the study aimed to answer the following questions for each area:
(1) **Advice and information.**

(a) What infant feeding, sleep position and warmth assessment practices are promoted, why and by whom?

(b) What information about infant care do women seek, where do they go to find out and what are their trusted sources?

(c) What health education materials do women report to have seen/read before leaving hospital with their baby and since being home with their baby for three months?

(2) **Parents' perceptions.**

(a) What is a suggested good source, and an actual major source, for learning about infant care?

(b) How helpful are antenatal classes and hospital experience reported to be?

(c) To what degree do parents perceive that advice and information received influenced their intended choice of infant feeding, sleep position and warmth assessment method and was in any way helpful?

(3) **Intended and actual choices of infant care.**

(a) How do parents intend to feed their baby, position their baby for sleep and assess their baby’s warmth, and what are their actual choices of these behaviours when their baby is 3 months old?

(b) How do parents keep their three month old infants warm in bed at night?

(c) What reasons do parents give for changing from their intended choices of infant feeding, sleep position and warmth assessment method?
Within this wider context of information and advice about infant care the study aimed to evaluate two leaflets, "Cot Death - reducing risks" and "Your Changing Baby". In making this indirect evaluation the study aimed to answer the following questions:

(4) **Information leaflets**

(a) Do the leaflets reach their target audience and are they reported to have been read, to be helpful and to be worth recommending?

(b) Are parents' knowledge, attitudes and practices consistent with those promoted in the leaflets and is there any evidence that these have been influenced by the leaflets.

(c) Is health professional advice consistent with that promoted in the leaflets.
CHAPTER III

METHOD

I. SUBJECTS

One hundred and two maternity patients in Christchurch Women's Hospital had the two parts of the study explained and were invited to take part. Written consent to participate in the first part, the hospital interview, was obtained from one hundred women. Three of these interviews were interrupted due to medical or nursing attention to the woman or baby, giving a total of 97 completed hospital interviews.

(1) Selection of subjects

Within the eligible group, selection of subjects was random and included as many women as could be interviewed on week day mornings between Wednesday 11 July, 1990, and Wednesday 1 August, 1990. On each day of interviewing the charge nurse of the ward advised the interviewer of women to avoid that day. These included women with babies receiving neonatal intensive care and women whose babies were less than 24 hours old. Some women were discharged from hospital before an interview was possible. In most cases women were told by the charge nurse that there was an interviewer from the University on the ward doing a study on "Parent Advice" and that they may be approached.

When not enough beds are anticipated for the time of expected
delivery for a woman booking in at Christchurch Women's Hospital's antenatal clinic, the hospital selects its patients on the basis of first pregnancy, expected difficulties with labour and delivery and problematic past obstetric history. Women for whom no difficulties are foreseen are booked into other Christchurch maternity units. Women consulting a private obstetrician usually give birth to their baby at a private hospital. A small but growing group of women give birth to their babies at home.

Prematurity and low birth weight are more common for babies who have mothers who smoke, mothers who are young (<25 years) and mothers of lower socio-economic status. In this way, Christchurch Women's Hospital is not representative of the population of women having babies in Christchurch. By avoiding women with babies in neonatal intensive care, where most low birth weight and premature babies would be soon after birth, the bias is lessened.

The indicators of peoples' social, economic and educational status that are associated with cot death were selected for study. These included maternal age, number of children borne to women, solo mothers, race, infant birth weight, prematurity, income source, completed years of secondary schooling, and Christchurch suburb in which parents lived.

(2) Subjects

Sixty one women were first-time mothers and 36 had at least one other child. First-time mothers were invited to continue with the second part of the study which included an interview at home three months later. Of these, 57 agreed to further involvement, 1 was unwilling and 3 were unsure initially, but agreed when contacted later.
Of the 57 women who initially agreed to further involvement, 7 were lost to follow-up. Two were from "away" (Twizel and Oamaru), 3 had moved and could not be contacted, 1 was repeatedly not home and 1 was unwilling. Six women had at least one return visit to ensure an interview. A total of 53 first-time mothers participated in the second part of the study. It was decided to exclude women with more than one child because of the difficulty these women showed in the early interviews in tracing sources of advice. However, six women from this group were involved in the second part of the study because they were offered further involvement before it was decided to follow-up first-time mothers only.

II. BEHAVIOURS STUDIED

Three observable behaviours were of major interest in this study: infant sleep position (how parents positioned their baby for sleep), infant warmth assessment (how parents checked that their baby was not too hot or not too cold) and infant feeding (whether mothers breastfed or bottle (formula) fed their infants). Other indicators of thermal care were also of interest: the clothing, bedding and heating arrangements for babies in bed at night. Smoking behaviour of parents was of interest but not a focus of the study.

(1) Reason for selection of behaviours

Infant sleep position and thermal care behaviours were selected for study because of the association of these factors with cot death.

It was the intention of the initially proposed study to
investigate the effect of information leaflets on parents' choice of infant sleep position alone, for at that time prone sleeping had not been strongly linked to cot death in education materials, although the association had been discussed in the media, including magazines (Tonkin and Hassall, 1989), and prone sleeping for infants was still reported to be widely practiced in Christchurch Women's Hospital (Maires, 1990). During the time taken for ethical approval of the study, the Canterbury Cot Death Society launched an education campaign to encourage a change in infant sleep position practice and the leaflet prepared for this study "Cot Death - reducing risks" was central to that campaign. Because it was likely that parental practice had changed by the time the study was eventually approved, other behaviours of infant feeding and thermal care were selected for study too.

Within the area of thermal care infant warmth assessment was selected because it was assumed that it was less likely that a specific method was promoted widely and that any influences on this behaviour, or on attitudes to thermal care, could be traced more directly to the three leaflets that dealt with thermal care in some depth and promoted a specific method for assessing an infant's warmth. The clothing, bedding and heating practices for babies in bed at night were included, to compare current practice with that of Christchurch parents in 1986, before education initiatives to encourage more appropriate thermal care for infants, were introduced (Cowan, 1990).

Infant feeding was included because it is central to infant care and although support for an association with cot death was strengthened with the release of the results of the first year's analysis of the New Zealand Cot Death Study (Mitchell et al, 1990), these results were not known when the study was designed. It was intended that by including
infant feeding with the studied behaviours, the focus of the study would be more obviously a generalised investigation of parent advice about infant care.

For this reason, too, and to protect subjects from feeling uncomfortable when interviewed, smoking was of lesser interest in this investigation despite being a strong risk factor for cot death (McGlashan, 1989; Mitchell et al, 1990).

(2) Definition of behaviours

Intended and actual behaviour choices were defined as follows. Feeding method choices were described as breast, bottle or both. Breast was defined as breastfeeding only. Where women included expressed breast milk given by bottle, the choice was defined as breastfeeding only. Bottle was defined as bottle feeding only and excluded any breastfeeding. Both was defined as a combination of giving breast milk from the breast and milk formula from a bottle.

Sleep position choices were described as front, side or back. Front was defined as positioning a baby for sleep in the prone position and included any combination of choices that included the prone position. Side was defined as positioning a baby for sleep on the left or right side and excluded any combination of choices that included either the front or back positions. Back was defined as positioning a baby for sleep in the supine position. The back choice included any combination of choices that included the back position, but excluded the front.

Warmth assessment method choices were described as "torso", "extremities" or "no method". "Torso" was defined as assessing an infant's warmth by feeling the skin of the baby's torso (back or front)
with the skin of the parent's hand and included using a thermometer under the baby's arm. "Extremities" was defined as assessing an infant's warmth by feeling the hands, feet and/or head of the baby with the skin of the parent's hand and excluded feeling the torso. Using the skin of the parent's hand to feel the baby's cheeks, forehead, neck, the top or back of the head, or the arms and legs were behaviours included in the definition of feeling the extremities, except when such behaviours were displayed in combination with feeling the torso. "No method" was defined as being unable to demonstrate a method for assessing infant warmth and included verbal explanations of methods that did not involve feeling the baby.

Clothing and bedding arrangements were defined as the number of layers of clothing and bedding covering the infant's torso. All clothing items covering the torso, but excluding nappies and pilchers, were considered to be 1 layer. All bedding layers were considered to be one layer except duvet or eiderdown which were considered 2, and sheet, which was not counted as a bedding layer at all. Where swaddling occurred, swaddling with a blanket, rug or shawl was counted as one layer of bedding, but swaddling with muslin or a sheet was not counted at all. Heating arrangements were described as heating on in the baby's room and were defined as a source generating heat in the room where baby slept for most of "last night", where last night meant "after midnight only". These definitions were the same as those used in the 1986 study (Cowan, 1990) so that comparisons of practices could be made.
III. INSTRUMENTS AND APPARATUS

Data were collected by an initial interview of 97 women in hospital and a second interview 3 months later of 59 women at home, 53 of whom were new mothers. There was only one interviewer for all interviews in both samples. Evidence of actual behaviours was gathered by diary recording for infant feeding and sleep position choice, and by observation for warmth assessment choice. Evidence of clothing, bedding and heating arrangements relied on self reporting by subjects.

(1) Information sheet and consent form

An information sheet was prepared (see appendix 9), outlining the purpose of the study and the subject's role in it and this was discussed, questions were invited and the form was left with the subject. Subjects were assured that by agreeing to be involved in the first part of the study they were not obliged to continue their involvement in the second part. The interviewer made it clear to each woman that she was free to terminate the interview at any time, if she wished and that there would be no disadvantage to her if this happened.

Consent forms (see appendix 10) were prepared for each part of the study and were signed by both subject and interviewer. All subjects were advised that they would be sent a summary of the studies findings in March 1991.

(2) Hospital interview schedule

An interview schedule (see appendix 11) was developed for the hospital interview and had four sections.
(a) **Promoted behaviours.** The first section was to find out women's perceptions of which infant care behaviours were being promoted, why they were promoted and by whom, and the degree women felt influenced by this advice. Women were shown cards labelled "mum", "family", "friends and other mothers", "doctor", "nurse (in hospital)", "antenatal classes", "books/magazines", "radio/newspaper", "T.V" and "other". The labels were read aloud by the interviewer as they were displayed to ensure involvement from subjects who may have been unable to read. Subjects were asked to sort the cards to show whose advice about looking after babies they would trust and who, in their experience, seemed to prefer each of the various feeding, sleep position and warmth assessment choices. The sorting exercises to do with preferred choices were followed by two questions "What were their reasons for preferring ...?" and "Do you think any of these people/sources made a difference to what you intend to do for your baby? ("not at all", "a little", "quite a bit").

(b) **Health education literature.** The second section was to identify the health education literature seen/read and the degree women felt their intended choices were influenced by it. Women were shown 24 leaflets and booklets to do with pregnancy, birth and infant care (see appendix 8) and asked to sort out the ones they had seen, but not read and the ones they had read. Then they were asked if they thought any of those read had influenced their intended choices and to what degree (quite a bit, a little, not at all).

(c) **Intended practice.** The third part of the interview was to establish the intended choices of the infant care behaviours under
study. Women were asked - "How do you plan to feed your baby?", "How do you plan to lie your baby down for sleep?" and "How do you plan to check that your baby is not too hot or not too cold?". Women with at least one other child were asked if this was what they did for their last baby, and, where a change had occurred, why had they changed.

(d) Social details. All women were asked their age, number of completed years of secondary schooling, number of children borne, whether they had smoked during pregnancy, their baby's expected date of delivery and actual birth weight. In the last part of the interview women were asked "What do you think is a good way for new parents to learn about babies and their needs?" and "From where have you learned most of what you know about caring for babies?". Contact details were recorded for follow-up interviews and for the sending of a summary of the study's findings.

(3) Diary

A diary (see appendix 12) was prepared for recording feed-by-feed choice of infant feeding method and sleep-by-sleep choice of infant sleep position for three consecutive days when the baby was about 12 weeks old. On the sleep diary women were also asked to record the position in which their baby ended up sleeping. This was sent to women about a week before an arranged interview with a covering letter asking them to complete the diary as soon as possible after receiving it, confirming the interview time and thanking them for their trouble.

(4) Home interview schedule

About 10 weeks after the hospital interview women to be
followed-up were contacted by phone, where possible, and letter. They were reminded of the study and what was involved for them. Consent to further involvement was sought and an interview time was arranged. Most interviews took place on weekday mornings, (two were on weekday evenings and one on a Saturday morning), and all were between 28 September 1990 and 26 October 1990.

An interview schedule (see appendix 13) was developed for the at-home interview and had four sections.

(a) **Information sought.** The first section was to identify any declared knowledge deficits and to find out where women went to find what they needed to know, and whether they succeeded. Subjects were asked whether, since being home with their baby, they had needed to know more about breastfeeding, bottle feeding, infant development, crying, sleep, colds and sickness, cot death, clothing and warmth, infant feelings and any other areas of infant care.

(b) **Perceptions of advice.** The second section was to find out about women's perceptions of advice received since being home with their baby. They were asked about the helpfulness of health educational material, their antenatal and hospital experience and their social and health contacts and media experience.

Women were shown 8 leaflets about infant care and asked to sort out the ones they had seen but not read and the ones they had read. Then they were asked if they thought any of those read had been helpful at all and to what degree (quite a bit, a little, not really, unhelpful, don't know). Finally, they were asked "Which ones would you recommend to other new parents?". A similar procedure was followed
after showing women 5 booklets to do with infant care.

Further questions were asked to find out whether certain Ministry of Health resources had been seen/read/displayed and the reported helpfulness of these. The four resources, shown to women in turn, were the Health and Development Record Book and three items from a parent education package "Baby Health Care", a video - "The Biggest Love", a wall frieze, and a leaflet - "Health Care for Your Baby".

Women were asked how well they thought antenatal classes and/or time in hospital had prepared them for being a mother. As well, they were shown cards labelled "Mum", "family", "friends and other mothers", "doctor", "plunket nurse", "midwife", "T.V.", "books and magazines" and "other" and asked of each, "How helpful have you found ...?" (quite a bit, a bit, not really, unhelpful, not applicable). A tenth card was added, labelled "the baby", the cards displayed and the question asked, "Who from these has been the main influence on how you care for your baby?"

(c) Actual practice. The third part of the interview was to gather evidence of parents' actual infant care behaviours. The feeding and sleep position diaries were discussed and women demonstrated their method for checking their infant's thermal comfort using their baby, if awake, or a doll dressed in baby clothes if the baby was asleep. Where intended behaviour was different from actual behaviour women were asked to give their reason for the change.

Women were asked what clothing and bedding items covered their infant in bed the previous night and whether or not heating was used in the room where their baby slept. This was recorded as the number of layers of clothing and bedding covering the torso of infants, and
whether or not heating was on and the information was linked to
Meteorological Office recordings of daily maxima and minima
temperatures for the date corresponding to the date of the interview.

(d) Social details. Women were asked questions about the
family's income source, whether the baby's father lived with the
mother, whether women had the support of other parents and who in the
family smoked.

(5) Health Education Materials

Health education literature used was from a variety of sources
including Plunket, antenatal clinics and postnatal wards. To increase
the credibility of self reporting on literature seen/read, leaflets
that women were unlikely to have seen (those distributed in other
countries) were included - two in the first interview and one in the
follow-up interview. For the sorting exercises, cards and educational
materials were letter-coded and women were asked to identify them by
the letter, where interviews took place in open wards and a subject's
responses could be overheard. The Principal Plunket Nurse, Nursing
Supervisor of antenatal clinics at Christchurch Women's Hospital and
Charge Nurses of the hospital's postnatal wards were asked how
educational materials were used in their respective areas and which
materials were available.

The materials used in the study are described below and coded to
make reference to them easier. A description of them and the
organisation that produced them is in appendix 8. Some of the
materials used in the first interview were excluded from the home
interview where they were to do with pregnancy or had minimal
information about infant care and the materials used in each interview are identified. The known distribution sources are coded A-antenatal clinic, B-bookstores, C-Chemist, D-doctor, Dp-Department of Health, H-hospital, P-Plunket, M-mailed, U-unavailable, W-Department of Social Welfare.

<table>
<thead>
<tr>
<th>Code</th>
<th>Leaflets</th>
<th>Source</th>
<th>Interview</th>
<th>Hosp</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCB</td>
<td>Keep Cool, Baby (1989)</td>
<td>P</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>YCB</td>
<td>Your Changing Baby (1988)</td>
<td>PACD</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>CD</td>
<td>Cot Death - reducing risks</td>
<td>PGDA</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>BNF</td>
<td>Babies Need ... frieze (1989)</td>
<td>HPDp</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>HCFYB</td>
<td>Health Care For Your Baby (1989)</td>
<td>Dp</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>PH</td>
<td>Plunket hints</td>
<td>P</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>CYCS</td>
<td>Can Your Child See?</td>
<td>P</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>PD</td>
<td>Postnatal Depression</td>
<td>P</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>CYCH</td>
<td>Can Your Child Hear?</td>
<td>P</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>PAB</td>
<td>Pregnancy and Breastfeeding</td>
<td>A</td>
<td>y</td>
<td></td>
<td>-</td>
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<tr>
<td>WWCS</td>
<td>Keeping Baby Warm in Winter/Cool in Summer</td>
<td>U</td>
<td>y</td>
<td>y</td>
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</tr>
<tr>
<td>UFTM</td>
<td>Understanding the First Three Months</td>
<td>U</td>
<td>y</td>
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Booklets

<table>
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<tr>
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<th>Home</th>
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<tbody>
<tr>
<td>B</td>
<td>Breastfeeding (1990)</td>
<td>APDp</td>
<td>y</td>
<td>y</td>
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<tr>
<td>HDR</td>
<td>Health and Development Record (1989)</td>
<td>HPDp</td>
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<td>YP1</td>
<td>Your Pregnancy (1985 edition)</td>
<td>ADp</td>
<td>y</td>
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<tr>
<td>YP2</td>
<td>Your Pregnancy (1990 edition)</td>
<td>ADp</td>
<td>y</td>
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<tr>
<td>TSB</td>
<td>The Sleeping Baby (1989)</td>
<td>AP</td>
<td>y</td>
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<tr>
<td>KFB</td>
<td>Ready for Baby (1987)</td>
<td>AP</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>TM</td>
<td>The Tenth Month (1990)</td>
<td>B</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>YBIB</td>
<td>Your Baby is Beautiful (1987)</td>
<td>ADp</td>
<td>y</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>TAT</td>
<td>Tots and Toddlers (1989)</td>
<td>M</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>TANS</td>
<td>There Are No Superparents</td>
<td>PW</td>
<td>y</td>
<td>y</td>
<td></td>
</tr>
</tbody>
</table>

Books

<table>
<thead>
<tr>
<th>Code</th>
<th>Leaflets</th>
<th>Interview</th>
<th>Hosp</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAC</td>
<td>Baby and Child by P Leach (1977)</td>
<td>M</td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>TT</td>
<td>Toddler Taming by C Green (1984)</td>
<td>M</td>
<td>y</td>
<td></td>
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</tbody>
</table>

Video

<table>
<thead>
<tr>
<th>Code</th>
<th>Leaflets</th>
<th>Interview</th>
<th>Hosp</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBL</td>
<td>The Biggest Love (1989)</td>
<td>Dp</td>
<td></td>
</tr>
</tbody>
</table>

The materials coded KCB, YCB, CD, BNF, HCFYB and TBL are all
part of education efforts to encourage parents to reduce the risks of
cot death. "Cot death - reducing risks" was written for this study and
"Your Changing Baby", although it was released in 1988, was also
written by the author of this study. Both leaflets will be described
in detail later in this section and evaluated in depth in the results
section. It can be assumed that subjects would not have known that
these two leaflets were of particular interest to the researcher.

All the educational materials in the Plunket information pack
were included in the materials used in the home interview.
Breastfeeding as an unequalled way to feed a baby was promoted in the
leaflets coded YCB, BNF and PH, in the booklets coded B and YP2 and in
the video coded TBL. All other materials that gave advice about
breastfeeding also included advice about bottle feeding. Side sleeping
was promoted in the leaflets coded BNF, HDRB, YCB, CD, KCB, and the
video TBL, with CD and KCB also promoting back sleeping. Feeling the
torso to assess an infant's warmth is promoted in the leaflets YCB, CD
and KCB, and the booklets coded TTM and TAT. Advice about thermal care
of infants was given in some detail in the leaflets coded KCB, YCB, CD,
the booklets coded TTM and TAT and in the book coded BAC.

(6) Information leaflets

The revised version of "Cot Death - reducing risks" (CD) was
prepared for the study initially proposed, in which two educational
settings that encourage parents to reduce the risks of cot death, were
to be compared in relation to their impact on parents' choice of infant
sleep position. The leaflet CD was central to one setting and gave
information about a preferred sleep position within the context of
"reducing the risk of cot death". The leaflet "Your Changing Baby"
(YCB) was central to the other setting and gave information about a preferred infant sleep position within the context of "better for baby". The study proposal was not acceptable to the Canterbury Area Health Board's Ethics Committee and because of the delay in seeking approval for an ethically acceptable modification to the proposed study the leaflet was released to the Canterbury public, as intended, in May 1990, for it would have been ethically unacceptable to the author to have delayed its release for the purpose of benefitting this study. A national distribution was sought and funded by Plunket for July of the same year (Cressey, 1990).

There were ten principles for effectiveness, gleaned from the literature, on which the preparation of both leaflets were based and these are described in detail for the leaflet "Cot Death - reducing risks".

1. **Define the audience and aim there.**

The primary audience was defined as parents of babies who wanted to know about cot death. Within this group, the leaflet was not targeted directly at parents whose babies were in high risk for cot death groups, for an information leaflet was not thought to be an appropriate communication medium for such people. Instead it directly targeted the low risk groups of motivated, literate, educationally, socially and economically advantaged parents amongst whom the greater proportion of cot deaths occur and in which there is the greatest potential for prevention. To reach this primary audience the leaflet was distributed to all parents of new babies through Plunket.

The secondary audience was defined as doctors, nurses, pharmacists and others to whom parents turn with their questions. To
reach this audience a copy of the leaflet was sent to individual, general practitioners, plunket nurses, maternity unit supervisors and pharmacists in Christchurch. Enclosed with the leaflet was a letter and a list of references to verify the research basis of information included in the leaflet. The letter thanked the reader for previous support, drew attention to the changed emphasis on sleep position as a risk factor for cot death, explained the objectives of the leaflet and invited support in encouraging parents to reduce risks and in making leaflets available to parents.

The tertiary audience was the wider community and to reach this audience distribution outlets were arranged in all Christchurch pharmacies.

2. Define the need and meet it.

The need of the primary audience was defined as wanting to know what parents could do to protect their baby from cot death. It was assumed that fear of cot death provoked the need to know, so in order to meet that need, information about cot death and how to reduce possible risks was the focus of the leaflet.

The need of the secondary audience was defined as needing to know what risk factors were worthy of emphasis and how to communicate advice to parents. It was hoped that for those parents who were less likely to read a leaflet, their need to know about cot death and how to reduce risks would be met indirectly by their informed health professional contacts and a generalised raised community awareness that the leaflet might generate.

The need of the tertiary audience was to know what advice about reducing the risks of cot death was being given to parents.
3. **Involve the reader.**

The style of the leaflet involved the reader by talking directly to the reader: "Sleep your baby on his side or back", "Feel the skin of your baby's back with your hand to check her temperature". To avoid possibly alienating the reader by describing groups of babies at increased risk, the leaflet described high risk times ("most cot death babies are aged between 1 and 5 months.", high risk places ("New Zealand babies are more at risk than babies in most other places."), and high risk behaviours ("Babies who sleep on their tummies are at increased risk." in order to encourage the reader to see that the information was relevant to him/her.

4. **Emphasise seriousness but offer hope.**

The leaflet attempted to find a balance between creating concern about cot death and avoiding causing alarm and panic in the reader. It described the high incidence in New Zealand, but also the strong possibility that many deaths are preventable, suggesting that reducing risks may protect a baby. It was released in supportive places so that any concerns the reader may have could be dealt with appropriately.

5. **Share information and suggest responses.**

The leaflet shared information about cot death and suggested responses to that information so that readers could see the link between the information and the advice and understand why suggestions were made. The information was to enable people to evaluate how real the risk seemed to be for their particular baby and how appropriate were the suggested responses.

In deciding the content of the leaflet only information that
parents could apply and that which had been supported by several studies was included.

6. **Respect the reader.**

The leaflet acknowledged the reader's anxiety about cot death and expressed the hope that the information offered would help to reduce that anxiety. The tone of the leaflet assumed that the reader cared for his/her baby, that he/she was concerned about cot death and wanted information, that he/she needed an understanding of cot death and how to reduce risks and that the reader was responsible and would do his/her best to reduce risks where this was reasonably possible ("May you enjoy your precious baby, aware of the risks, but reducing them where you can").

Care was taken not to seem to patronise the reader, to treat him/her as simple and to make judgments about alternative choices of care. The leaflet acknowledged that there were many other factors that influence the care of a baby and that this leaflet only considered those possibly associated with cot death.

7. **Anticipate difficulties and suggest compromises.**

The leaflet acknowledged that there could be difficulties in carrying out some of the advice for some people and suggested alternatives or compromises in some cases. It suggested "If you cannot give up [smoking] try to smoke less." and "If you cannot afford heating on cold nights use an extra blanket and a hat rather than too much heavy bedding."

8. **Be honest.**
The leaflet offered suggestions for infant care within the context of uncertainty about the cause of cot death and did not intend to coerce parents into practices under the assumption that such practices would protect their baby. The leaflet stated that identified risk factors "may or may not contribute to any one death" and that they are "thought to work together". It was made clear that there were no guarantees; that parents could reduce some possible risks and this might prevent some deaths, but that following suggestions made would not prevent all cot deaths.

9. Give responsibility to the reader.

The leaflet encouraged parents to see that cot death was not a totally random event beyond their control, but that there were patterns and that some of the associated risks were within their control. The leaflet gave responsibility for choice of care to the reader and stated that "it is for each parent to decide how best to care for their baby". Wherever possible, the leaflet encouraged parents to respond to the needs of the baby suggesting that they "notice" when the baby is too hot, too cold, or showed signs of sickness, and appropriate responses to such needs were suggested. In doing this the leaflet tried to encourage the reader to restore control and confidence to his/her care of his/her baby.


As far as was possible, potential misinterpretation of information or exaggerated interpretations of suggestions were anticipated by pilot distributions of the leaflet. The assumed cultural resistance to accepting the back as a safe sleep position for
babies led the author to want to exclude this suggestion from the present leaflet, so as not to take the focus from the more important message of "not on the tummy" and to prevent the leaflet being dismissed on the basis of this one point. However, the medical experts consulted in the preparation of the material unanimously agreed that advice about sleep position must include suggesting the back as a safe position for babies.

The leaflet "Your Changing Baby" was prepared in 1988 to provide an alternative context for educating about infant care for those parents and health professionals who may have had difficulty accepting the "Cot Death - you can reduce risks" context. YCB was intended to be used as a complement to the original CD leaflet. Although it was based on the same principles, aimed at similar audiences, and prepared in a similar way to the leaflet just described, the aim of YCB was to offer information about the developmental vulnerabilities of normal young babies and suggest responses that parents could make to advantage their babies during this period. There was some overlap in the advice offered in both leaflets, but "Your Changing Baby" was written in response to questions about the needs of babies rather than questions about cot death.

IV. PROCEDURE

(1) Approval

In March 1990 the Principal Nurse at Christchurch Women's Hospital was contacted to outline for her the study, to find out the procedure for approval and to learn the hospital policy on infant sleep
position. The study was approved by the Nurses Ethics Committee in April 1990 after modification to reduce the involvement of nurses, and by the Canterbury Area Health Board's Ethics Committee in early July 1990 after major changes in design to balance the requirements for ethical approval and scientific validity.

(2) Establishing current practice

Before interviewing started, the charge nurse on each ward was interviewed and asked what was current maternity advice about feeding methods, sleep position and methods for assessing an infant's thermal comfort. The Principal Plunket Nurse was asked what was current Plunket advice for these three behaviours and for clothing, bedding and heating arrangements for three month old infants in October, in Christchurch.

(3) Pilot interviews

Modifications to the wording of some questions were made after the first day of interviewing for both the hospital interview and the home interview. This involved 4 subjects in the hospital interviews and 3 subjects in the home interviews. "Have any of these shared their ideas about ..." was changed to "Have any of these shown a preference for ..." in the first section of the hospital interview. "Would you say that the advice in any of these has helped you?" was changed to "Which of these has been helpful in any way?" for the sorting of educational materials task in the second section of the at-home interview. The order of presenting materials was also changed in this section and leaflets were separated from booklets and presented first, rather than altogether, as occurred on the first day of home interviews. These
modifications did not exclude any data from analysis.

(4) Data Analysis

A content analysis of the interviews and diaries was made and data were analysed by frequency distributions. A comparison of choices for the hospital and home interviews was made and behaviour changes identified. How variables interacted with each other was also analysed and any statistically significant associations identified. Statistical analyses were by the chi squared test. Results were considered significant when p value < 0.05. Percentages are of the total number of respondents.
CHAPTER IV

RESULTS

I. SUBJECTS

Subjects were grouped as new for first time mothers and experienced for those who had had a previous baby. The subjects who took part in the hospital interviews were grouped as the hospital sample and the new mothers who took part in the home interviews were grouped as the home sample. The 97 subjects in the hospital sample and the 53 subjects in the home sample are described in Tables 1 and 2 respectively.

The experienced mothers tended to be older, to be less likely to have smoked during pregnancy and to have had smaller babies of shorter gestation than new mothers. Subjects in the hospital sample had a mean age of 27.3 years, compared to 26.0 for subjects in the home sample, and subjects in both samples had completed a mean of 3.7 years at secondary school. Babies of hospital subjects had a mean birth weight of 3291.6 grams (3320.4 grams for babies of home subjects) and were borne a mean 1.5 days before their expected date of delivery (0.4 days for babies of home subjects). One third of the hospital subjects (n=27) and a quarter of the home subjects (n=13) smoked during pregnancy.

New mothers in the home sample were representative of the new mothers in the hospital sample except for maternal smoking. Seven of
the 8 new mothers lost to follow-up were smokers.

Table 1.-Description of subjects in the hospital sample, for new and experienced mothers (n=97)

<table>
<thead>
<tr>
<th></th>
<th>mean</th>
<th>range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age (yrs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>25.8</td>
<td>17-39</td>
<td>5.7</td>
</tr>
<tr>
<td>Experienced</td>
<td>29.9</td>
<td>19-40</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td>27.3</td>
<td>17-40</td>
<td>5.8</td>
</tr>
<tr>
<td>Completed years of 2ⁿ school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>3.7</td>
<td>2-5</td>
<td>1.0</td>
</tr>
<tr>
<td>Experienced</td>
<td>3.8</td>
<td>2-5</td>
<td>0.9</td>
</tr>
<tr>
<td>Total</td>
<td>3.7</td>
<td>2-5</td>
<td>1.0</td>
</tr>
<tr>
<td>Number of children borne</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>1.0</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>Experienced</td>
<td>2.7</td>
<td>2-5</td>
<td>0.9</td>
</tr>
<tr>
<td>Total</td>
<td>1.6</td>
<td>1-5</td>
<td>0.0</td>
</tr>
<tr>
<td>Infant birth weight (grams)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>3220.8</td>
<td>2220-4740</td>
<td>483.5</td>
</tr>
<tr>
<td>Experienced</td>
<td>3414.9</td>
<td>2000-4480</td>
<td>579.6</td>
</tr>
<tr>
<td>Total</td>
<td>3291.6</td>
<td>2000-4740</td>
<td>528.9</td>
</tr>
<tr>
<td>Infant maturity (days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>-0.7</td>
<td>-36-17</td>
<td>9.7</td>
</tr>
<tr>
<td>Experienced</td>
<td>-2.9</td>
<td>-32-13</td>
<td>11.5</td>
</tr>
<tr>
<td>Total</td>
<td>-1.5</td>
<td>-36-17</td>
<td>10.4</td>
</tr>
</tbody>
</table>

Maternal smoking

<table>
<thead>
<tr>
<th></th>
<th>yes (n (%))</th>
<th>no (n (%))</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td>20 (33)</td>
<td>41 (67)</td>
</tr>
<tr>
<td>Experienced</td>
<td>7 (20)</td>
<td>29 (80)</td>
</tr>
<tr>
<td>Total</td>
<td>27 (28)</td>
<td>70 (72)</td>
</tr>
</tbody>
</table>
Table 2.—Description of subjects in the home sample (n=53)

<table>
<thead>
<tr>
<th></th>
<th>mean</th>
<th>range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age (yrs)</td>
<td>26.0</td>
<td>17–36</td>
<td>5.4</td>
</tr>
<tr>
<td>Completed years of 2\textsuperscript{nd} school</td>
<td>3.7</td>
<td>0–5</td>
<td>1.0</td>
</tr>
<tr>
<td>Infant birth weight (grams)</td>
<td>3230.4</td>
<td>2220–4740</td>
<td>511.8</td>
</tr>
<tr>
<td>Infant maturity (days)</td>
<td>-0.4</td>
<td>-36–17</td>
<td>11.2</td>
</tr>
<tr>
<td>Infant age at interview (days)</td>
<td>87.0</td>
<td>77–102</td>
<td>5.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maternal smoking</th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%)</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>(25)</td>
<td>(75)</td>
</tr>
</tbody>
</table>

Subjects were grouped by suburb in which they lived at the time of interview and an analysis of the results for the hospital and home samples are compared on Table 3. Suburbs were themselves grouped, using the key map numbers of the fiftieth edition Universal Business Directories Limited Christchurch map, as northern (Burnside to Burwood, map numbers 2, 3, 4), eastern (Linwood to Brighton, map numbers 5, 10, 11, 12), western (Hornby to central city, map numbers 7, 8, 9), southern (Halswell to Heathcote Valley, map numbers 13, 14, 15, 16, 17), and out of town (Burnham to Oxford).

There was a similar distribution across suburbs for both samples with more than a third of subjects in each sample living in the eastern suburbs of Christchurch. Although it is not shown on Table 3, 21 (21\%) subjects in the hospital sample and 15 (28\%) subjects in the home sample lived in Linwood.
Table 3.-Comparison of hospital and home samples by suburb

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Hospital</th>
<th></th>
<th>Home</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(%)</td>
<td>n</td>
<td>(%)</td>
</tr>
<tr>
<td>Northern (Burnside to Burwood)</td>
<td>18</td>
<td>(19)</td>
<td>7</td>
<td>(13)</td>
</tr>
<tr>
<td>Eastern (Linwood to Brighton)</td>
<td>33</td>
<td>(34)</td>
<td>19</td>
<td>(36)</td>
</tr>
<tr>
<td>Western (Hornby to central city)</td>
<td>14</td>
<td>(14)</td>
<td>9</td>
<td>(17)</td>
</tr>
<tr>
<td>Southern (Halswell to Heathcote Valley)</td>
<td>15</td>
<td>(16)</td>
<td>10</td>
<td>(19)</td>
</tr>
<tr>
<td>Out of town (Burnham to Oxford)</td>
<td>14</td>
<td>(14)</td>
<td>8</td>
<td>(15)</td>
</tr>
<tr>
<td>No address given</td>
<td>3</td>
<td>(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>97</strong></td>
<td><strong>100</strong></td>
<td><strong>53</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Further information asked of the home sample showed that 41 women lived with the baby's father, 13 depended on benefits for the family income, 42 declared themselves to be pakeha, 5 to be maori and 6 to be of races other than these.

Nearly half (n=23) the babies lived in smoking households. In 10 of these 23 households just the father smoked, in 6 just the mother and in 7 both parents smoked. Of the 13 subjects who declared themselves smokers 12 had smoked throughout their pregnancy and one had smoked in the early stages only. Fifteen of the 23 subjects from smoking households volunteered that no one smoked near the baby, and 5 of these 15, that the smoking person(s) smoked outside.

The age of babies at the time of the home interview ranged form 12 to 14 weeks (77-102 days).
II. ADVICE AND INFORMATION RECEIVED AND SOUGHT

(1) Current hospital and Plunket advice

Before interviewing began in the wards the charge nurses of each of the three wards involved reported the current feeding, sleep position and warmth assessment choices being promoted in their wards.

All three reported that hospital policy was to promote breastfeeding and that staff worked to a written protocol for breastfeeding, but that there was no hospital policy for a preferred sleep position or warmth assessment method. It was reported that parental preferences were supported in sleep position choice although no nurse would support a choice to sleep a baby on its back. One of the three nurses reported that she would advise that a baby sleep on his/her front by day, if unsettled and with the parent, but on the side by night. All three nurses reported that parental preference for side sleeping had initiated a recent change in practice in the hospital from front sleeping earlier in the year to side sleeping by the time of asking (June), but no nurse was able to be more specific about when the change had occurred.

Advice about assessing infant warmth was reported to be given on request or when nurses thought such advice necessary and advice varied with individual nurses. One reported that she would advise to look for physical signs that a baby is too hot, another to feel a baby's hands and feet to check that the baby is not cold, and the charge nurse caring for those babies who had spent some time in the neonatal intensive care unit, advised women to use a thermometer to check a baby's temperature if unsure using other methods. One nurse reported
advising parents to keep babies in rooms warmed to 17°C. Another nurse commented that there was a raised awareness of potential overheating of infants by some parents.

Before interviewing started the Principal Plunket nurse reported that breastfeeding was the feeding choice encouraged by Plunket and that there had been a recent change in sleep position advice from "whatever position the baby seems most comfortable in" to "not on the tummy". Thermal care advice was to "dress the baby according to the weather, not the season" and as a guide for what would be appropriate "3-4 layers of clothing and 2-3 layers of bedding in winter; 2-3 layers of clothing and 1-2 layers of bedding in summer". Woollen garments were recommended in winter but because of the fire hazards of cotton, polyester garments were advised for younger babies. Where heating was used in a baby's room a low setting was recommended. Parents were advised to check the baby's warmth by feeling the torso rather than the extremities.

(2) Promoted behaviours

Reported support by subjects in the hospital sample for the various feeding, sleep position and warmth assessment choices by subjects' social and health contacts and media experience was analysed and the results are summarised on Table 4. Social contacts were defined as Mum, family, friends and other mothers. Health contacts were defined as doctor, nurse in hospital, antenatal classes. Media sources were defined as books and magazines, radio/newspaper, television. The number of women reporting support from any social, health or media source, rather than individual sources, is shown in
Breastfeeding was the feeding choice promoted most. Eighty-two subjects reported support for breastfeeding by one or more health professionals, 74 by one or more of their family and friends and 40 by one or more media source. Only 4 subjects reported no experience of support for breastfeeding. Where there was support for bottle feeding it was mainly from family and friends.

Side sleeping was the sleep position most promoted. Sixty-eight subjects reported support for side sleeping by one or more health professionals, 64 by one or more of their family and friend and 56 by one or more media source, especially by television (n=53). Only 8 subjects reported no experience of support for side sleeping. Twenty-six women reported experience of support for sleeping babies on the front, mostly from one or more of their social contacts and also from nurses in hospital (n=11). Only 2 subjects reported experience of support for back sleeping.

Warmth assessment methods were not well promoted and more than half the subjects (n=53) reported no experience of support for a preferred method. Where a preference was shown feeling the torso was promoted more than feeling the extremities. Thirty subjects reported support for feeling the torso from health professionals, 10 from family and friends and 5 from the media. Advice from nurses in hospital to use a thermometer under an infant's arm to assess temperature, was reported by 8 subjects all of whom were in the ward where there were infants who had spent some time in the neonatal intensive care unit. This was included as promoting feeling the torso as a method of infant warmth assessment.
Table 4.-Reported support for the various feeding, sleep position and warmth assessment choices by subjects' social and health contacts and media experience (n=97)

<table>
<thead>
<tr>
<th>Source</th>
<th>Feeding</th>
<th>Sleeping</th>
<th>Warmth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Brst</td>
<td>Bott</td>
<td>Eith</td>
</tr>
<tr>
<td>Social</td>
<td>(74)</td>
<td>(64)</td>
<td>(10)</td>
</tr>
<tr>
<td>Mum</td>
<td>49</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Fam</td>
<td>51</td>
<td>21</td>
<td>-</td>
</tr>
<tr>
<td>Frd</td>
<td>68</td>
<td>31</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health</th>
<th>(82)</th>
<th>(68)</th>
<th>(30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doc</td>
<td>48</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Nur</td>
<td>68</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>A/N</td>
<td>61</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Media</th>
<th>(40)</th>
<th>(56)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bks</td>
<td>39</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Rad</td>
<td>20</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>TV</td>
<td>19</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>No response</td>
<td>4</td>
<td>53</td>
<td>92</td>
</tr>
</tbody>
</table>

No response to any choice: 2, 7, 53

* - includes promoting using a thermometer under the arm (n=8)
(3) Perceived reasons for promoted behaviours

Table 5 summarises the analysis of subjects' reported reasons of others, for the promotion of the various feeding, sleep position and warmth assessment choices. These reasons may or may not be the subjects' own and many subjects gave more than one reason for each choice.

Reasons for breastfeeding being promoted were grouped as "benefits to the baby" where appropriate and are included in brackets on Table 5. Most subjects (n=73) reported benefits to the baby as the reason for breastfeeding being promoted and that bottle feeding was practiced mainly because of difficulties with attempts to breast feed. More than half the subjects (n=52) reported a reduced risk of cot death as a perceived reason for sleeping babies on the side and not the front. The preference of the baby was given as a reason of others for all three sleep position choices (front n=12, side n=4, back n=3). Concern about inhalation of vomit for babies sleeping on their backs was reported by 39 subjects. Only 20 subjects were able to report a reason for promoting a warmth assessment method.
Table 5.-Reported perceived reasons of others for infant feeding, sleep position and warmth assessment choices (n=97)

<table>
<thead>
<tr>
<th>Choice</th>
<th>Reason</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feeding</strong></td>
<td>(benefits to the baby)</td>
<td>(73)</td>
</tr>
<tr>
<td>Breast</td>
<td>best for baby</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>easier</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>gives immunity</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>nutrition is right</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>economical</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>better bonding</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>best for Mum</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>hygienic</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>comfort/warmth</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>what was done at the time</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>nicer</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>protects against cot death</td>
<td>1</td>
</tr>
<tr>
<td>Bottle</td>
<td>problems with breastfeeding</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>convenience</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>preferable</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>uncomfortable about breastfeeding</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>easy way out</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>more time for Mum</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>nice for Dads to share feeding</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>upset baby</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>know what they are getting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>bottle fed with guilt</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>inverted nipples</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sleep position</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>front</td>
<td>baby preference</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>the done thing at the time</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>baby won’t inhale vomit</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>baby sleeps better</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>strengthens the neck</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>avoid cot death</td>
<td>1</td>
</tr>
<tr>
<td>side</td>
<td>cot death risk on the tummy</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>baby won’t inhale vomit</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>breathes better</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>won’t suffocate</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Mum said</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>baby preference</td>
<td>4</td>
</tr>
<tr>
<td>back</td>
<td>baby preference</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>safeguard against cot death</td>
<td>3</td>
</tr>
<tr>
<td><strong>Warmth assessment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>torso</td>
<td>better gauge, extremities vary too much</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>baby will feel sweaty if hot</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>thermometer is an accurate measure</td>
<td>3</td>
</tr>
<tr>
<td>extremities</td>
<td>skin colour shows if baby is warm</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>shows that the circulation is moving</td>
<td>1</td>
</tr>
</tbody>
</table>
(4) Trusted sources of advice

Doctors in particular and health professionals in general were the most trusted sources of advice about caring for babies, reported by hospital subjects. Many subjects reported more than one trusted source and the number of subjects naming one or more sources from each group of sources, social, health or media, is in brackets in the summary of this analysis on Table 6. Advice from health professionals was trusted most (by 93 women), then family and friends (by 77 women) and the media (by 19 women) least of all.

Table 6.-Most trusted sources of advice about caring for babies (n=97)

<table>
<thead>
<tr>
<th>Source</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social</strong></td>
<td></td>
</tr>
<tr>
<td>Mum</td>
<td>64</td>
</tr>
<tr>
<td>family</td>
<td>39</td>
</tr>
<tr>
<td>friends</td>
<td>33</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td>(93)</td>
</tr>
<tr>
<td>doctor</td>
<td>87</td>
</tr>
<tr>
<td>antenatal classes</td>
<td>57</td>
</tr>
<tr>
<td>nurses in hospital</td>
<td>81</td>
</tr>
<tr>
<td><strong>Media</strong></td>
<td>(19)</td>
</tr>
<tr>
<td>books/magazines</td>
<td>21</td>
</tr>
<tr>
<td>radio/newspaper</td>
<td>7</td>
</tr>
<tr>
<td>Television</td>
<td>7</td>
</tr>
</tbody>
</table>
(5) **Information sought**

"Colds and sickness" was the area of infant care that women most wanted to know more about and in particular, within this area, how to relieve symptoms at home. Most women (n=48) had not needed more information about cot death. Plunket was where most people went when they needed to know more about the different areas of infant care except in the area of emotional care in which subjects turned to themselves or partners for answers. More subjects asked their doctor than their Plunket nurse when they needed more information about their baby's ill-health. Many women reported seeking information from more than one source and the information was most often sought in the early weeks with their new baby.

The results of subjects' declared knowledge deficits and sources for seeking more information are summarised on Table 7. The question asked, to establish information sources of women was "Where did you go to find out what you needed to know?". It seemed from some peoples' responses that "where" implied a place or a person and that reading or other media sources were not considered when responding.
Table 7. New mothers' declared knowledge deficits and main sources for seeking more information (n=53)

<table>
<thead>
<tr>
<th>Knowledge area</th>
<th>Deficit yes (n)</th>
<th>Main information sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colds and sickness</td>
<td>40</td>
<td>Doctor (30), Plunket (15)</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>33</td>
<td>Plunket (22), doctor (9)</td>
</tr>
<tr>
<td>Bottle feeding</td>
<td>28</td>
<td>Plunket (24), friends (7)</td>
</tr>
<tr>
<td>Infant development</td>
<td>28</td>
<td>Plunket (17), reading (10)</td>
</tr>
<tr>
<td>Clothing and warmth</td>
<td>27</td>
<td>Plunket (10), Mum (7)</td>
</tr>
<tr>
<td>Infant feelings</td>
<td>26</td>
<td>Oneself and/or partner (15)</td>
</tr>
<tr>
<td>Infant crying</td>
<td>24</td>
<td>Plunket (13)</td>
</tr>
<tr>
<td>Infant sleep</td>
<td>22</td>
<td>Plunket (19), doctor (5)</td>
</tr>
<tr>
<td>Cot death</td>
<td>5</td>
<td>Doctor (2)</td>
</tr>
</tbody>
</table>

Information about the techniques of initiating and establishing breastfeeding was what women most commonly needed to know and was sought on 24 occasions, some subjects having more than one concern. Concerns included information about how to latch the baby on to the breast (n=9), how to express breast milk (n=4), the expected frequency and duration of feeds (n=6), positioning the baby at the breast (n=3) and control of fast initial flow (n=2). Information about problems and difficulties with breastfeeding was sought on 20 occasions, again some subjects having more than one concern. These included information about breast problems (n=7) and the effects of maternal illness (n=2), reactions of the baby (colic, sleepiness) (n=8), maternal hunger and change in diet (n=3). Information to verify perceived supply problems was sought on 18 occasions, some subjects having more than one concern.
The results of the analysis of information sought by new mothers is given on Table 8.

**Table 8.-Information sought by subjects since being home with their baby, for the various areas of infant care (n=53)**

<table>
<thead>
<tr>
<th>Knowledge area</th>
<th>Information sought</th>
<th>Subjects (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colds and sickness</td>
<td>How to relieve symptoms at home</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Check with doctor</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>To know what is serious</td>
<td>12</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>Techniques of how to breast feed</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Problems and difficulties</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Check perceived supply problems</td>
<td>19</td>
</tr>
<tr>
<td>Bottle feeding</td>
<td>Everything for getting started</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Which formula to use</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Expressed and occasional bottle feeds</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>How to store milk</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>How much milk to give</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>How to sterilize equipment</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>When to start baby on formula</td>
<td>1</td>
</tr>
<tr>
<td>Infant development</td>
<td>General questions</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Growth, weight gain concerns</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>What to expect next and how to help</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Vision, hearing, teething questions</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Hip condition questions</td>
<td>1</td>
</tr>
<tr>
<td>Clothing and warmth</td>
<td>Check out what is enough coverings</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Check out suitable air temperature</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>How to check that the baby is warm</td>
<td>2</td>
</tr>
<tr>
<td>Infant feelings</td>
<td>What is the baby thinking</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Understanding baby's reactions</td>
<td>9</td>
</tr>
<tr>
<td>Infant crying</td>
<td>Why is baby unhappy?</td>
<td>20</td>
</tr>
<tr>
<td>Infant sleep</td>
<td>Why is baby awake so much in the day</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>How much sleep is normal</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>When to expect sleeping through night</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Baby stopped breathing, what to do</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>How to settle a baby for sleep</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Best sleep position</td>
<td>1</td>
</tr>
<tr>
<td>Cot death</td>
<td>Breath holding, bought a monitor</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Generally anxious</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Disturbed by TV commercial</td>
<td>1</td>
</tr>
</tbody>
</table>
How successful women were in their attempts to find information was analysed in a general way and did not take into account how many attempts were needed to ensure success or the various kinds of information sought. Thirty one women reported that they always found out what they needed to know eventually even if they worked it out for themselves, 16 that they usually did, 4 that they sometimes found out and 2 that they were unable to find out what they needed to know.

(2) Information received

The Nursing Supervisor of antenatal clinics at Christchurch Women’s Hospital reported that "Your Pregnancy" was given to all women attending the clinic but other material was available for women to pick up and, where staff assessed materials were needed, given to specific women. The charge nurses at Christchurch Women’s reported that all maternity patients received the "Health and Development Record" book with the "Babies Need ..." wall frieze and phone list from the Health Department’s "Baby Health Care" package, enclosed. The Principal Plunket Nurse reported that Plunket nurses are routinely instructed to introduce all the materials in the Plunket information package individually to women at the first Plunket visit. It is not known how health educational materials were used when they were available from chemists, doctors and others.

Leaflets and booklets about pregnancy and infant care that subjects in the hospital sample reported to have seen, but not read, or read are summarised in Table 9. Materials reported seen were generally read. Health Department materials were the most read by hospital subjects and were the most widely distributed materials to these
subjects. Some women had not received their copy of the "Health and Development Record" book and "Babies Need ..." wall frieze or had an opportunity to read them before being interviewed. More than half the subjects had read each of these as well as the second edition of "Your Pregnancy" and the booklet "Ready for Baby" produced by The Boots Company and given to women at antenatal visits.

The two leaflets coded WWCS and UFTM were not distributed in New Zealand. Of the two subjects who reported that they had seen WWCS one had had a previous baby in Australia and thought that she had seen a similar leaflet there. The leaflet was from Bristol, England.
Table 9.-Materials reported not seen, seen but not read, read, and
their known distribution sources (A-antenatal clinic, H-hospital, P-
Plunket, C-Chemist, D-doctor, B-bookstores, M-mailed, U-unavailable)
(n=97)

<table>
<thead>
<tr>
<th>Code</th>
<th>Materials</th>
<th>Source</th>
<th>Subjects (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>not seen</td>
</tr>
<tr>
<td>Leaflets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BNF*</td>
<td>Babies Need ... frieze (1989)</td>
<td>H</td>
<td>24</td>
</tr>
<tr>
<td>YCB</td>
<td>Your Changing Baby (1988)</td>
<td>PACD</td>
<td>62</td>
</tr>
<tr>
<td>PAB</td>
<td>Pregnancy and Breastfeeding</td>
<td>A</td>
<td>64</td>
</tr>
<tr>
<td>CD</td>
<td>Cot Death - reducing risks (1990)</td>
<td>PCD</td>
<td>70</td>
</tr>
<tr>
<td>PD</td>
<td>Postnatal Depression</td>
<td>P</td>
<td>81</td>
</tr>
<tr>
<td>NYB</td>
<td>Nursing Your Baby</td>
<td>A</td>
<td>81</td>
</tr>
<tr>
<td>CYCH</td>
<td>Can Your Child Hear?</td>
<td>P</td>
<td>90</td>
</tr>
<tr>
<td>WWCS</td>
<td>Keeping Baby Warm In Winter/ Cool In Summer</td>
<td>U</td>
<td>95</td>
</tr>
<tr>
<td>CYCS</td>
<td>Can Your Child See?</td>
<td>P</td>
<td>96</td>
</tr>
<tr>
<td>UFTM</td>
<td>Understanding the First Three Months</td>
<td>U</td>
<td>97</td>
</tr>
<tr>
<td>KCB</td>
<td>Keep Cool Baby</td>
<td>P</td>
<td>97</td>
</tr>
</tbody>
</table>

Booklets

<table>
<thead>
<tr>
<th>Code</th>
<th>Materials</th>
<th>Source</th>
<th>Subjects (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YP1*</td>
<td>Your Pregnancy (1985 edition)</td>
<td>A</td>
<td>31</td>
</tr>
<tr>
<td>RFB</td>
<td>Ready for Baby (1987)</td>
<td>HP</td>
<td>35</td>
</tr>
<tr>
<td>TSB</td>
<td>The Sleeping Baby</td>
<td>A</td>
<td>55</td>
</tr>
<tr>
<td>B*</td>
<td>Breastfeeding (1990)</td>
<td>AP</td>
<td>68</td>
</tr>
<tr>
<td>YBI*</td>
<td>Your Baby is Beautiful (1967)</td>
<td>A</td>
<td>76</td>
</tr>
<tr>
<td>TTM</td>
<td>The Tenth Month (1990)</td>
<td>B</td>
<td>81</td>
</tr>
<tr>
<td>TANS</td>
<td>There are No Superparents (1989)</td>
<td>P</td>
<td>81</td>
</tr>
<tr>
<td>TAT</td>
<td>Tots and Toddlers (1989)</td>
<td>M</td>
<td>90</td>
</tr>
<tr>
<td>YP2</td>
<td>Your Pregnancy (1990)</td>
<td>A</td>
<td>93</td>
</tr>
</tbody>
</table>

Books

<table>
<thead>
<tr>
<th>Code</th>
<th>Materials</th>
<th>Source</th>
<th>Subjects (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAC</td>
<td>Baby and Child by P. Leach (1977)</td>
<td>B</td>
<td>44</td>
</tr>
<tr>
<td>TT</td>
<td>Toddler Taming by C. Green (1984)</td>
<td>B</td>
<td>56</td>
</tr>
</tbody>
</table>

Materials produced by Health Department

All the materials in the Plunket information package were
reported to have been read by at least half of the home subjects except
for the Department of Social Welfare booklet "There Are No
Superparents" which was reported to have been read by only 10 subjects.
The leaflets "Your Changing Baby", "Cot Death - Reducing Risks" and the
three typed sheets of Plunket hints were the most read leaflets and "Ready for Baby" and "Breastfeeding" were the most read booklets. The results of the above analysis are summarised on Table 10.

Table 10.-Materials read by new mothers before and/or after the hospital interview (n=53)

<table>
<thead>
<tr>
<th>Code</th>
<th>Subjects having read materials (n)</th>
<th>read before only</th>
<th>read before and after</th>
<th>read after total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>read before only</td>
<td>read before and after</td>
<td></td>
</tr>
<tr>
<td>Leaflets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YCB</td>
<td></td>
<td>2</td>
<td>19</td>
<td>46 (87)</td>
</tr>
<tr>
<td>CD</td>
<td></td>
<td>-</td>
<td>12</td>
<td>39 (74)</td>
</tr>
<tr>
<td>PH</td>
<td></td>
<td>1</td>
<td>1</td>
<td>38 (72)</td>
</tr>
<tr>
<td>CYCS</td>
<td></td>
<td>-</td>
<td>-</td>
<td>33 (62)</td>
</tr>
<tr>
<td>PD</td>
<td></td>
<td>3</td>
<td>1</td>
<td>30 (57)</td>
</tr>
<tr>
<td>CYCH</td>
<td></td>
<td>-</td>
<td>1</td>
<td>29 (55)</td>
</tr>
<tr>
<td>KCB</td>
<td></td>
<td>-</td>
<td>-</td>
<td>28 (53)</td>
</tr>
<tr>
<td>WWCS</td>
<td></td>
<td>-</td>
<td>-</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Booklets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFB</td>
<td></td>
<td>3</td>
<td>29</td>
<td>42 (79)</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>1</td>
<td>20</td>
<td>38 (72)</td>
</tr>
<tr>
<td>TIM</td>
<td></td>
<td>1</td>
<td>8</td>
<td>17 (32)</td>
</tr>
<tr>
<td>TAT</td>
<td></td>
<td>-</td>
<td>2</td>
<td>17 (32)</td>
</tr>
<tr>
<td>TANS</td>
<td></td>
<td>2</td>
<td>4</td>
<td>10 (19)</td>
</tr>
</tbody>
</table>
III. PERCEPTIONS OF ADVICE AND INFORMATION

(1) Perceptions of hospital subjects

More than half the subjects (n=54) reported that their intended choice of infant sleep position had been influenced "quite a bit" by advice received from social, health and media contacts. A quarter reported to be influenced "quite a bit" in both feeding method choice (n=22) and warmth assessment choice (n=28). Fifty-eight subjects reported that advice received had "not really" influenced their intended choice of feeding method. Several subjects volunteered the response that although they had made up their own minds about how they would care for their baby it was good to know that it matched up with what others thought was good practice.

Many subjects had difficulty deciding how much the materials read had influenced their intended choices. Most reported that educational materials had not really influenced them, but again supported what they intended to do.

In general, advice received, more than information read, made a difference to parents intended choices of feeding, sleep position and warmth assessment method, but neither were perceived as major influences, more as supportive of decisions already made. The exception was perceived influence on intended sleep position choice, where more than half the sample felt that advice received had made "quite a bit" of difference. Thirty one of the subjects who reported "quite a bit" of influence on intended choice of infant sleep position, and 7 of the subjects who reported "a little" influence, had reported that television was a media source promoting side sleeping for infants.
Table 11 summarises the results of the above analysis.

Table 11.- Degree of perceived influence of advice received and information read, on intended infant feeding, sleep position and warmth assessment choices (n=97)

<table>
<thead>
<tr>
<th>Degree of influence</th>
<th>Feeding advice</th>
<th>Feeding info</th>
<th>Sleep pos advice</th>
<th>Sleep pos info</th>
<th>Warmth ass advice</th>
<th>Warmth ass info</th>
</tr>
</thead>
<tbody>
<tr>
<td>quite a bit</td>
<td>22</td>
<td>12</td>
<td>54</td>
<td>7</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>a little</td>
<td>14</td>
<td>12</td>
<td>13</td>
<td>8</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>not really</td>
<td>58</td>
<td>57</td>
<td>25</td>
<td>64</td>
<td>10</td>
<td>52</td>
</tr>
<tr>
<td>do not know</td>
<td>3</td>
<td>16</td>
<td>5</td>
<td>18</td>
<td>52</td>
<td>34</td>
</tr>
</tbody>
</table>

The analysis of subjects' responses to the questions a) "What do you think is a good way to learn about babies and their needs?" and b) "From where have you learned most of what you know about caring for babies?" were analysed and grouped as suggested and actual sources of learning. The responses are summarised on Table 12 and some subjects made more than one response to each question.

Antenatal classes was the learning source suggested most (by 38 subjects) as being a good way to learn about caring for babies, yet only 15 subjects reported this as a major source of learning for them. Nearly half the subjects (n=46) reported that a major learning source for them was family and friends and for 31, personal experience (23 of these were experienced mothers).
Table 12.-Hospital subjects' suggested and actual sources for learning about infant care (n=97)

<table>
<thead>
<tr>
<th>Learning source</th>
<th>suggested</th>
<th>actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenatal classes</td>
<td>38</td>
<td>15</td>
</tr>
<tr>
<td>Family and friends</td>
<td>29</td>
<td>46</td>
</tr>
<tr>
<td>Health professionals</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>Reading</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>Experience</td>
<td>11</td>
<td>31</td>
</tr>
</tbody>
</table>

(2) Perceptions of the home subjects

Three leaflets and two booklets were perceived to be helpful and thought worth recommending to other parents more than the others. Since being at home with their baby "Your Changing Baby" was the leaflet perceived to be helpful by the most subjects (n=39) and thought worth recommending to other parents by the most subjects (n=33). Some women volunteered the comment that there was "nothing new" in this leaflet and that it was just common sense. "Your Changing Baby" promoted breastfeeding, side sleeping and feeling the torso as a method of warmth assessment for infants.

The three typed pages of Plunket hints which included practical suggestions to support breastfeeding, but did not mention sleep position or methods of warmth assessment, were perceived to be helpful by 36 subjects and thought worth recommending to other parents by 29 subjects.

The leaflet "Cot Death - reducing the risks" which also promoted side (or back) sleeping and feeling the torso for assessing warmth, was
perceived to be helpful by 35 and thought worth recommending to other parents by 26 subjects.

Of the two more popular booklets, "Ready For Baby" was perceived to be helpful by more subjects (n=40), but "Breastfeeding" was thought worth recommending to other parents by more subjects (n=31). Both booklets promote breastfeeding, but do not mention sleep position or methods of warmth assessment.

Table 13 summarises the degree of perceived helpfulness of materials read and Table 14 gives the distribution of materials most likely to be recommended by subjects to other parents.

Table 13.-Perceived helpfulness of materials read by new mothers (n=53)

<table>
<thead>
<tr>
<th>Code</th>
<th>(Helpfulness)</th>
<th>(Unhelpfulness)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>quite a bit</td>
<td>total</td>
</tr>
<tr>
<td>Leaflets</td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>YCB</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>PH</td>
<td>32</td>
<td>4</td>
</tr>
<tr>
<td>CD</td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>CYCS</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>CYCH</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>KCB</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>PD</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>WWCS</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

| Booklets |        |                 |               |
| RFB      | 21      | 19              | 40 (75)       | 2 - - |
| B        | 23      | 10              | 33 (62)       | 5 - - |
| TTM      | 13      | 3               | 16 (30)       | 1 - - |
| TAT      | 9       | 7               | 16 (30)       | 1 - - |
| TANS     | 5       | 2               | 7 (13)        | 1 - - |
Table 14.-Materials new mothers would recommend that other parents read (n=53)

<table>
<thead>
<tr>
<th>Code</th>
<th>Material</th>
<th>Recommended (n)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>all*</td>
<td>specific*</td>
<td>total</td>
</tr>
<tr>
<td><strong>Leaflets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YCB</td>
<td>Your Changing Baby (1988)</td>
<td>16</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>PH</td>
<td>Plunket Hints</td>
<td>12</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>CD</td>
<td>Cot Death - reducing risks</td>
<td>12</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>KCB</td>
<td>Keep Cool, Baby (1989)</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>PD</td>
<td>Postnatal Depression</td>
<td>11</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>CYCs</td>
<td>Can Your Child See?</td>
<td>14</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>CYCH</td>
<td>Can Your Child Hear?</td>
<td>12</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>WWCS</td>
<td>Keeping Baby Cool In Summer/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Warm in Winter</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td><strong>Booklets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Breastfeeding</td>
<td>4</td>
<td>27</td>
<td>31</td>
</tr>
<tr>
<td>RFB</td>
<td>Ready For Baby</td>
<td>4</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>TTM</td>
<td>The Tenth Month</td>
<td>2</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>TAT</td>
<td>Tots and Toddlers</td>
<td>3</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>TANS</td>
<td>There Are No Superparents</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

* all - recommended as one of all leaflets or booklets read
^ specific - recommended specifically

Reactions of new mothers to four Department of Health materials were analysed. The "Health and Development Record" given to all subjects when in hospital, had been referred to, at some time since
being home, by 44 subjects (especially for immunization information) and it was thought to be quite helpful by 29, a bit helpful by 10 and not really helpful by 5. Of the three items from the Health Department's parent education package "Health Care For Your Baby", no subjects had seen the video "The Biggest Love", 3 subjects had seen the leaflet and 1 of these had read it and found it "a bit" helpful. All subjects were given the wall frieze in hospital. Nine subjects were displaying it on a wall, 35 had it in a drawer, 4 had thrown it out and 5 did not know where their copy was. Of these resources, the video, wall frieze and "Health and Development Record" all promote breastfeeding and side sleeping, but not a preferred method of warmth assessment.

Half the new mothers in the home sample found their antenatal class experience of some help (n=22) and even more (n=33) found their time in hospital to be of some help in preparing them for the care of their baby at home. Since many women attended only part of the antenatal courses and in some cases only one class, the reported perceptions are of how helpful their particular experience had been and cannot be interpreted as a judgement of the quality of the courses. Subjects' perceptions of the helpfulness of antenatal classes and of their time in hospital, in the later care of their baby, are summarised on Table 15.
Table 15.-Degree of perceived helpfulness of antenatal classes and time in hospital for the later care of a baby, reported by new mothers (n=53) (CWHosp - Christchurch Women's Hospital; PC - Parents' Centre)

<table>
<thead>
<tr>
<th>Helpfulness</th>
<th>Unhelpfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>quite</td>
<td>very</td>
</tr>
<tr>
<td>a bit</td>
<td>know</td>
</tr>
<tr>
<td>total</td>
<td>not unhelpful</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Antenatal (n=42)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CWHosp (n=28)</td>
<td>8</td>
</tr>
<tr>
<td>PC (n=9)</td>
<td>1</td>
</tr>
<tr>
<td>Other (n=5)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospital (n=53)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CWHosp</td>
<td>14</td>
</tr>
</tbody>
</table>

Where new mothers had experienced advice or support in the care of their baby it was generally perceived to be helpful for all social, health and media sources. Forty-five subjects reported that reading had been of some help. The great variability of subjects' involvement with the different social, health and media sources makes it unrealistic to compare the perceived helpfulness of one source with another. The reported perceived helpfulness of social and health contacts and media experience, since the new baby, was analysed and the results are summarised on Table 16.
Table 16.—Degree of perceived helpfulness, reported by new mothers, of their social, health and media contact since the baby (n=53)

<table>
<thead>
<tr>
<th>Source</th>
<th>Helpfulness</th>
<th>Unhelpfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>quite</td>
<td>a bit</td>
</tr>
<tr>
<td>Social</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mum</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>Family</td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td>Friends</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td>Midwife</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>Plunket</td>
<td>42</td>
<td>5</td>
</tr>
<tr>
<td>Media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>Television</td>
<td>9</td>
<td>13</td>
</tr>
</tbody>
</table>

A perceived major influence on the day to day care of their baby was reported to be the baby him/herself by 37 new mothers, social contacts, especially Mum (n=15), by 26 subjects, health contacts, especially Plunket (n=12) by 12 subjects and the media by 1 subject. Some women reported more than one major influence.

IV. INTENDED AND ACTUAL CHOICES OF INFANT CARE

(1) Intended choices

Most women in the hospital sample intended to breast feed their
babies (n=85) and sleep their babies on the side or back (n=92). A third of the women (n=34) intended to feel the torso to assess their infant's warmth, another third (n=31) the extremities and 32 women had no intended method (or a method that did not involve feeling the baby (n=8)). Table 17 lists the intended choices of feeding, sleep position and warmth assessment methods for new and experienced mothers in the hospital sample.

Table 17.-Intended choice of infant feeding, sleep position and warmth assessment method for new and experienced mothers (n=97)

<table>
<thead>
<tr>
<th>Intended choice</th>
<th>Number of mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>new</td>
</tr>
<tr>
<td><strong>Feeding</strong></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>54</td>
</tr>
<tr>
<td>Bottle</td>
<td>3</td>
</tr>
<tr>
<td>Both</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>61</td>
</tr>
<tr>
<td><strong>Sleep position</strong></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>1</td>
</tr>
<tr>
<td>Side</td>
<td>59</td>
</tr>
<tr>
<td>Back</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>61</td>
</tr>
<tr>
<td><strong>Warmth assessment</strong></td>
<td></td>
</tr>
<tr>
<td>Torso</td>
<td>19</td>
</tr>
<tr>
<td>Extremities</td>
<td>16</td>
</tr>
<tr>
<td>No method</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>61</td>
</tr>
</tbody>
</table>

It was not possible to see how women's intended choice of sleep
position interacted with other variables because of the very large number of subjects intending to sleep their baby on the side or back. Women with four or more completed years of secondary schooling were more likely to intend to fully breast feed their baby than women with less schooling ($\chi^2=9.9$, df 1, $p<0.005$). Experienced mothers ($\chi^2=9.3$, df 1, $p<0.005$) and women who reported reading the leaflets "Your Changing Baby" and/or "Cot Death - reducing risks" ($\chi^2=9.3$, df 1, $p<0.005$) were more likely to have an intended warmth assessment method although, in each case, there was no difference which method. There was a tendency, although not significant, for women, who gave "reading" as a major source for learning about babies, to be more likely to have an intended warmth assessment method, but it made no difference which ($\chi^2=3.6$, df 1, $p<0.01$). Otherwise there was no relationship found between information read, advice received, women's perceptions of these and the social variables of infant birth weight, infant maturity, new or experienced mothers, maternal age or maternal smoking, on intended feeding, sleep position and warmth assessment choices.

(2) **Changed choices for experienced mothers**

The intended choices of experienced mothers were compared with their reported actual infant care choices for their last baby and behaviour changes were identified. The results, summarised on Table 18, showed a significant change in sleep position choice from the front last time to the side or back this time ($X^2=18.6$, df=1, $p<0.005$), but no significant change for choice of feeding method and no change in choice of warmth assessment method.
Table 18.- Comparison of infant care choices of experienced mothers for their new baby and previous baby (n=36)

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Previous choice</th>
<th>Intended choice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>24</td>
<td>31</td>
</tr>
<tr>
<td>Bottle</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Both</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sleep position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Side</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Back</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Warmth Assessment</td>
<td>(no change)</td>
<td></td>
</tr>
</tbody>
</table>

Of these 36 experienced mothers, 9 had changed their feeding method choice, 19 their sleep position choice and none had changed their warmth assessment choice. Only two of the 20 women who slept their last baby on the front intended to sleep the new baby on the front. Thirty one women intended to breast feed the new baby and this included 8 who had not breastfed the last baby.

The reasons subjects gave for changing their intended feeding and sleep position practices for the new baby are listed on Table 19. Some women gave more than one reason. Experience of problems with breastfeeding last time (n=7) was the main reason given for changing from bottle feeding the last baby to breastfeeding the new one. Reduced risk of cot death was the reason given by 17 of the 19 woman who changed their sleep position practice from front sleeping for the
last baby to side or back sleeping for the new baby.

Table 19.-Reasons given for behaviour changes of experienced mothers from previous to intended choices of infant care (n=36)

<table>
<thead>
<tr>
<th>Behaviour change</th>
<th>Reason</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feeding (n=9)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bottle to breast (n=8)</td>
<td>previous problems with breastfeeding</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>last baby preferred the bottle</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>this baby is getting enough breast milk</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>mother has more confidence</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>cheaper</td>
<td>1</td>
</tr>
<tr>
<td>breast to bottle (n=1)</td>
<td>breastfeeding problems last time</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sleep position (n=19)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>front to side (n=16)</td>
<td>reduced cot death risk</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>this baby prefers the side</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Mum said</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>the hospital has changed what is done</td>
<td>1</td>
</tr>
<tr>
<td>front to back (n=2)</td>
<td>reduced cot death risk</td>
<td>2</td>
</tr>
<tr>
<td>side to front (n=1)</td>
<td>this baby prefers the front</td>
<td>1</td>
</tr>
</tbody>
</table>
(3) Actual choices of new mothers

The analysis of diaries provided evidence of actual infant feeding and sleep position choices of new mothers in the home sample. Fully breastfeeding was recorded as an actual feeding choice when all feeds during the period of diary recording were breast feeds. Where subjects included back sleeping for any of the sleeps during diary recording the actual sleep position choice was given as the back.

Only half the subjects (n=22) were fully breastfeeding their babies at three months of age, 57% were sleeping their babies on the side and nearly all subjects (96%) were feeling the torso to assess their infant's warmth. For the 18 subjects who including the back as a sleep position choice, 4 chose the back for all sleeps in the period of diary recording, 3 chose the back for more than half of the sleeps and 11 for less than half of the sleeps.

Details of the combined clothing, bedding and heating arrangements for babies at night are summarised on Table 20. Heating details were missed from one interview giving a total of 52 respondents for the heating questions. The mean number of clothing layers covering the torso of infants was 2.6 (range 1-4, SD 0.7), the mean number of bedding layers was 2.9 (range 1-6, SD 1.1) and the mean combined number of clothing and bedding layers was 5.5 (range 3-8, SD 1.3). A quarter of babies were reported to be wearing more than Stanton's (1984) normal maximum requirements of equivalent to 6 layers. Heating was reported to be on all night in the rooms of one-third of babies (n=18).

The daily minimum and maximum temperature recordings for the study period were analysed from New Zealand daily climatological observations recordings (New Zealand Meteorological Service, October
1990). The daily minimum temperature for the nights of the reported warming arrangements ranged from -2°C to 10°C and had a mean of 5.3°C (SD 2.9). The mean daily maximum temperature for the day preceding these nights was 16.6°C (range 10°C to 25°C, SD 4.5).

Nine mothers reported that their baby had a cold and was mildly unwell the night preceding the home interview. Six of the nine babies had 3 to 5 layers of combined clothing and bedding and 5 of these slept in rooms with no heating. Two of the nine babies had seven combined layers and heating on all night and one baby had six combined layers and slept with no heating on.

There was no relationship found between number of combined layers of clothing and bedding and the use of heating in a baby's room, so that the more heavily wrapped infants were as likely as the more lightly wrapped ones to sleep in heated rooms. These two variables were not found to be related to the health status of the baby, or to the outside weather temperature.
Table 20.-Number of clothing, bedding and combined clothing and bedding layers covering the torso of infants at night, for infants sleeping in heated and unheated rooms (n=53)

<table>
<thead>
<tr>
<th>Layers</th>
<th>Infants</th>
<th>Heating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(%)</td>
</tr>
<tr>
<td>Clothing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>(2)</td>
</tr>
<tr>
<td>2</td>
<td>21</td>
<td>(40)</td>
</tr>
<tr>
<td>3</td>
<td>27</td>
<td>(51)</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>(7)</td>
</tr>
<tr>
<td>Bedding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>(7)</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
<td>(32)</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>(32)</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>(23)</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>(4)</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>(2)</td>
</tr>
<tr>
<td>Combined</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>(6)</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>(15)</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>(34)</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>(21)</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>(15)</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>(9)</td>
</tr>
</tbody>
</table>

---

18 34 52
(4) **Changed choices for new mothers**

A comparison of intended and actual choices of new mothers showed a significant change for all three behaviours, \( \chi^2 = 26.0, \) df=1, \( p<0.005 \) for a change from fully breastfeeding; \( \chi^2 = 21.0, \) df=1, \( p<0.005 \) for a change from side only to include the back sleep position and \( \chi^2 = 40.0, \) df=1, \( p<0.005 \) for a change to feeling the torso to assess an infant’s warmth). The results are summarised on Table 21.

**Table 21.** A comparison of actual and intended choice of infant feeding, sleep position and warmth assessment method of new mothers (n=53)

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Actual choice</th>
<th>Intended choice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td><strong>Feeding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>22 (42)</td>
<td>47 (89)</td>
</tr>
<tr>
<td>Bottle</td>
<td>16 (30)</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Both</td>
<td>15 (28)</td>
<td>4 (7)</td>
</tr>
<tr>
<td><strong>Sleep position</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>5 (9)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Side</td>
<td>30 (57)</td>
<td>51 (96)</td>
</tr>
<tr>
<td>Back</td>
<td>18 (34)</td>
<td>1 (2)</td>
</tr>
<tr>
<td><strong>Warmth assessment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torso</td>
<td>50 (94)</td>
<td>19 (36)</td>
</tr>
<tr>
<td>Extremities</td>
<td>2 (4)</td>
<td>17 (32)</td>
</tr>
<tr>
<td>No method</td>
<td>1 (2)</td>
<td>17 (32)</td>
</tr>
</tbody>
</table>

Where there was a change in feeding choice women changed from breast to bottle (n=11) or to both breast and bottle (n=14). Where
there was a change in sleep position choice most women changed from intending the side position only to including the back (n=16). Where there was a change in warmth assessment choice to feeling the torso, women changed from intending to feel extremities (n=13) or from having no intended method (n=18).

The reasons subjects gave for changing from their intended practice are listed in Table 22. Many subjects gave more than one reason. Inadequate milk supply was the reason given most often for changing from fully breastfeeding. Responding to the perceived preference of the baby was the main reason given for including the back as a sleep position choice. Many women (n=11) could not give a reason for having changed their intended warmth assessment choice and as many reported they had been given advice by their Plunket nurse, a relative or friend.
### Table 22.-Reasons given by new mothers for changing from intended infant care choices (n=53)

<table>
<thead>
<tr>
<th>Change in choice</th>
<th>Reason</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding (n=28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>breast to bottle (n=11)</td>
<td>hungry baby</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>not enough milk</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>low weight gain for baby</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>problems getting started</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>convenience</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>maternal sickness</td>
<td>3</td>
</tr>
<tr>
<td>breast to both (n=14)</td>
<td>low supply at the end of the day</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>maternal pain and discomfort</td>
<td>3</td>
</tr>
<tr>
<td>both to bottle (n=3)</td>
<td>pain</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>convenience</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>uncomfortable about breastfeeding</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>supply problems</td>
<td>1</td>
</tr>
<tr>
<td>Sleep position (n=22)</td>
<td>baby preference</td>
<td>10</td>
</tr>
<tr>
<td>side to include back (16)</td>
<td>how baby fell asleep</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Plunket advice</td>
<td>2</td>
</tr>
<tr>
<td>side to front (5)</td>
<td>medical reason</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Plunket advice for unsettled baby</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>baby preference</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>do not know</td>
<td>1</td>
</tr>
<tr>
<td>front to back (1)</td>
<td>do not know</td>
<td>1</td>
</tr>
<tr>
<td>Warmth assessment (n=31)</td>
<td>do not know</td>
<td>5</td>
</tr>
<tr>
<td>extremities to torso (13)</td>
<td>advice given</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>read it somewhere</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>worked it out</td>
<td>1</td>
</tr>
<tr>
<td>no method to torso (18)</td>
<td>do not know</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>advice given</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>read it somewhere</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>worked it out</td>
<td>3</td>
</tr>
</tbody>
</table>

Of the 18 women who included the back in their actual sleep position choice, five had not read at least one of the two leaflets suggesting the back, "Keep Cool Baby" and "Cot Death - reducing risks".
The time at which complementary feeding was started was analysed. Of the 25 women who intended to fully breast feed, but introduced milk formula and bottle feeding, 11 did so before their baby was one month old, 9 did so when their baby was between 1 and 2 months old and 5 did so when their baby was between 2 and 3 months old.

The position in which babies ended up sleeping was analysed. For the sleeps of the three days of diary recording, 14 babies always ended up on their backs, 14 ended up on their backs for more than half of these sleeps, 15 ended up on their backs for less than half of these sleeps and 11 were never on their backs. The five babies who were put to sleep on their front always ended up on their front.

A comparison of thermal care behaviours of the new mothers in this study and the practices of Christchurch parents, of babies of a similar age, in 1986 (Cowan, 1990) is shown on Table 23. There was a significant difference in practice between the two groups of parents with the 1990 parents more likely to have used 3 or less clothing layers (\(\chi^2 = 22.6, \text{ df } 1, p < 0.005\)), 3 or less bedding layers (\(\chi^2 = 11.2, \text{ df } 1, p < 0.005\)) and 6 or less combined clothing and bedding layers (\(\chi^2 = 20.9, \text{ df } 1, p < 0.005\)) than the 1986 group of parents. The variation in practice was less for the 1990 parents with a range of 3 to 8 combined layers compared to a range of 3 to 12 layers for the 1986 parents. The mean daily minima and maxima temperatures were around 4°C higher in the 1990 study compared to the 1986 study (mean daily minima temperatures were 1.64°C [SD 2.4] in 1986 and 5.3°C [SD 2.9] in 1990; mean daily maxima temperatures were 11.9°C [3.2] in 1986 and 16.6°C [SD 2.9] in 1990).
Table 23.- Comparison of infant clothing and bedding practices (number of layers of clothing, bedding and clothing + bedding combined) for Christchurch parents in August/September 1986 (n=234) and October 1990 (n=53)

<table>
<thead>
<tr>
<th>Clothing layers</th>
<th>Infants (%)</th>
<th>Bedding</th>
<th>Infants (%)</th>
<th>Combined</th>
<th>Infants (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>40</td>
<td>2</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>3</td>
<td>39</td>
<td>51</td>
<td>3</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>4</td>
<td>36</td>
<td>7</td>
<td>4</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>-</td>
<td>5</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>2</td>
<td>-</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>1</td>
<td>-</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>11</td>
<td>-</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>3</td>
<td>-</td>
<td>12</td>
<td>1</td>
</tr>
</tbody>
</table>

It was not possible to see how actual choice of warmth assessment method interacted with other variables because most new mothers in the home sample were using the same method, that of feeling an infant's torso. Likewise, since most women reported having read the leaflets "Your Changing Baby" and/or "Cot Death - reducing risks" it was not possible to see how reading these interacted with actual
choices of feeding, sleep position and warmth assessment method. Women who reported wanting to know more about their baby's crying, or having smoked during pregnancy were as likely as other women to be fully breastfeeding their baby at three months of age.

There was no measurable influence of maternal age, racial differences, income source or years of completed secondary schooling on actual feeding, sleep position and warmth assessment choices. The suburb in which women lived and whether or not they lived with the baby's father seemed to make no measurable difference to actual behaviour choices either.

V. INFORMATION LEAFLETS

Forty three hospital subjects had read either "Your Changing Baby" (n=18) or "Cot Death- reducing risks" (n=11) and 14 subjects had read both. A description of these subjects is given on Table 24 and it can be seen that readers and non-readers are similar groups and representative of the total hospital sample. Percentages are of numbers of readers or non-readers.
Table 24. Description of readers and non-readers of the "Your Changing Baby" and "Cot Death - reducing risks" leaflets, for the hospital sample (n=97)

<table>
<thead>
<tr>
<th></th>
<th>readers</th>
<th>non-readers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>( % )</td>
<td>n</td>
</tr>
<tr>
<td>Maternal age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 25 years</td>
<td>13 (30)</td>
<td>16 (30)</td>
<td>29</td>
</tr>
<tr>
<td>&gt; 25 years</td>
<td>30 (70)</td>
<td>38 (70)</td>
<td>68</td>
</tr>
<tr>
<td>Maternal smoking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>11 (26)</td>
<td>16 (30)</td>
<td>27</td>
</tr>
<tr>
<td>no</td>
<td>32 (74)</td>
<td>38 (70)</td>
<td>70</td>
</tr>
<tr>
<td>Years of completed secondary school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 3</td>
<td>17 (40)</td>
<td>22 (41)</td>
<td>39</td>
</tr>
<tr>
<td>&gt; 3</td>
<td>26 (60)</td>
<td>32 (59)</td>
<td>58</td>
</tr>
<tr>
<td>Children borne</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>new mothers</td>
<td>28 (65)</td>
<td>33 (61)</td>
<td>61</td>
</tr>
<tr>
<td>experienced mothers</td>
<td>15 (35)</td>
<td>21 (39)</td>
<td>36</td>
</tr>
<tr>
<td>Infant birth weight (grams)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 3000</td>
<td>13 (30)</td>
<td>18 (33)</td>
<td>31</td>
</tr>
<tr>
<td>&gt; 3000</td>
<td>30 (70)</td>
<td>36 (67)</td>
<td>66</td>
</tr>
<tr>
<td>Prematurity (days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before expected due date</td>
<td>21 (49)</td>
<td>27 (50)</td>
<td>48</td>
</tr>
<tr>
<td>after expected due date</td>
<td>22 (51)</td>
<td>27 (50)</td>
<td>49</td>
</tr>
<tr>
<td>Race (home sample)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pakeha</td>
<td>37 (88)</td>
<td>32 (76)</td>
<td>42</td>
</tr>
<tr>
<td>maori</td>
<td>4 (80)</td>
<td>3 (60)</td>
<td>5</td>
</tr>
<tr>
<td>other</td>
<td>5 (83)</td>
<td>4 (67)</td>
<td>6</td>
</tr>
<tr>
<td>Suburb (home sample)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linwood</td>
<td>12 (80)</td>
<td>12 (80)</td>
<td>15</td>
</tr>
</tbody>
</table>

Data relating to the two leaflets, some of which has already been reported, are summarised on Table 25. Percentages shown are of the number of readers of the leaflets, except when describing the readers in each sample, where percentages are of the total number of subjects in each sample. Only two subjects had read CD, but not YOB.
Table 25.- Reported perceptions and infant care practices of readers of the leaflets "Your Changing Baby" and "Cot Death"

<table>
<thead>
<tr>
<th>Readers of</th>
<th>YCB</th>
<th>CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read</td>
<td></td>
<td></td>
</tr>
<tr>
<td>by hospital subjects</td>
<td>32  (33)</td>
<td>25  (26)</td>
</tr>
<tr>
<td>by home subjects since home</td>
<td>46  (87)</td>
<td>39  (74)</td>
</tr>
<tr>
<td>Helpful (n=53)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>39  (74)</td>
<td>35  (66)</td>
</tr>
<tr>
<td>not really</td>
<td>7   (13)</td>
<td>2   (4)</td>
</tr>
<tr>
<td>Worth recommending (n=53)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>specifically</td>
<td>17  (32)</td>
<td>14  (26)</td>
</tr>
<tr>
<td>generally</td>
<td>16  (30)</td>
<td>12  (23)</td>
</tr>
<tr>
<td>total</td>
<td>33  (62)</td>
<td>26  (49)</td>
</tr>
<tr>
<td>Intended practices of hospital readers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>breastfeeding only</td>
<td>29  (91)</td>
<td>23  (92)</td>
</tr>
<tr>
<td>side or back sleep position</td>
<td>30  (94)</td>
<td>24  (96)</td>
</tr>
<tr>
<td>feel torso to assess warmth</td>
<td>15  (47)</td>
<td>11  (44)</td>
</tr>
<tr>
<td>Warmth assessment for hospital readers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>had an intended method</td>
<td>28  (88)</td>
<td>21  (84)</td>
</tr>
<tr>
<td>had no method</td>
<td>4   (12)</td>
<td>4   (16)</td>
</tr>
<tr>
<td>Actual practices of home readers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>breastfeeding only</td>
<td>20  (44)</td>
<td>15  (39)</td>
</tr>
<tr>
<td>side only sleep position</td>
<td>29  (63)</td>
<td>28  (72)</td>
</tr>
<tr>
<td>included back sleep position</td>
<td>13  (28)</td>
<td>12  (31)</td>
</tr>
<tr>
<td>6 or less layers of coverings</td>
<td>34  (74)</td>
<td>30  (70)</td>
</tr>
</tbody>
</table>
CHAPTER V

DISCUSSION

This study set out to describe the educational context in which parents learned about infant care, in a region with a high incidence of cot death, and within this context to make an indirect evaluation of two information leaflets about infant care.

The findings of this study explode the myth that leaflets are an ineffective medium for health education because nobody reads them. On the contrary, the results suggest that people do read information leaflets and that leaflets can make a useful contribution to health professional advice, to how parents care for babies and potentially to reducing infant deaths.

I. MAIN FINDINGS

The main findings of the study, as they relate to the stated aims, are summarised below:

1. Advice and information

The promoted practices were reported to be breastfeeding, sleeping babies on their side and feeling the torso as a method of assessing how warm a baby is. Warmth assessment methods were not well
promoted but breastfeeding and side sleeping were.

"Benefits to the baby" was reported most often as the reason subjects thought that breastfeeding was promoted and "reduced risk of cot death" was reported most often as the reason subjects thought that side sleeping for infants was promoted. The reason, "is a better gauge", was reported most often as why feeling the torso was promoted as a good way to assess a baby's warmth, but only a few women were able to report any reason for promoting one method or another.

Subjects reported support for the promoted behaviours from health contacts most often, then social contacts and from media sources least often.

Colds and sickness was the area of infant care that the most subjects had wanted to know more about, and within this area, how to relieve symptoms at home was the information most often sought. Most subjects had not needed to know more about cot death.

The information most often sought was to do with breastfeeding and in particular, subjects reported needing to know more about the techniques of breastfeeding and how to deal with problems and difficulties.

Plunket was where most subjects reported going when they needed to know more about the different areas of infant care, although more reported going to their doctor than their Plunket nurse when they had concerns about their baby's health, and those who had wanted to know more about their babies' feelings turned to themselves and/or their partner for answers.

Doctors in particular, and health professionals in general, were
reported to be the most trusted sources for advice about infant care.

Health education material reported to have been seen was generally reported to have been read. Health Department materials were the most widely distributed materials during the antenatal and early postnatal periods, and were reported to have been read by more subjects than were other materials. At least half of the subjects, since being home for three months with their baby, reported to have read each of the leaflets and booklets in the Plunket information package, except for the Social Welfare booklet on child abuse which few reported to have read. Of the two leaflets being evaluated "Your Changing Baby" was reported to have been read by 67% of the home sample and "Cot Death" by 74%. Other materials reported to have been read by about three quarters of the subjects were the list of Plunket hints and two booklets "Ready For Baby" and "Breastfeeding".

(2) Parents' perceptions

"Antenatal classes" was suggested most often by subjects in hospital, as the best way to learn about caring for babies yet "family and friends" was reported most often to be where subjects had learned most of what they knew up to that time.

Antenatal class experience and time in hospital were reported by more than half the subjects to have been of some help in the later care of their babies.

Advice received, more than information read was reported to have
influenced subjects' intended practices, but neither of these were perceived to be major influences. The exception to this was with intended choice of infant sleep position which subjects reported was considerably influenced by advice received.

While advice received from social, health and media sources was generally perceived to be of some help, the baby, him/herself was reported most often to be the main influence on the baby's day to day care.

Most of the materials in the Plunket information pack were thought to be of some help by forty percent or more of subjects. Three leaflets, "Your Changing Baby", "Cot Death - reducing risks" and the list of Plunket hints, were read, perceived to be helpful and thought worth recommending to other parents more than other leaflets and by at least two thirds of subjects. Two booklets, "Ready For Baby" and "Breastfeeding" were read, perceived to be helpful and worth recommending more than other booklets and by a similar proportion of subjects as the leaflets.

The Health Department's "Health and Development Record" book was considered helpful by most subjects. Resources in the Department's parent education package "Baby Health Care" had not been seen, except for the wall frieze and phone list which women got in hospital. Few subjects reported that they were displaying the frieze on a wall.

(3) Infant care practices

Most subjects intended to fully breast feed their babies and nearly all subjects intended to position them for sleep on their side. Subjects' intended warmth assessment method varied proportionately
amongst the choices of feeling the infant's torso, feeling the infant's extremities and having no intended method.

What subjects were actually doing when their babies were three months old differed significantly from what they had intended to do when in hospital with their new born baby. Only half the subjects were fully breastfeeding, eighteen were including the back, at least occasionally as a position of sleep for their infant and nearly all were feeling the torso to assess their infant's warmth.

Most parents reported sleeping their three month old babies in bed at night with six or less combined layers of clothing and bedding and no heating on in the room in which the baby slept.

The reason given most often by subjects for changing from fully breastfeeding to introducing formula (bottle) feeding was an inadequate milk supply, and the reason given most often for a change from intended sleep position choice was the preference of the baby for a different position. Experienced mothers, however gave, as a reason for a change from prone sleeping for the previous baby to side or back sleeping for the new baby, a reduced risk of cot death. Many subjects were unable to give a reason for why they had changed to feeling the torso as a method of warmth assessment, although as many reported receiving advice to use this method.

The reasons that experienced mothers gave for changing from their previous practices were "problems with breastfeeding last time" for a change to breastfeeding, and "reduced risk of cot death" for a change from using the prone sleep position for their baby.
(4) Information leaflets

The two leaflets indirectly evaluated were read by subjects who were representative of the total hospital sample. Subjects' actual infant sleep position and warmth assessment practices were consistent with those promoted in the leaflets and there was evidence of a significant effect of having read either of these leaflets on whether or not subjects had an intended warmth assessment method, with readers more likely to have had an intended method. There was evidence that many subjects' had knowledge of the reasons for the promoted behaviours although they were not asked for these directly. Many subjects knew that side sleeping reduced the risk of cot death. Most knew that breastfeeding was "best for baby" and a quarter were more specific and reported "gives immunity" as a reason for breastfeeding being promoted.

Most subjects were acceptably informed about cot death and very few had needed to know more about it. There was evidence of acceptance of the attitude that "you can reduce the risks of cot death" by the number of subjects who gave this as a reason for choosing to sleep babies on the side. Attitudes to thermal care were consistent with those promoted in both leaflets. A significant change in practice for the clothing, bedding and heating arrangements for infants in bed at night, was shown for 1990 Christchurch parents compared to 1986 Christchurch parents, with 1990 parents more likely to have used fewer layers of clothing and bedding over their baby and no heating in the baby's room (Cowan, 1990).
II. NEW FINDINGS

The leaflet "Cot Death - reducing risks" and its predecessor "Cot Death - you can reduce risks" are the only known attempts at a planned effort to encourage people to reduce the risks of cot death by linking advice about infant care to information about cot death. Even though the leaflet "Your Changing Baby" does not relate advice to information about cot death, it is stated on the back of the leaflet that the leaflet was prepared by the Canterbury Cot Death Society and it is likely that readers would assume that the advice was in some way related to cot death. Readers of the revised "Cot Death - reducing risks" leaflet are referred to "Your Changing Baby" as a way of learning about the changing needs of young babies.

Because the leaflets set a precedent the study provides new information about an effective context for educating parents on how to reduce possible risks of cot death. The principles used in the preparation of both leaflets were outlined in the method section of this report and form a basis for a more detailed evaluation of the leaflets. A discussion of new findings will be related to each principle in turn.

(1) Define the audience and aim there.

The finding that 44% of the hospital sample had read one or other of the two leaflets, before receiving them through the only coordinated distribution available to all parents, via Plunket, suggests that parents were not only willing to read the leaflets, but actually sought them out. One quarter of the sample had already read the "Cot Death" leaflet yet this leaflet had only been off the printing
press for six weeks by the time of the hospital interviews and was only available to people, at this stage, from pharmacists or general practitioners. This finding also suggests that health professionals other than Plunket (but not maternity staff) were making the leaflets available to parents.

(2) **Define the need and meet it.**

The willingness of parents to read the leaflets and of doctors, pharmacists and Plunket nurses to distribute the leaflets suggests that all three audiences, parents, health professionals and the wider community were reached. The finding that most parents had not needed to know more about cot death suggests that their need to know had been met. Likewise that verbal advice from health professionals was consistent with that promoted in the leaflets, (and this was so for the low profile practice of warmth assessment) suggests that the need for guidance in how to communicate advice and respond to anxious parents had also been met and therefore that the defined needs of each group were also met. Evidence that leaflets had been widely available through pharmacies and doctors' surgeries suggests that information was available to the wider community and their need to be informed was also met.

Findings did not support the idea that information about cot death makes parents more anxious for nearly half the hospital sample had obtained a copy of one or other of the leaflets by their own initiative. Parents who had read "Cot Death - reducing risks" while pregnant all reported they had read it again since being home with their baby and although subjects were not asked directly, that so few
had wanted to know more about cot death or volunteered that they were anxious about cot death, suggests that anxiety was lessened by knowing things, and was focused on reducing risks rather than generalised. This was the main objective of the "Cot Death" leaflet - to reduce anxiety about cot death by offering information about ways to reduce risks.

There was evidence that "Your Changing Baby" was read, perceived to be helpful and thought worth recommending by more subjects than "Cot Death - reducing risks" and this may indicate that the advice was more acceptable for some people when given within a context of "better for baby" rather than "reduces the risk of cot death", and/or perhaps it indicates that health professionals who had a preferred context were more supportive of one than the other. However, the difference between the number of readers of each leaflet was small and by offering advice in both contexts, the needs of people with either preference were met.

(3) **Involve the reader.**

The finding that the leaflets were two of the three most read by subjects in the home sample, with three quarters and more reporting to have read them, suggests that the leaflets were successful in involving the reader and not alienating him/her by presenting information in a way that made him/her feel "This leaflet was not written for me, therefore I don't need to know what it says". Instead, information was presented in a way that hoped to encourage the reader to feel "I need to know this" and seems to have succeeded in involving him/her.

(4) **Emphasise seriousness but offer hope.**
That the cot death leaflet was widely read, yet few subjects volunteered that they were anxious about cot death, suggests that the leaflet was successful in finding the balance between emphasising seriousness and offering hope through reducing risks. However, the study did not set out to measure the anxiety levels of parents and it may be that parents were very anxious, but did not say so. One would expect, though, that people who were anxious would ask questions of their trusted health professionals and very few subjects reported doing this.

(5) **Share information and suggest a response.**

By sharing information and suggesting a response to that information, parents can make more intelligent use of both the information and the advice. A reader whose baby was eight months old, in Auckland during summer would have less need to apply advice about protection from infections than a reader whose baby was three months old in Dunedin, during winter. Findings that the leaflets' promoted sleep position and thermal care behaviours were reflected in parental practice suggests that parents perceived that the risks were real for their babies and the advice relevant. This would support the principle of presenting both information and a suggested response.

(6) **Respect the reader.**

The finding that the leaflets (and the Plunket hints) were read, perceived to be helpful and thought worth recommending more than other leaflets suggests that the leaflets were successful in presenting information in a way that made the reader feel respected and supported, while acknowledging potential difficulties and acknowledging that other
factors may need to be considered when deciding how to care for a baby.

(7) **Anticipate difficulties and suggest compromises.**

It was not expected that the particular leaflets under study would influence women to stop smoking during pregnancy and the study did not set out to gather detailed data on smoking practices so it is not known whether or not women smoked less, during the period of increased risk to their babies. Many smoking parents did report that the baby was protected from their smoking and this was a compromise suggested in the "Cot Death - reducing risks leaflet".

(8) **Be honest.**

Honesty about the outcome of following suggestions in the "Cot Death" leaflet did not deter parents from adopting the advice. This suggests that parents were motivated to do the best they could for their baby and did not need coercion or propaganda in order to change their practices or take up recommended ones.

(9) **Give responsibility to the reader.**

There is certainly no one way to respond to the needs of babies and the great variability of practices within and between cultures is evidence that babies can survive and thrive in a variety of contexts. As well, each baby is unique and will respond in his/her own way to the care that is given. Advice that is too specific runs the risk of making parents into puppets who follow the advice to the letter and do not have the confidence to respond to the needs of their particular baby should the advice be inappropriate for any reason. On the other hand, advice that is too general, fails to give guidance and leaves
parents to work things out by trial and error, which can be a stressful way to learn for parents and babies alike.

The suggestions made in both leaflets being discussed, tried to strike a balance between these two extremes. By giving information about the changing needs and vulnerabilities of babies the leaflets aimed to encourage parents to adapt their care in response to their baby and his/her present circumstances. Rather than making decisions on the basis that "it is June so she needs to wear a woollen singlet" readers were encouraged to make decisions on the basis that "it is June, but she feels sweaty so she doesn't need to wear a woollen singlet". The finding that nearly all parents in the home sample felt the baby's torso to assess his/her thermal comfort and that three quarters of the babies were wearing six or less layers of coverings in bed at night suggests that most parents were providing appropriate care and that they could take responsibility for adapting knowledge and advice to the perceived needs of their baby.

It was assumed when preparing the cot death leaflets that, since parents had the greatest stake in the issue of cot death, they would be more likely to accept responsibility for reducing risks where reasonably possible, despite having no guarantees that doing so would prevent their baby from dying. Although it is of great concern to them, health professionals do not have a personal stake in cot death, unless they are themselves parents of young babies, and it was assumed that, in general, they may need more certainty that reducing risks would in fact reduce deaths, before taking responsibility for encouraging parents to reduce risks. It seems that these assumptions were generally correct and are discussed more fully below.
(10) **Beware of unintended outcomes.**

Concern about including the back as a suggested safe position for sleep for babies, in the assumed climate of resistance to such advice, seemed justified, for staff at Christchurch Women's Hospital could not accept this advice and did not make the leaflets available to maternity patients. There may have been reasons for this reluctance to distribute the leaflets other than their concern about sleep position advice, such as a belief that it would be inappropriate to give information about cot death to mothers with new born babies. Some copies of "Your Changing Baby" were available on the wards if requested by parents, but sleep position advice in this leaflet was for "on the side" and the leaflet itself was less controversial. The finding that maternity staff did not support the leaflet by distributing it and were not promoting the advice on sleep position, except in response to parental wishes, shows the importance of respecting cultural norms when promoting changes in practice and to acknowledge the attitudes and beliefs that need to be dislodged before new advice is acceptable.

Maternity institutions were the original perpetrators of the practice of sleeping babies prone because of documented benefits to small premature babies with an immature swallowing reflex. In this position babies also seemed to sleep for longer and the practice of prone sleeping was encouraged in term babies, too (Orenstein, 1983). It is understandable that maternity staff would be reluctant to accept that a practice that they had encouraged was now in fact thought to be unsafe for some babies, and also understandable that they would need to be very sure that prone sleeping was a real risk to babies.

Even though Canterbury Cot Death Society leaflets had
recommended side sleeping for babies since 1987 on the grounds that this position made breathing and temperature regulation easier for babies, parents having their babies at Christchurch Women's Hospital would have been exposed to nurses practicing prone sleeping for babies, and this is likely to have undermined the advice in the leaflets for some parents and slowed down the rate of change in practice. It was not until planned efforts, which included the leaflet "Cot Death - reducing risks", were made to educate parents and health professionals that prone sleeping was a strong risk factor for cot death, that the most rapid and widespread change in practice occurred in Christchurch. The planned efforts involved individual Plunket nurses, general practitioners and pharmacists, but individual maternity staff were not involved personally, only the supervising staff and it was hoped that information would be shared, through them, with those working with women and babies. It seems that maternity staff were not as convinced as parents that prone sleeping increased the risk of cot death, for, by the admission of senior staff themselves, the change in practice within the hospital, was initiated by parents.

The "Cot Death - reducing risks" leaflet was not successful in winning the support of maternity staff, probably because of the unintended lack of acknowledgement of their beliefs about and attitudes to sleep position advice caused by their not having been professionally prepared to accept the new advice and the knowledge from which it was derived.

The two leaflets discussed above were not the only materials available to parents that aimed to encourage parents to reduce possible
risks of cot death. The leaflet "Keep Cool Baby" also dealt in some
detail with thermal care which included sleep position information and
advice. No subjects had seen this leaflet before the hospital
interview which was understandable since it was only available to
parents through Plunket, but half the subjects reported having read it
later. Although this leaflet was read by fewer subjects than the other
two leaflets, because it was included in the Plunket information
package, it is also likely to have contributed to Plunket advice and
therefore parental practice of readers and non-readers. Likewise, it
is likely that the wall frieze of the "Baby Health Care" parent
education package contributed to advice and practice too. However the
video and leaflet of this package were unlikely to have had any impact
on advice and practice for they had not been seen by subjects.

This study was not a comparative evaluation of different infant
care education efforts. It did not set out to show that one leaflet or
booklet was more effective than another in encouraging parents to
reduce risks or do the best for their baby. It did aim to verify that
principles thought to enhance effectiveness in health education did in
fact do so. In examining possible reasons why some materials were more
widely distributed and read than others, the more important of these
principles may be identified. It is assumed that being distributed and
read are prerequisites to potential effectiveness and that meeting
these must be the primary aim of health education materials.

Two factors that have contributed to the varying success of
infant care education efforts have been identified from the findings of
this study. Both factors can work independently, but effectiveness is
enhanced when these factors work together. The two factors are:

- a close match between the material and the perceived needs of people for whom it is intended.
- health professionals who are supportive of the material in both its content and objectives.

Evidence from this study that the three photo-copied typed pages of Plunket hints for new mothers were amongst the materials read, perceived to be helpful and thought worth recommending to other parents, by the most subjects, illustrates the importance of the first principle and the value placed on information that women perceive they need. That the leaflets being evaluated were also popular suggests that women placed a high value on knowing how they could best protect their baby from possible sudden, unexpected death. The booklet "Breastfeeding" and "Ready For Baby" were also popular and again their titles and content matched the likely needs of their readers. The less read materials, to do with infant vision and hearing, postnatal depression and the "Keep Cool Baby" leaflet, were likely to be perceived by many subjects as of lower priority in their need to know. While the booklet about child abuse may have matched the need to know of the few parents who did report having read it, it is likely that the need for this information was not of high priority for most subjects.

Health professionals act as a sieve for the enormous number of leaflets and other materials that are aimed at parents. They make their own evaluation of the importance, relevance and suitability of materials and those materials that pass their test are "let through" to parents. It would be reasonable to assume that the materials included
in the Plunket information pack contained information that Plunket perceived parents needed or would find useful. It would also be reasonable to assume that the information and advice were consistent with that given by Plunket nurses. In this way written and verbal advice are mutually supportive.

Materials may have influenced the way in which advice and information was communicated to parents. In this way, materials that are supported by health professionals can have an indirect effect on practice whether or not they are read by parents. In this study, the finding that only half the subjects read the leaflet "Keep Cool Baby" suggests that many parents did not perceive that this information was important to them, but because Plunket nurses did, readers and non-readers alike would have been likely to have received advice consistent with that in the leaflet.

Because the leaflet from the Health Department's parent education package "Health Care For Your Baby", did not pass through the health professionals' "sieve" to parents and was not easily available to parents from other sources, any potential effectiveness was blocked. It can only be assumed that this leaflet was not included in the Plunket information pack because it was not perceived by Plunket to be important, relevant or suitable material for parents, in other words because it did not match what Plunket perceived the more important needs of parents to be. Had it been widely distributed to parents it is unlikely that it would have been widely read for there was little evidence from this study to suggest that parents were concerned about how to make the best use of their Plunket nurse or doctor. If it had been read it was unlikely to have made an impact on cot death rates
because typical cot death babies are apparently healthy and do not give their parents or health professionals any indication of their impending death (Gilbert, Flemming, Azaz, Rudd, 1990).

Although it is possible for the two identified principles to work independently and contribute to effective health education, effectiveness is likely to be enhanced when these principles work together and there is a close match between what health professionals perceive people need to know and what the consumer perceives s/he needs to know. Support for this idea is shown by the impact, on intended thermal care, of reading the leaflets "Cot Death - reducing risks" and/or "Your Changing Baby" during pregnancy, and comparing intended practice with actual practice after exposure to Plunket and other sources of verbal advice. There was a significant difference between readers and non-readers in whether or not they had an intended method for assessing their baby's warmth. Readers were more likely to have reported an intended method, suggesting they had a raised awareness of the importance of thermal care considerations for babies, but it made no difference which method was intended. After three months at home with their babies nearly all women were using the method promoted in leaflets, of feeling the torso, which is the method also promoted by Plunket. There could be several explanations for this consistency. It could be that the later reading of the leaflets when the need to know about thermal care was more relevant, made readers accept the advice more readily and several women did report that they had changed to the promoted method because they had "read it somewhere". Others reported that they had received advice to use this method from a range of people that included Plunket. Many women were unable to say why they had
changed to the promoted method and it could be that the generalised influence of the written advice and spoken advice had contributed. Since Plunket was where most people reported to go when they needed advice about thermal care it is likely that verbal advice from Plunket nurses and others enhanced the effectiveness of written advice.

It would be reasonable to assume that new parents would be more concerned about cot death than about their baby’s hearing which would explain why the cot death leaflet was widely read and the hearing leaflet and others, not so. This does not necessarily mean that the hearing leaflet was ineffective, but that there should be different expectations for such a leaflet because parents’ perceived need to know about infant hearing may not have ranked as a high priority need.

It can be concluded that the ten principals used in preparing the leaflets "Your Changing Baby" and "Cot Death" contributed to their being widely distributed by health professionals and widely read by parents. Any contribution that these leaflets may have made to subsequent knowledge, attitude and behaviour, and to reducing infant deaths depended on their being widely distributed and read in the first place. This conclusion has implications for the preparation of any health education material or programme to do with infant care, or any other health concerns, and the application of these principles is likely to enhance the effectiveness of any such education effort.

III. LIMITATIONS OF THE STUDY

This study described a real context within which parents learned
about infant care and, within that context, the contribution that information leaflets may have made to that learning. In so doing, scientific control was sacrificed for the great variability that is reality and although findings suggest that the two leaflets of particular interest in this study, have contributed to the changes in knowledge, attitude and behaviour that the study described, no stronger claim than that can be made. There are an enormous number of complex and interrelated factors that influence the advice that health professionals give and the way that parents care for their babies and knowledge is only one. Some of the more obvious influences are politics, tradition, culture, fashion, experience, health of the parents and/or child, social, educational and economic factors, climate and geographical location.

This research was conducted during a process of great change in understanding about cot death. It was not possible to consider any contribution, to attitude and behaviour change, of either health professionals or parents, that the original "Cot Death- you can reduce risks" leaflet may have had in the period preceding this study. It is likely that this leaflet had set in motion many of the changes that have since become more generalised, but it is beyond the scope of this study to substantiate this.

The ethical restrictions on design limited this study’s ability to evaluate different contexts for educating parents to reduce the risks of cot death. The finding that leaflets presenting information in the two contexts of "better for baby" and "reduces the risk of cot death" were both read by three quarters and more of the home sample suggests that both contexts are acceptable and that the latter context
certainly does not inhibit people from reading information and applying the advice.

It could be argued that the Canterbury Area Hospital Board's Ethics committee exaggerated the degree of perceived risk to parents in the proposed trial of different educational settings for educating about reducing the risks of cot death. In rejecting the proposed study, it was considered an unacceptable risk for the control group to experience current hospital practice and for this group not to be exposed to leaflets during their hospital stay, despite their being certain of receiving these leaflets from Plunket before their babies were at risk of cot death from age four weeks. The degree of perceived risk was dependent on the interpretation of the strength of the association between the prone sleep position and cot death and on the interpretation of the power of leaflets to influence behaviour, all within the context of cot death being an event that strikes Christchurch babies once in every 150 live births (Ford, 1986). The likelihood of increasing the chance of dying, of a baby of a control mother, by the educational intervention as it was proposed, was thought to be extremely remote by this author. This author also believed that the baby was at minimal risk, as it is defined (Royal College of Physicians, London, 1986), and that the proposed study was ethically acceptably on these grounds. The degree of perceived risk was considered, relative to the potential advantage of treatment groups and not relative to the potential disadvantage of existing normal practice.

Several events added to the difficulties in controlling variables in this study. Most related to infant sleep position and the
growing awareness of its potential as a risk factor for cot death. The many revisions to the study proposal that were needed in order to be approved by the Nurses' ethics committee and the Canterbury Area Health Board's ethics committee (on which there was a senior member of staff from Christchurch Women's Hospital), meant that the issue of infant sleep position was discussed by senior staff at the hospital during meetings and may have influenced the advice and practice in hospital wards.

The Canterbury Cot Death Society's education campaign to change parental practice regarding infant sleep position was launched in Christchurch during the three month period between submitting the study proposal and its approval by the Canterbury Area Health Board's Ethics committee.

A third event occurred just days before interviewing started at Christchurch Women's Hospital, when a national television campaign, also to encourage a change in infant sleep position practice, was launched by the Cot Death Division of the Child Health Research Foundation. A mid-wife from one of the maternity wards at Christchurch Women's Hospital featured in the advertisement.

It is likely that all of these events would have contributed to influencing a change in infant sleep position practice. The potential impact on parental practice of the leaflet "Cot Death - reducing risks" was very likely diluted by these events and any other publicity about how babies should sleep that these events may have generated. The reasons for a change in practice described in this study, can only be traced to knowledge that prone sleeping increases an infant's risk of cot death, and not to any one medium for communicating that
information.

Similarly, advice about thermal care comes from many quarters as does advice about babies in general and, because of the limited control of variables in this study, reasons for changes in knowledge, attitude and practice in thermal care of infants described in this study, cannot be traced with certainty to any one medium for communicating that information or advice. Asking subjects to describe their intended warmth assessment method may have influenced them to find out before the follow-up interview if they hadn't already known what to do and one subject volunteered that she had asked another patient. General discussion about the interviews that may have occurred between subjects and/or staff during the hospital stay may also have influenced the responses women gave. However, even if women had been prompted to seek out information about how to assess a baby's warmth, that the advice they received was consistent suggests that this advice had itself been influenced, and it would be reasonable to assume that the leaflets promoting feeling the torso as a method had contributed to this consistency of advice.

That the leaflets being evaluated were written by the author of this study may be seen as a limitation of the study, although subjects were not aware that the interviewer was the author of the particular leaflets, and the leaflets were not singled out in any way, but were evaluated within the context of other materials generally available to parents. The exception to this anonymity was one subject whose husband recognised the interviewer's name as someone to do with the Canterbury Cot Death Society, but this was one of the six experienced mothers who gave a home interview and these interviews were not analysed.
There are the obvious limitations to do with the reliability of self report studies, but where measures were taken to account for unreliability in subjects' responses, as in the placement of health education materials to which subjects had no access, only one subject was certain she had seen an unavailable leaflet.

Another limitation of the study is that perceived reasons given for changes in practice may not be the actual reasons, or only reasons, for any change.

Despite the limitations on the control of variables in this study and therefore on the strength of the evaluation of the leaflets, the description of the wider context for learning about caring for babies, and of parents' responses to this context, is of value to the design of future materials and programmes on infant care as well as providing a information about the worth of leaflets.

IV. RELATIONSHIP OF FINDINGS TO OTHER STUDIES

The principles used to prepare the two leaflets "Your Changing Baby" and "Cot Death - reducing risks" were gleaned from the literature and based on the "health belief model" of health education (Rosenstock, 1966) and this study suggests that their application has had some success when related to education about infant care within the context of concern about cot death. The importance of people believing they have some control over health, suggested by Offer (1989), was supported in this study in the willingness of people to take on risk reducing behaviours. How the leaflets were prepared tried to match the characteristics of a person likely to be receptive to advice as
described by Fowler (1985), and results suggest that this description is a good one for advice was put into practice where this was relatively easy to do so. Efforts to heed the cautions of Digby (1985) and to avoid insulting the reader, exaggerating the importance of the advice and giving the reader unrealistic expectations seem to have paid off and serve to reinforce for other health educators the wisdom of these cautions.

Newberger's model of parent thinking (1979) described a subjective-individualistic orientation for perceiving the parent role and this was the understanding of parent thinking, within the context of the complete model, that underpinned the preparation of the two leaflets. In this orientation the child is considered unique and the parent role is organised around identifying and meeting the needs of the child. Parents of babies in this study did want to know and meet the needs of their babies and, for this stage of parenting, the subjective-individualistic orientation of Newberger's model was a good basis for understanding parent thinking.

Parents expected antenatal courses to be the main source of learning about caring for babies, but in fact reported learning most of what they knew from family and friends and this disappointment with antenatal education was reported by Fisher and Gunn (1983). Parents in this study were more positive about their learning experiences than those in the 1982 study (Society for Research on Women in New Zealand) which looked at how parents prepared for parenthood. Information and advice was rarely thought to be wrong or unhelpful in the present
study, but 30% of the 1982 subjects reported this of their experiences.

Most parents in the present study reported that their doctor was the most trusted source for advice about caring for babies and this was consistent with the findings of Tapper-Jones (1985) that doctors are the most effective and reliable health educators. This perception is at variance with the perceptions of general practitioners about their own potential as health educators as reported by Tapper-Jones et al (1990). Their perceptions of the value of leaflets in health education was not validated by the findings of this study either for only 6% of doctors thought leaflets were an effective medium compared to 77% for television, which they ranked as the most effective medium.

The finding of others (Senecal et al, 1987; Cot Death Prevention Programme handbook, 1991) that sleep position for infants appears to depend to a large extent on the practice and advice received in postnatal wards, was not supported in this study. It is likely that had the maternity wards initiated a change in practice then parental practice would have been greatly influenced by this, but this study found that it was possible to initiate a widespread change in practice without this support from maternity staff.

Parental practice in relation to choice of sleep position was different from the practices described in the national infant sleep position survey of 1983 (Hassall, Vandenberq, 1985). By far the most common usual position in which parents put their babies down to sleep was on the side, and unlike the 1983 survey results, very few babies were put down to sleep on their front. End-up position was similar to the 1983 survey findings, for three month old babies usually put down to sleep on their side, and less than half the babies put down on their
side ended up on their side, the rest ending up on their back. The stability of the front and back sleep positions was confirmed and the few babies who were put down to sleep on their front always ended up on the front just as the babies who were put down on their backs always ended up in that position. A third of parents put their babies down to sleep on their back at least occasionally during the period of diary recording, and although this cannot be directly compared to 1983 practice, where only 8% of parents usually chose the back, it does suggest a growing acceptance of the back as a safe position for sleep for babies.

Considering the number of parents who reported concern about possible inhalation of vomit for babies on their backs and the reluctance of midwives to support a women’s choice to sleep her baby on his/her back, it was surprising that the back was becoming acceptable to people. The television commercial suggesting that babies are safer sleeping on their side did not suggest the back as a sleep position option. The only written advice that included the back as an infant sleep position choice and was widely available to the subjects of this study, was in the two leaflets "Keep Cool Baby" and "Cot Death - reducing risks". Although parents reported that they were responding to the perceived preference of the baby in including the back as a sleep position, their having read the advice in the leaflets may have made this choice more acceptable. If these parents believed that the baby was at risk of inhaling vomit on his/her back it seems unlikely that they would have yielded to the perceived preference of the baby. It seems more likely that their attitude to the safety of sleeping babies on their back had changed. The more likely explanation for this
change in attitude and practice is that both reading that the back was an acceptable choice and repeated experience of the baby ending up sleeping on his/her back, without coming to any harm, contributed to the changes.

The practice of not relating the number of layers of clothing and bedding to the use of heating in a babies room found in a 1986 survey of Christchurch parents (Cowan, 1990) was also found in this study, but there were significantly less layers of coverings over babies in bed at night in this study and a reduced range of practice. These things, together with the finding that nearly all parents were feeling the torso to check a baby's warmth and that most babies were sleeping on their sides or backs and so more able to regulate their temperature, suggest that the babies of this study were considerably less at risk of thermal stress than the 1986 babies. Since both studies described parental practice and not how practice affected babies it cannot be claimed that well wrapped babies in heated rooms were too hot. Neither can it be claimed that the change in practice was due to education alone, for the weather was around four degrees warmer for the present study compared to the 1986 one.

The tendency of parents to cover babies with excessive amounts of bedding as found by Wailoo et al (1989) and Nicoll and Davies (1986) was not evident in this study. Neither was there a tendency for parents to respond inappropriately to perceived illness in their baby as reported by Nelson and Taylor (1989) and Eiser et al (1985). Although there were only nine babies reported to be mildly unwell in the present study, the most excessively warmed of these were two babies
wearing seven layers of coverings and sleeping in heated rooms.

It seems that compared to subjects in other studies, and within the limits of the findings of this study, parents in this study were providing appropriate thermal care for their infants. This is unlikely to have happened by chance and it is more likely that the planned effort to influence parents to provide more appropriate thermal care for their infants played an important part in the change in practice.

Unlike half of the control mothers who were smokers in the Tasmanian study (McGlashan, 1989), smoking women in the present study did not stop smoking during pregnancy or while their babies were young. As was found in the Tasmanian study, more fathers than mothers were smokers.

There were only 42% of women fully breastfeeding their babies at three months which is considerably less than the 61% expected from the recent Plunket statistics on breastfeeding (Mayo, 1991). Unlike the findings of Lyon (1983) this study was unable to find a relationship between maternal smoking and breastfeeding. Smoking women were just as likely as non-smoking women to intend to breast feed or to continue to breast feed, although the main reason given in both studies for changing to bottle feeding was a perceived inadequate milk supply. Lyon (1983) reported an unsettled baby as another major reason given by women for changing to bottle feeding, but the women in this study that reported having sought information about their baby's crying, were as likely to bottle feed as others.

This study supports the conclusions of other health education researchers (Fowler, 1985; Amos and Ineson, 1986; Hamlin et al, 1986)
that information leaflets can contribute to knowledge, attitude and changes in practice, but that this depends on how the leaflets are prepared and the context in which they are used.

V. IMPLICATIONS FOR PRACTICE

The study findings raise the status of information leaflets as a medium for infant care education. Having shown that a large proportion of parents do read leaflets, and not necessarily just once, it is worth listing some of the advantages of leaflets to parents and health professionals alike and also discussing their limitations.

(1) Advantages of leaflets.

Leaflets have many advantages over other media because they are relatively cheap to produce and can therefore be distributed more widely and be available to more people. They can provoke discussion and the cot death leaflet has been quoted in magazines (Little Treasures, 1989, Bye Bye Baby, 1990), newspapers (Christchurch Star, June 11, p3) and on radio talkback (Harrison, 1989). People can have their own copy which gives readers the option of reading the leaflet again when the information and advice are more relevant to their needs. Having a personal copy means leaflets have the potential to reinforce spoken advice, supplement that advice with additional information, and act as reminders for parents. This advantage of leaflets of being on the spot is not enjoyed by media such as classes or videos. Videos would usually be seen only once or twice if at all, and usually during the antenatal period when the immediate concern of women is the labour
and birth rather than the actual care of their baby.

It is interesting that the Health Department video likely to have been produced at considerable expense, had not been seen by any subjects in this study. It was a relatively new resource for use with parents and it was seen as a way of reducing infant deaths and improving infant health, objectives likely to be supported by most health professionals. Other resources from the "Baby Health Care" package had been distributed, which suggests that health professionals were aware that the video was available, but for some reason had not used it with parents. This may have been because video players were not available or because health professionals made their own evaluation of the worth of the video. Whatever the reason, the leaflets reached people, and were reported to have been read, and the video did not. It may be argued that videos are a superior medium for education about infant care, especially for those less inclined to read, but unless they reach their audience they can have no impact.

There are advantages for health professionals in using leaflets. A very obvious one is that they save time. Tapper-Jones et al (1990) reported the difficulties of general practitioners in giving advice and as well as constraints on time doctors reported difficulties in communicating the advice or information. A leaflet can break down complex ideas, such as the complexity of cot death, and present information and advice in a form suitable for the reader. This can guide a busy health professional in how to communicate the advice verbally and has the added benefit of greater consistency in the messages that parents receive from varying health professionals.

It would be unreasonable to expect all general practitioners,
midwives, Plunket nurses and pharmacists to be right up to date about cot death and its implications for infant care. A leaflet can filter out the messages more worthy of focus and offer a unified understanding of cot death. Health professionals can be reminded of these whenever they give out a leaflet rather than having to search through their professional literature for information and an understanding of cot death.

Personalised advice can be written on leaflets or points highlighted to reinforce the verbal advice. Verbal advice is less likely to be forgotten if parents can make reference to a leaflet. The content of a leaflet is more likely to be reviewed and kept up to date because it is relatively cheap to make changes to a leaflet. This is especially important in the area of cot death and means that a leaflet can respond to changing needs more quickly.

Fowler (1985) describes the individual most likely to comply with advice and when this description is adapted to a parent of a new baby it is: a parent who feels concerned about the future health of the baby, feels the baby is vulnerable to cot death, feels able to influence the health of the baby and feels that the benefits of doing so outweigh the disadvantages. It would seem, then, as Morris (1979) also found, that a parent would be more receptive to advice once the baby was born. Leaflets can be available to parents as a resource in their homes during a period of great openness to learning.

No one medium for educating can claim exclusive responsibility for any subsequent effects on practice and the visual media of video and television can sometimes be credited with more power to influence
than they perhaps deserve. A parent initiated change in infant sleep position practice was reported by midwives in Christchurch Women's Hospital to have occurred **before** the screening of the sleep position advertisement on television. There were so very few parents intending to sleep their babies in the prone position in the hospital sample, just days after the first screenings of the television commercial, and support for side sleeping was reported to be already widespread amongst subjects' social and health professional contacts. These things suggest that knowledge, attitude and behaviour changes were well underway, in Christchurch at least, and that rather than initiating change, television supported the education efforts already happening.

It is difficult to attract funding at all in the present economic reality, but it can be easier to attract funding for more expensive interventions involving television and video, that are more visible and assumed to be more effective. A humble leaflet can be overlooked as a worthwhile investment, yet this study shows that the investment in the Health Department video "The Biggest Love" was wasted on the parents in this study and that, for the parents of Christchurch, the investment in the television commercial on infant sleep position was probably surplus to requirements. It would not be possible to separate the impact of the television screenings of the sleep position advertisement from that of information leaflets, for other regions of New Zealand because, due to the Plunket distribution of "Cot Death - reducing risks" just prior to the national screenings no regions were exposed to only one or other medium. There is no doubt that people get the message through television and a much wider audience can be involved. The point being made is that information leaflets that are
appropriately prepared and appropriately used can also be effective and are considerably cheaper.

The more glamorous visual medium of television can certainly be a powerful way to introduce new information and the Cot Death Prevention programme (1991) plans to use it to advertise the findings of the New Zealand Cot Death Study (Mitchell et al, 1991) during 1991. Yet, in this study, parents gave media sources as those they would trust least in advice about infant care and health professionals as those they would trust most. Where the message of television, however it is presented, is at odds with the advice given by a trusted professional its potential to influence practice may be considerably reduced.

It can be difficult to sustain publicity campaigns and when they are dropped there is the risk that the specific group that such campaigns targeted are left without an information source. In this way, publicity is not the same as education although it can support education. Education is less visible and is sustained over time. Leaflets can contribute to this in a very real way so that parents who come to parenthood when publicity has stopped, are not left without the information that they need. Messages considered important can be built into the very fabric of the work of Plunket nurses and others who can give them the emphasis that is appropriate.

Cost is a dominating reality for Area Health Boards. In health, the cost of prevention is often justified in terms of the savings made in averting future costly treatment. In terms of cost effectiveness, it would be cheaper not to fund initiatives for preventing cot deaths because cot deaths place no financial burden on
the health budget. Babies simply die. The costs incurred are borne by their families in terms of suffering and grief. If control of costs rather than improving the health of children is the criterion for prevention then cot death prevention programmes are unlikely to be given a high priority for funds. This study suggests that using information leaflets in education programmes can meet both criteria of being of low cost and effective.

There is also evidence from this study to suggest that leaflets can be much more than a vehicle for giving information. In preparing leaflets health educators should be mindful of their greater potential and use it to the full.

(2) Limitations of leaflets.

While the leaflets "Your Changing Baby" and "Cot Death - reducing risks" have very likely contributed to changes in thermal care and infant sleep position practices, they have not been successful in influencing women to stop smoking during pregnancy and during the early months with their baby. Where parents perceive that the advantages of conforming to advice outweigh the disadvantages, leaflets can make a contribution to behaviour change. However, not all behaviours are as uncomplicated as sleep position and checking that a baby is not too hot.

This study showed that knowing that breastfeeding is best for babies and wanting to breast feed, were not enough to ensure that a woman was fully breastfeeding her baby at three months. More than knowing what is best is needed to bring about changes in behaviours where the advantages of conforming to advice do not outweigh the
disadvantages.

The finding of the New Zealand Cot Death Study (Mitchell et al., 1991) that breastfeeding may help protect against cot death in this country, puts education about breastfeeding on a much more serious footing. Even before the association with cot death was known an eighteen year old solo mother in this study reported her experiences of breastfeeding in the following way:

I fully breastfed my baby for one week, but the baby wasn't taking to the breast because my milk supply wasn't coming through. Then I got an infection from my stitches so I bottle fed as well for a week because I was really sick. But the baby fussed and he got sick and I got tired and he was hardly putting on any weight. I tried everything I could to keep breastfeeding and my Plunket nurse and the la Leche woman were really helpful, but after seven weeks I started using just the bottle because I was worried about the baby.

There is such a big emphasis on breastfeeding and if you can't do it then you feel guilty. It wasn't my choice to stop and I was really disappointed when I had to. I cried in fact. (Sarah)

When the knowledge that breastfeeding helps protect against cot death is wide spread, then a women with a similar experience to that of Sarah in this study will have the added burden of guilt that bottle feeding is increasing her child's risk of cot death. Health professionals working with breastfeeding women who experience difficulties will need the utmost sensitivity to any feelings of guilt.

An information leaflet about breastfeeding could do little to help Sarah solve her problems. Breastfeeding is a skill and techniques need to be learned. Unless breastfeeding is successfully initiated and established it is unlikely to be successfully maintained. A leaflet could support the teaching of a health professional or experienced other, but the most important influence on a woman's ability to breast
feed her baby for at least six months is likely to be the guidance she receives in the early hours and days following her baby's birth. This has implications for Area Health Boards, for adequate staffing levels and adequate lactation management education standards cost money and the finding that only half the women of the home sample were fully breastfeeding their baby at the age of peak incidence for cot death - three months (Valdes-Dapena, 1980) - may be an indication that funds are inadequate.

An information leaflet about breastfeeding would need to deal with the factors important in establishing breastfeeding, acknowledge the potential difficulties and advise women how to avoid these. The potential of such a leaflet to enhance breastfeeding in the absence of early guidance, is likely to be limited. Early guidance itself will be limited, too, unless all levels of maternity staff have the knowledge and promote the practices that are known to be important for successful breastfeeding (WHO/UNICEF statement, 1989).

The findings of this study suggest that parents were aware of the potential harm to a baby of smoking, for many parents of smoking households volunteered that there was no smoking around the baby. However, knowing smoking may harm the baby was not enough for them to stop smoking altogether. The "Cot Death - reducing risks" leaflet stated that smoking is a strong risk factor for cot death and this and any other written and verbal advice to "give babies a smoke-free start to life", very likely contributed to a raised awareness that smoking around babies is not good care.

On its own, a leaflet is unlikely to influence people to break
an addiction, but if it is well prepared and used to complement advice from a trusted health professional and/or support from family and friends it could enhance the effectiveness of that advice and support. Fowler (1985) reported the successful use of leaflets with smoking advice from general practitioners so there is a precedent for success.

With pregnant women, the potential for success is likely to be greater because their concern may not be for their own future health but for the more immediate health of their baby. Fifty per cent of the control women in the Tasmanian study (McGlashan, 1989) stopped smoking during the most vulnerable period for their babies so there is a precedent that it is possible to do so. If the advantages of not smoking can be perceived to outweigh the disadvantages then success is more likely. This is the challenge for education. By keeping the baby as the focus and the need to protect the baby from possible cot death as the reason, women need only stop smoking until the baby is six months old. Programmes that acknowledge that it is very difficult, but possible, to break an addiction, programmes that encourage the mutual support of other pregnant women who are giving up or have given up smoking and programmes that encourage involvement in activities, exclusive of smokers, that women perceive as enjoyable, are programmes that may be more likely to succeed. Programmes that are actively supported by health professionals, especially doctors, would also be more likely to succeed.

The New Zealand Cot Death Study (Mitchell et al, 1991) showed that Maori babies are at greater risk of cot death not because being maori is a risk in itself, but because more Maori women tend to smoke and it is smoking that is thought to increases the risk. Leaflets are
likely to be limited in their contribution to reducing smoking amongst Maori women, but they may contribute to knowledge and attitude changes if they are prepared so as to match the need of their audience and are distributed with advice from those whom Maori women respect and trust.

It is worth repeating that the importance of professional preparation of midwives, Plunket nurses, general practitioners, pharmacists and others must not be underestimated when planning an education programme. This is especially important in cot death prevention where knowledge is often new. A coordinated and unified effort is needed to avoid messages being undermined by inconsistent practice in those parents trust.

Where behaviours are a complicated product of a wide range of interrelated factors, leaflets can make a start on influencing knowledge and attitudes, but programmes or services offering a lot more support are likely to be needed if behaviours are to be changed too. This study demonstrates that different infant care practices and parent behaviours require different strategies for change and that the expectations of leaflets must be consistent with the nature of the behaviour to be influenced.

VI. IMPLICATIONS FOR FURTHER RESEARCH

This study has pioneered an investigation of the contribution of information leaflets to infant care education in a region of high cot death. It has described conditions that are likely to improve the impact of education on the advice of health professionals and the
practice of parents when concern about cot death is considerable. Further research could investigate whether the impact of infant care education would be as great in regions where cot death rates are low.

This study has also shown, as others have (Russel et al, 1979; Fowler, 1985b) that the relationship between written and verbal advice is complementary and the findings suggest that written information can generate consistency in verbal advice given by health professionals. Further studies could clarify which is the stronger party in this relationship, and in what settings, and, more specifically, how much the information and advice written for parents contributes to that given verbally by health professionals.

Further research could also evaluate the contribution of specifically designed leaflets to improved breastfeeding rates, reduced maternal smoking during pregnancy and any other practices, pertinent to infant care, that are less amenable to change.

The baby him/herself was given most often as the main influence on the day to day care that parents provided yet the relationship between parent and infant behaviour is not known to have been explored in studies to date. Determining the extent to which parents can influence their baby's behaviour would make a very important contribution to infant care education.

The association between cot death and infant care practices (Nelson et al, 1989a) puts a moral and ethical perspective on infant care education and research. Infant health care educators, parent educators and people working with parents and infants decide the content of their courses, programmes or materials and whether or not to include "may reduce the risk of cot death" as a reason for promoting
certain practices. What and how information and advice is presented will be influenced by these educators' knowledge, beliefs and attitudes about cot death. Studies to describe these and relate them to the findings of this study would be useful.

It would also be useful to confirm with further research that linking infant care advice to information about cot death, where this is appropriate, is a more effective context for influencing practice, but ethical restraints on design may make this difficult.

This study opens up a whole new area for research into infant care education and ideas are as limited as the imagination of the researcher. Studies that evaluate the effectiveness of education interventions or programmes, and of leaflets in particular, should do so within the context of their use, and should account for the impact of such efforts on knowledge, attitudes and practices of parents and educators alike.
CONCLUSION

This study concludes that education about reducing possible risks of cot death has much to gain by linking infant care advice to information about cot death. Education that is based on sound principles, can lead people out of ignorance and fear, offer them understanding and hope, and give them purpose and control and a better quality of life.

Fear is a destructive emotion made worse by not knowing things and feeling powerless. With knowledge about cot death and about the developmental needs of young babies, parents can decide how real the risk seems for their particular baby, restore some control in the care they choose and begin to deal with their anxiety. These are reasons enough for sharing information responsibly and honestly, with those who care for babies.

As risk factors are identified by research and support for them strengthens, those that are amenable to change by parents need to be shared with parents as a matter of urgency. Today’s babies cannot benefit from tomorrow’s knowledge. Parents only have a few short months within which to protect their baby in the best way that they know how. The stakes are high for the sudden, unexpected death of a much loved baby, is the cause of enormous suffering for the families involved.

While a sustained reduction in cot death rates would make the greatest contribution to reducing parental anxiety, the impact of education on cot death rates is dependent on the following three
things:
- the widespread distribution of information and advice about how to reduce risks
- widespread change to promoted practices
- a strong link between associated risks and the cause of cot death.

The strength of this causal link is the main determinant and beyond the control of education.

There is evidence from this study that there has been a widespread distribution of information and advice and that there has been a widespread change to promoted sleep position and thermal care practices, so, if the link between risks and cause is a strong one, a falling death rate ought to have already begun.

In Christchurch the cot death rate has been falling gradually from the mid-thirties in 1986 to the mid-twenties in 1989 (Ford, 1990). In 1990 the drop was dramatic and only 12 babies died from cot death in Christchurch (Brown, 1991). Of these twelve deaths only one was of a baby born since the release of the revised "Cot Death - reducing risks" leaflet in May. There have been no cot deaths to date in 1991 in Christchurch (Brown, 1991).

These results are worthy of celebration because they indicate that there has been a huge reduction in human suffering. However, only if the reduced death rate is sustained and the change in practices maintained can conclusions be drawn about the impact of education on the drop in deaths.
If the long-term benefits of education to reduce risks and
advantage babies are found to be a sustained fall in the cot death rate
then that is to be welcomed as a bonus, but it is quite enough that
education can lead parents to give their babies the very best chance to
be healthy, contented, comfortable and secure - today. This study
suggests that leaflets can make an important contribution to that
education, to the quality of infant care and potentially to the
prevention of some cot deaths. For these reasons leaflets deserve a
high place in infant care education programmes, especially those
designed to encourage people to reduce the risks of cot death.
ACKNOWLEDGEMENTS

There are many people to thank for the assistance given to me in the conducting of this research. Dr John Church, Dr Rodney Ford and Mr Harry Mills all contributed to helping me decide my topic, Mr James Thornton was very generous with his time in helping me to understand the ethical concerns the study raised, and my supervisor, Dr Alison Gilmore, has been generous with her support and guidance throughout the year. To all these people I offer my sincere thanks.

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It is the women who took part in the study to whom I owe my greatest thanks. They willingly accepted me and my questions and it has been a privilege to learn what I have from them. I am especially indebted to the women who took part in the home interview. They accepted the inconvenience of diary recording and another interview at what must have been a very demanding time with their babies so young.

I would like to thank the Canterbury Cots Death Society for financial assistance to cover some of the costs of this research and Dr Jeff Brown, Gerry Jellyman, Ellenor Mayo and others who helped me find information of varying kinds.

This thesis may not have been completed, but for the willingness of my husband, Ian, to be both mother and father to our children during the final weeks of writing, and for the patience of Tim, Anna and Katie during this time. It is to my family that I offer a special thank you.
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Colds

Babies who are not yet able to breathe through their nose when their nose is blocked can be quite distressed by colds. A stuffy nose makes it hard for a baby to breathe during sleep, so he wakes up more often and is then tired. A blocked nose also makes it hard for a baby to suck so the will not take a satisfying feed and will soon feel hungry and/or thinner. A tired, hungry, thinner, stuffy baby is a stressed baby.

Reduction of the Risks of Colds by...

- keeping baby away from crowded places where infections are more likely.
- discouraging visits from people with colds or..."sickness, if possible.
- discouraging children and adults with colds or...sickness from handling a baby.
- keeping baby away from smokers and smoke in...plants.

When baby does get a cold it is suggested that you:
1. Watch for changes in breathing and temperature. If breathing becomes rapid or temperature rises...
2. See your doctor.
3. Don't over clothe baby if he is hot.
4. Give extra fluids — warm boiled water.
5. Raise the top of the cot a little.
6. Have warm moist air in the room.
7. Clear the nose before feed and sleep, by squeezing half a ml of saline up each nostril. (ask your Chemist to make it up.)

WARNING: Don't poke objects up nostrils to
8. Clear them.
9. Take extra care to see that baby gets enough sleep.
10. If the cold lasts for more than 24 hours see your doctor.

This pamphlet has been prepared by the Canterbury Cot Death Society in consultation with medical experts...

It has been adapted for use throughout New Zealand, and funded by the Cot Death Division of the National Children's Health Research Foundation, and the Department of Health. It is not a comprehensive baby-care guide and deals only with conditions, possibly linked to cot death, that parents can control.

Not following the suggestions made will not cause a cot death just as following them will not prevent a cot death.

The suggestions offer parents positive ways to reduce risks to babies.

Sudden Infant Death is something that frightens many parents and concerns health professionals.

Signs of Sickness

There are three diseases that can cause rapid death in babies and need to be recognized and treated early.

- Notice if baby:
  - has a persistent cough
  - has difficulty or rapid breathing
  - has a temperature
  - has a dry cough or sudden sneeze
  - has a difficult or rapid breathing
  - has a temperature

- Notice if baby:
  - refuses feeds
  - has a persistent or sudden weight loss
  - refuses feeds
  - has a difficult or rapid breathing
  - has a temperature

- Notice if baby:
  - has a difficult or rapid breathing
  - has a temperature
  - refuses feeds
  - has a persistent or sudden weight loss

May you enjoy your precious baby with the risks in proper perspective, but reducing them where you can.

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- Dr. Ian Hasdell, Director of Medical Services, Royal New Zealand Plunket Society.

Cot death is surrounded by uncertainty.

There is no known cause, only risk factors that may or may not contribute to any one death. These factors are thought to work together and no factor stands alone as a possible cause.

This pamphlet offers parents information on ways that they can reduce some possible risks to babies. Suggestions made are based on research findings, some of which are very recent and by no means proven facts.

It is for each parent to decide how best to care for their baby.

Canterbury Cot Death Society, Inc.
P.O. Box 13620, Christchurch.
HEALTH CHECKS

Most babies develop normally. However, it is only by regular health checks that signs of possible trouble can be noticed early and something done about them.

Lose weight or a SLOW GAIN can be such a sign. These visits can be a chance to share any concerns you have about you or your baby.

REDUCE RISKS BY:
- Having baby seen regularly by a Plunket Nurse, Health nurse or doctor.
- Having baby immunized on time (unless sick), to protect her from harmful diseases.

SMOKING

Smoking during pregnancy puts a baby at greater risk of cot death because he is more likely to be born small. The baby may also be born with reduced immunity to infections. These risks are further increased if the mother, father or others smoke in the presence of a baby.

TO REDUCE RISKS:
- Do not smoke during pregnancy.
- Do not smoke in the presence of a baby.
- Protect your baby from smokers and smoking places.

If you do smoke and need help to give up, see your doctor or call S.O.S. (Stop Ourselves Smoking) on CH 799-480.

SLEEP

Cot death can happen during sleep. It is normal for babies to stop breathing for short periods during sleep and then start again or wake up. It is thought that, for cot death victims, this response fails, but it is not understood why.

Research has shown that, for some babies, this annual response is blunted when they are overtired from broken sleep, not enough sleep or sickness.

REDUCE THESE RISKS BY:
- Encouraging a regular sleep cycle of sleeping and waking, when possible.
- Allowing your baby to sleep when he needs to and for as long as he needs to, when possible.

To give a baby the best possible chance to breathe easily while asleep, it is suggested that a baby:
- Sleep on her side, if comfortable. (A rolled-up blanket placed at her back will stop her rolling onto her back.)
- Sleep on a flat mattress. (If using a sheepskin, cover with a sheet.)
- Have adequate room for air to move freely around his face. (Beware of enclosed sleeping spaces.)

STRESS

A new baby usually means a major change in lifestyle, for which you can never be fully prepared. The demands of a new baby can be stressful on parents. This can turn a baby's love to too hot or too cold, traveling, not enough sleep. Stress in a baby can affect breathing during sleep.

REDUCE THE RISKS OF STRESS BY:
- Reducing, where possible, extra demands that compete with the changing needs of your baby.
- Reducing stressful situations that irritate or harm the baby (such as too many visitors, too many lights, too much noise).
- Accepting help from others that will give your baby more time with you.
- Planning regular time-out to do the things you enjoy, happy that your baby is with someone you trust.

SUPPORT

Parenting is hard on the job. Sharing experiences with other parents is a very important part of that learning.

Isolated at home, parents of young babies can miss the chance to learn what to expect as their baby changes, to check out what is normal for them and their baby.

REDUCE THE RISKS OF ISOLATION BY:
- Talking about your baby to family and friends.
- Listening to others talk about their babies.
- Mixing often with other parents of babies to enjoy the support and sharing you need when caring for a baby. (Parent groups offer this.)

Parent Support Groups:
Plunket: see your local nurse for details.
La Leche League: Breast feeding support.
In Christchurch call CH 854-409.
In call Parenting Centre: (new parent support)
in Christchurch call CH 62-409.

PLANNING A FAMILY

REDUCE RISKS BY:
- Planning to avoid another pregnancy until your baby is at least six months old.
- Planning to avoid a teenage pregnancy.
- Planning a spring birthday for your next baby.

WEATHER

Cold deaths are more common in colder climates, and during the months with colder nights. In Canterbury this is May to October.

What it is about the cold that increases the risks to babies is not understood.

Research shows that young babies are not only vulnerable to the cold, but also to overheating.

The sleeping temperature is important. A baby is warmed during sleep by a combination of clothing and bedding and heat.

Too much clothing or bedding, especially if synthetic, makes it hard for a baby to stay warm if she gets too hot. Not enough makes it hard for a baby to stay warm if the temperature drops.

To decide if your baby is at a comfortable temperature feel the skin under his clothes with your hand.
- If feels damp, baby is too hot.
- If it feels cool, baby is too cold.

If it feels warm, baby is comfortable.

REDUCE RISKS OF COLD AND OVERHEATING BY:
- Using heating in baby's room (thermostat set at low 15°C) with the door open at night.
- Using heating in baby's room (thermostat set at low 15°C) with the door open at night.
- Warning: Never use heaters without a thermostat to control rising temperatures.
- Using light, woolen and cotton clothing and bedding where possible.
- Using woolen and cotton clothing and bedding where possible.
- Using woolen and cotton clothing and bedding where possible.
- Adjusting baby's clothing and bedding when the temperature changes.
- Adjusting baby's clothing and bedding when the temperature changes.
- Adjusting baby's clothing and bedding when the temperature changes.
- Adjusting baby's clothing and bedding when the temperature changes.
HEALTH CARE
Most babies develop normally. Regular checks on your baby’s growth mean that signs of possible trouble can be noticed early and dealt with. Loss of weight or a slow gain can be such a sign. These visits can be a chance to share any concerns about you or your baby.

TO REDUCE RISKS:
• Have your baby’s growth checked regularly by a doctor or nurse.
• Have her immunised on time, if she is well, to protect her from harmful diseases. Your doctor can advise you.

SIGNS OF SICKNESS
There are three diseases that can cause rapid death in babies and need to be noticed and treated early.

• Notice if your baby:
  has a rusty cough
  has difficulty or rapid breathing
  grunts when breathing out
  is too breathless to feed.
  She may have the early signs of pneumonia.

• Notice if your baby:
  refuses to feed
  is hard to wake
  has an unusual cry
  is irritable or seems to hurt when moved.
  She may have the early signs of meningitis.

• Notice if your baby:
  stops breathing for more than 20 seconds
  changes colour to very pale or blue
  loses weight or fails to gain
  suddenly feels too hot or too cold or buggy
  has a runny discharge from ears or nose.
  These may be the signs of other serious sickness.

TO REDUCE RISKS:
• Notice early signs of possible danger
• Don’t wait for improvement or blame sickness or calcium
• Get advice immediately from your doctor or nurse—twice or more in the same day if you need to.

This pamphlet has been prepared by the Canterbury Cot Death Society in consultation with medical experts. It deals only with factors proven linked to cot death that parents can control. Following the suggestions made will not prevent all cot deaths, but may prevent some. It is hoped that the information offered will help those who care for babies feel less worried about cot death knowing that there are positive ways to reduce risks.

A MESSAGE FROM THE COMMISSIONER FOR CHILDREN
You may have heard or read of certain theories about the cause of cot death. Many can be shown not to fit the facts yet they keep cropping up. There are others that do fit the facts and can be supported by research. The advice in this pamphlet is based on what we know. Following it is the best way that New Zealand parents have, in our present state of knowledge, of reducing the risks to their babies.

Dr. Ian Hassall

May you enjoy your precious baby, aware of the risks, but reducing them where you can.

Telephone numbers:
Doctor __________________ Nurse __________________
After hours ________ Parent Groups ___________
Hospital _______________ ________
Ambulance ____________ Neighbour ___________

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Also available:
"Your Changing Baby", Helping Your Baby From Birth to Six Months
"Cot Death in Canterbury, Facts and Figures".

Cot Death is surrounded by uncertainty. New Zealand babies are more at risk than babies in most other countries. As well, the rate varies between races, places and seasons. These things strongly suggest that many cot deaths are preventable.

While the cause remains a mystery, research in New Zealand and around the world has found factors linked to an increased risk. These are thought to work together and may or may not contribute to any one death. Until more is known, reducing risks is the best way we have of protecting individual babies.

This pamphlet shares information about cot death and suggests ways for parents to reduce some possible risks to babies. Suggestions made are based on research findings, some of which are very recent and by no means proven fact.

It is for each parent to decide how best to care for their baby.
**Young Babies**

Most cut deaths happen between 1 and 3 months. This is a time of great change for all babies. All babies must develop ways to deal with irritations and temperature changes. Babies of this age are growing very quickly and need regular feeds. They are developing in their steady breathing patterns, once stable sleep states and body rhythms. A young baby will adjust more easily if the stresses he meets are small and introduced gradually.

**To Reduce Risks:**
- Learn about the changes your baby is making and how you can help him. (See the leaflet “Your Changing Baby” available from your nurse or P.O. Box 13630, Christchurch.)
- Make a special effort to consider his needs at this vulnerable age.

**Weather**

Within New Zealand the risk to babies increases from north to south. As well, cut deaths are more common from May to November, but these things are not yet understood.

Color climates and winter make a difference to how we care for babies. In trying to protect them from the cold, it is possible to put them at risk of overheating with too much clothing, leaving them at a very warm room. The sleeping temperature is important. Research is looking at how we care for babies during the night.

Clothing, bedding, and air temperature work together to keep a baby warm at bed. A baby needs clothes that protect her from getting too hot or too cold.

**To Reduce Risks:**
- Feel the skin of your baby’s back, with your hand to check her temperature.
- Notice if she is too hot (feels hot or sticky) and take off some clothing or bedding, or turn down the heating. This is very important if your baby is unwell.
- Notice if she is too cold (feels cool) and warm her with a cuddle, bath or a feed before putting her to bed.
- Sleep her on her side or back and choose cotton or light woolen clothing and bedding that is not tight.
- Remember that wool is very good at keeping in the warmth and your baby needs less covering if you use wool.
- Take off some clothing when she goes to bed and put on extra layers when she gets up.
- Keep the room as warm, and use lighting if necessary, (around 15°C at night and 18°C by day)
- Always use a thermometer with electric heating.
- If you cannot afford heating, an electric heater can be used (check with your doctor or health visitor).
- Share the care and joy of your baby with others to help you do the things you enjoy.

**Sleep Position**

Cut deaths during sleep is one of the most dangerous times for babies. It is generally known that babies who sleep on their tummies are at greater risk. While tummy sleeping places cannot cause cut deaths, it may contribute to overheating or making breathe difficult for some babies.

**To Reduce Risks:**
- Sleep your baby on his side or back making sure that he cannot roll onto his front during sleep.
- Have plenty of room for air to move in front of his face.
- Touch him in such a way that he can move a little. He needs to stretch out to cool off or curl up to keep warm.
- Raise the top of the cot just a little to keep his head up (bulky nappies can tilt him downwards).

**Smoking**

Smoking during pregnancy is a strong risk factor for cut deaths. It shows down a baby’s growth making him more likely to be born small. He is also less likely to deal with irritations. The risks are even greater if people smoke in the presence of a baby.

**To Reduce Risks:**
- Do not smoke during pregnancy.
- Do not smoke in the presence of a baby.
- Protect your baby from smokers and smoke paces.
- If you smoke and need help to give up, contact your doctor or hospital for advice and support.
- If you cannot give up, try to smoke less.

**Lifestyle**

Cut deaths vary greatly between races, places and seasons. There are small for Pacific Islanders, babies in Japan, and during the summer months. We look for a baby who is in the warm and your baby needs less covering if you use wool. The weight and size of a baby depends on the climate, what we can afford, what we know, what others do, how our parents cared for us.

The demands of a new baby can be stressful on parents and cause a major change in lifestyle. Cut off from support and information, parents of young babies may miss the chance to learn what to expect as their baby changes. Check out what is normal for them and their baby.

**To Reduce Risks:**
- Mix often with other parents of babies to enjoy the support and sharing you need when caring for a baby.
- Ask help from others that makes things easier for you (e.g. on offer to take older children to kindergarten or school).
- Share the care and joy of your baby with others to help you do the things you enjoy.

**Breathing**

It is normal for babies to stop breathing for short periods during sleep (5-8 seconds) and then to start again. For cut deaths babies this response fails, but it is not understood why.

A baby’s breathing is affected by slow states, temperature and stress. Stress for a baby can be broken sleep, not enough sleep, and sickness. Research is looking at why some babies are slow to recover from a pause in breathing.

**To Reduce Risks:**
- Take extra care to help your baby get the sleep she needs when she is not well. This is important.
- Try to encourage a regular cycle of sleeping and waking.
- Have her near you even when she sleeps to calm her when she wakes or needs you.

**Colds**

Many cut deaths are associated with colds and minor illnesses. Colds do not cause cut deaths. All babies get colds from time to time as they develop their immune system. But colds can distress a baby.

A runny nose makes it hard for a baby to breathe during sleep so he wakes up more often and then gets tired. Difficulty sucking may mean he does not take good food and is left hungry and thirsty. A tired, hungry, thirsty, usually baby is a stressed baby.

**To Reduce Risks:**
- Try to protect your baby from other people’s coughs, sneezes and smoke especially during winter and spring.
- Give him a little extra Vitamin C each day, especially during winter, to boost his immunity (e.g. a teaspoon of fresh orange juice diluted with water).

When your baby does have a cold:

- Notice if breathing becomes rapid or temperature rises and see your doctor.
- Keep him more clear by using saline drops for nose and eyes, and during sleep if he is too cold. Ask your chemist for saline. Ask your nurse to show you how to use it.
- Notice if he is hot and use less clothing or bedding. This is important.
- Give extra fluids - warm boiled water - to replace fluids lost from his nose or from sweating.
- Take extra care to see that he gets the sleep he needs.
- Raise the top of the cot just a little.
- Have warm air in the room (about 18°C).
- See your doctor if you are worried, or if cold lasts more than 21 hours.
SICKNESS

Little babies can become very sick very quickly. Vomiting, diarrhoea and fever can cause rapid loss of large amounts of fluid which can be dangerous. Your baby needs you to notice his signs that something may be wrong and to get help.

TO HELP YOUR BABY

- Notice if his nappy has not been wet and offer more fluids especially when he has a cold or has been sweating at all.
- Learn the early signs of sickness in the Health and Development Record Book. Some of these are: vomiting, diarrhoea, rising temperature, rapid breathing, refusal of normal feeds, unusual sleepiness.
- Get medical help early when you notice these or other signs.

SLEEP

Most young babies need quite a lot of sleep. Before birth your baby was used to constant noise, rhythmic movements and company. She needs gradually to get used to quiet, stillness and being alone. She needs to learn to trust that her needs will be met.

TO HELP YOUR BABY

- Have her near you as much as possible, where she can hear your voice and you can rock, pat or sing to her to calm her.
- Be prepared to hold her close and to carry her about quite a lot in these early months.
- Provide a warm, familiar place for sleeping.
- Space her sleep regularly through the day and encourage a longer sleep at night.
- Follow a familiar, routine before sleep (eg feed, nappy change, cuddle, song) so that your baby can learn to expect to go to bed and to welcome it.
- Plan outings to fit around her sleep needs at this stage, if possible. An older baby can be more flexible.
- Use a car seat for safety in a car, but provide a more comfortable place for sleeping when not travelling.

The first six months are a time of very great change for babies as they adjust to life outside the womb.

YOUR CHANGING BABY

Helping your baby from birth to six months.

T his pamphlet has been prepared by the Canterbury Child Health Society Inc. in response to the many questions asked about the needs of young babies.
It must always be remembered that each baby is unique, even within a family. There are many things to consider when deciding how best to care for your particular baby and to consult your doctor or nurse when they are concerned.

May you enjoy your precious baby aware of the changes he is making and helping him where you can.

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Also available:
"Cut Death, Reducing the Risks"
"Cut Death in Canterbury: Facts and Figures".

Cranbrook Child Health Society Inc.
P.O. Box 1329, Christchurch.
**IMMUNITY**

Your baby is born with some immunity to infection, less if she is premature. Breast feeding can strengthen this immunity and smoking during pregnancy can weaken it. By about four weeks this immunity is running low and all babies start to develop their own. In the next few months even breast fed babies do not have much protection against infection. Infections spread more easily in crowded places and are more common during winter and spring.

**TO HELP YOUR BABY**
- Take extra care to protect her from other people's coughs, sneezes and sneeze at this time, especially during winter and spring.
- Air your home every day especially when you are using heating.
- Choose breast feeding for your baby if you can.
- If you are a breast feeding mother eat a mixed diet and include fresh foods rich in Vitamin C such as kiwi fruit.

**TEMPERATURE CONTROL**

Your baby needs to keep her body at an even temperature. This was easy to do in the womb, but now she must sort out ways to cope with being too hot or too cold. To cool off, she will send heat to the edges of her body and perhaps sweat. To keep warm she will take heat from the edges and hold it deep inside where it is needed most. For the first few months she will not be very good at balancing her heat needs, especially at cooling down.

**TO HELP YOUR BABY**
- It is better to use your baby and how warm she feels, rather than the outside weather, how warm you feel or the occasion, when deciding what clothing and bedding she needs.
- Feel the skin of her back, with your hand to decide if she is too hot (feels hot or sticky), too cold (feels cool) or just right (feels warm), and adjust coverings and air temperature as necessary.
- Remember that clothing, bedding and air temperature work together to keep her warm so take off some coverings when she goes to bed or moves to a warmer place and put on extra layers when she gets up or moves to a colder place.
- Sleep her on her side and cover her with cotton and light woolen items that are not tight. This will help her cool down if she should get too hot in bed (use less coverings in heated rooms.)
- Sleep her half way down the cot and on her side so that she cannot wriggle under the blankets and get too hot.
- Take extra care in outside conditions. Protect her from direct sun and wind and try to avoid taking her out in weather that is very hot, very cold, wet or very windy.
- If possible, choose the warmer middle of the day in winter and the cooler morning or afternoon in summer, when taking her out.
- When you leave your car for more than a few minutes, take your baby with you, because the inside of a car can heat up or cool down very quickly.

**GROWTH**

Before birth, your baby was fed continually. She will gradually get used to longer spaces between feeds, she is growing very quickly and will probably be about twice her birth weight by four to six months. This can make her hungrier than you expect at times. Around this time her system will be ready to cope with more than a milk diet, but it needs to get used to digesting different foods, gradually.

**TO HELP YOUR BABY**
- Have her growth checked regularly by your nurse or doctor.
- Expect to feed her often, even at night, in the early days, but space her feeds regularly through the day and encourage a longer spacing at night.
- Offer her new foods one at a time, in small amounts and in a smooth, quite runny form at first. Gradually work up to thicker, mixed foods and larger amounts. Remember to offer more fluids such as cool boiled water when she starts solids.

**BREATHING**

Your baby is developing a more steady breathing pattern which is affected by things such as sleep states, stress, temperature.

**TO HELP YOUR BABY**
- Sleep him on his side (with a rolled nappy at his back) and use a flat mattress so that air can move freely around his face.
- Give him the chance to have lots of rest.
- Keep a regular routine and avoid too many changes if you can.
- Give him clean, warm air to breathe, free from smoke.
- Keep his airways moist by having a dish of water (out of the reach of toddlers) in heated rooms where the air can dry out. This is especially helpful when your baby has a cold.

**BODY CLOCK**

Your baby is developing a body clock which affects things like breathing patterns and body temperature. This clock is set by the order and spacing of things like sleeps, feeds and activity within your baby's 24 hour day.

**TO HELP YOUR BABY**
- Arrange his day into cycles of sleeps, feeds, and play times.
- Arrange his night to encourage longer sleeps, quiet feeds if necessary, and no play time.
- Follow the same routine before bed each night (eg: bath, change into night clothes, quiet feed, cuddle and song, bed).
WHEN SHOULD YOU CONSULT THE DOCTOR ABOUT YOUR BABY?

ALWAYS URGENT
- A fit or convulsion, turning blue or very pale.
- Fast, difficult or grunting breathing
- Very sleepy, very hard to wake or not seeming to know you

SOMETIMES SERIOUS
- Croup or rapid onset of noisy breathing
- Unusual crying or a cry that suggests severe pain
- Repeated refusal of feeds
- Frequent vomits or watery diarrhea
- Unusually floppy, hot or cold.

No medicine is guaranteed to make your baby better, so, consult your doctor again, even the same day, if the baby is getting worse, or you get more worried.

KEEP COOL

BABY

Newborn babies may have difficulty keeping their temperature normal, but most babies can cope better by the time they are a month old.

This leaflet gives you advice about the correct sleep position and temperatures needed for your baby. If in doubt, consult your midwife, plunket nurse or family doctor.
BEST SLEEP POSITION.

Babies should sleep on their back or their side (alternating from one side to the other with each sleep) until they are one year old. There is no real risk of vomiting and choking while they sleep on their back.

The two main advantages of this position are that your baby’s face is always clear and this helps to regulate their body temperature. Also, breathing is less likely to become difficult in this position.

The exception to this rule are babies who are especially 'spilly' (more than 1/2 hour after a feed). They will spill less if they sleep on their front with their cot sides up a little. If you put your baby to sleep on his/her rom use a firm mattress and no sheepskin.

It is important that baby does not slip deep under the bedclothes and become too hot. To avoid this make up the cot to half-way so that baby can crawl out of the bedding but not under the bedding.

DON'T GET SWEATY

If baby sweats freely, she is too hot for comfort - the head and back of the neck sweat first.

KEEP ROOM TEMPERATURES STABLE

Know the room temperature - buy a room thermometer.

Don't put baby next to the radiator or in front of the fire. Economise by using less heating by day, rather than turning off the heating over-night.

If you have been outside in the cold, take off baby's clothing when you re-enter the warmth of your home or the car, just as you take off your own out-door clothes. Risk waking your baby to do so.

The baby's sleeping room (which can be the family living room) is best kept at 15 - 16°C by using a wall thermo-stat at the same level as the baby. This is then connected to the heater (e.g. Honeywell wall thermostat available from electrical retailers - $40).

GOOD BABY CLOTHING PRACTICE

- COMPARE BABY'S NEEDS TO YOUR OWN

By a month old, babies virtually never need much more clothing and wrappings than their parents. Normal maximum indoor needs at ideal bedroom temperature 15 - 16°C (65°F) are:

Napery, singlet (cotton or thin woollen), babygro or gown, Cardigan, Sheet, 2-3 layers of light woollen blankets or duvet.

- KNOW THE TEMPERATURE OF BABY'S CENTRAL BODY

This is best felt with two fingers slipped down the back of baby's neck to their back. Keep checking until you know what is normal. If the back is warm, and this is the baby. The hands and feet may feel cool (but not cold), and this is a protection from heat loss and shows good control of circulation.

HIGH TEMPERATURES AND ILLNESS

- NEVER USE MORE CLOTHING DURING ILLNESS

- It will often be better to use less.

Colds are caused by a virus infection and wrapping baby up does not prevent this. When babies catch infections, their temperatures go up, not down, so they should be kept cool to prevent complications from over-heating.

WHAT TO DO IF BABY GETS HOT

1. Take a layer of clothes off and keep the room cool.
2. Call the doctor if worried or immediately if your baby is under three months of age. (See next page).
3. Then give Paracetamol (Panadol) 60 - 120 mg (2.5 - 5.0 mls) no more than every four hours.
Babies need... clean... and cuddles. and sleep... regular feeding... breastfed typically... rest...
smoke-free air... 
breathing space

in front of the face

when put down to sleep

to be warm

but not too hot

help if something is wrong

or different
APPENDIX 6

HEALTH CARE

Parents are the most important people in babies’ lives—but being a parent is not always easy.
While friends and family will give you a lot of help, you need to know how to get the best care from your child health nurse and doctor.

KNOW YOUR BABY

- Your baby is very special
- Get to know your baby’s usual ways of,
  - feeding
  - sleeping
  - crying
this will make you the person who knows when your baby may need help.

HEALTH CARE

If you think, something is wrong or different with your baby that you can’t look after yourself talk the problem over with your nurse or doctor straight away.
It helps to:
- say what you have noticed is wrong with your baby—you may want to write everything down
- try to be calm—having a friend or partner with you is a good idea
- ask your doctor what the problem is, what should be done about it and when you can expect your baby to get better
- ask questions until you understand what is going on so you can give your baby the best care.

KEEP A RECORD

Your child health nurse or doctor can provide better care when:
- you take your baby for regular growth and health checks. Keep a list of any questions or concerns you may want to talk about
- you can give them an up-to-date record of your baby’s health and immunisations. Use the Health and Development Record book for this
- you get their help whenever you think something is wrong with your baby.
The six-week check for mother and baby, and all baby’s immunisations are free. See the Health and Development Record list for when your baby needs to have these.
Help is available if you have problems paying for other visits to your doctor. Ask your doctor or Social Welfare about this.
**TALK ABOUT THINGS**

When you see your child health nurse or doctor you should:
- feel they listen and understand you
- be satisfied with their advice and help
- feel better about caring for your baby
- know how long it will take for your baby to get better and if you should go back if things don’t change.

Sometimes two people don’t suit each other. If you are unhappy about the advice and care given by your child health nurse or doctor, tell them what concerns you and talk about it.

If you are still unhappy ask them to refer you to someone else or make the change yourself.

- ask your child health nurse or doctor about how to find urgent help during the weekend or late at night
- work out how you would get to the hospital in an emergency.

**OTHER PEOPLE**

You and your baby have different needs. These will change from time to time.

Sometimes it helps to share the caring of your baby with other people. This help can come from your partner, parents, grandparents, extended families, whanau, friends, community and church groups.

Your pharmacist or your doctor’s practice nurse can help you too.

---

**REMINDERS:**

- read the Health and Development Record book, for ideas on how to care for your baby and to find out what to do in an emergency
- the wall frieze and “The Biggest Love” video offer babysitting advice
- use the phone list from the wall frieze to write in useful numbers
CONGRATULATIONS ON YOUR NEW BABY

You may find the following hints useful.

Handwashing
New babies are vulnerable to infection. It is important for everyone to wash their hands before attending to a baby, especially after changing baby’s diapers, handling pets before and after feeding baby.

Hormonal Spots (Baby Acne)
These spots occur in most babies at about 3-5 weeks of age and are caused by mother’s hormones at birth. They look like acne and may occur on face, scalp, shoulders, upper chest, and upper back. Heat can make them appear worse, they need no treatment or cream, leave no scars and may last a few weeks. Please don’t squeeze them.

Uniliated Area
Cord on or off. Dry after bath. Don’t apply any lotion or powder to the cord area unless advised by nurse or doctor. Slight bleeding is uncommon, avoid irritation by folding nappies below the cord area and drying gently after bathing. If the cord becomes smelly or oozy, consult your nurse or doctor.

Sticky Eyes
A clear or white discharge near the duct is blocked. This is not serious but requires cleansing. It is important to wash your hands before cleansing baby’s eyes. Use cooled, boiled water on a cotton ball about 3-4 x a day. Wipe from inner edge by nose to the outside, once. If it needs another wipe, use a second cotton-ball. Massaging may help unblock the duct. Stroke up the side of the nose towards the inner eye, place 3-4 x a day. Blocked ducts usually clear by 3-6 months.

If the eye is red or swollen or discharge is green or yellow, see your Doctor as these conditions need medical treatment.

Expressed Breast Milk - Storage and Thawing (cont.)
Use immediately and throw away whatever isn’t used. Never reheat or refreeze. Do not thaw in the microwave. A tin destroys Vit. C and antibiotics and it is possible to burn baby’s mouth as milk continues to heat for a few seconds once removed from microwave.

Sleep
Some babies need help to settle and sleep well in their own basinet/coo. It is important to the early weeks to put baby to bed awake after most feeds. This means the baby learns to fall asleep in the basinet/coo and tends to be more settled and sleep longer. Lulling baby to sleep or cradling or rocking to sleep can teach them that this is the only way to go to sleep. It seems an easy way to get them to sleep when they are small babies but this becomes a habit difficult to break.

Growth Spurt While Breastfeeding
At around six and twelve weeks you may notice your baby wants to feed more often, even as much as two hourly. This extra feeding may last 2-3 days. To increase your milk supply because your baby is growing more milk. Don’t be tempted to give a bottle this stage; once your milk supply increases, the baby will settle again.

Boiling Noses
Every baby’s pattern is different. Normal babies go through frequent minimal nose and others may only once a week.
Bottle fed babies tend to have a thinner formed motion, although it is still soft enough to be squished in the nappies.
Bottle fed babies sometimes are often runny with small bumps. At certain times there may have a motion that is pasty like and sticks to their bottom. You may notice a green colour to your baby’s bowel motion - this may be due to wind, iron content in formula or sometimes occurs with normal feeding. If you are concerned about your baby’s bowel motions talk to your Plunket Nurse.

Dry Skin
Is one of the most common conditions for a newborn baby. No treatment is required. However, a baby moisturizing cream can be applied to the skin (not on face) or a drop of natural oil used in the bath. Avoid using soap, baby bathing liquid or talcum powder as this dries the skin more.

Cradle Cap
This is a common condition that looks dry skin on the scalp. Simple measures: wash baby with warm water and a mild flannel. If this does not work, use baby shampoo once or twice a week. Each day gently massage a vegetable oil into the scalp and rub gently with a towel. If no improvement - ask your nurse.

Breathe Infection (Otitis)
Signs include fever, redness, feeling hot and cold, redness and pain and "fist" like symptoms. You may notice a painkiller or a pink patch on your nose. This needs treatment now. If you see the doctor immediately as you may need antibiotics. Treatment means feeding often from the more breast to keep it empty as possible. Combine this with heat (hot water bottle) and massage while feeding and in bath/shower. Plenty of rest, eg. in bed and lots of drink. Arrange for someone to help at home if possible. If you don’t notice a big improvement after a feeds, see your Doctor.

Expressed Breast Milk - Storage and Thawing
Use sterilized plastic containers with tight fitting lids (not glasses). It is safe to use for 48 hours in the fridge (not in fridge door).

Freezing - only 1/4 fill containers to allow for expansion. Don’t add milk to milk already frozen. Label and date containers. Store deep in freezer - lasts 2 months. Store in fridge ice-box lasts 2 weeks.

Thawing - Hold container under cold running water, the milk change to cool and then warm until milk is at body heat.
APPENDIX 8

Health education materials used in the study.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Publisher/Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCB</td>
<td>Keep Cool, Baby. (1989) Department of Paediatrics and Child Health, University of Otago, Dunedin, New Zealand</td>
<td></td>
</tr>
<tr>
<td>BNF</td>
<td>Babies Need ... frieze (1989) Department of Health, New Zealand</td>
<td></td>
</tr>
<tr>
<td>HCFYB</td>
<td>Health Care For Your Baby (1989) Department of Health, New Zealand</td>
<td></td>
</tr>
<tr>
<td>PH</td>
<td>Plunket hints (undated) Christchurch Plunket District, Royal New Zealand Plunket Society, 211 Oxford Terrace, Christchurch.</td>
<td></td>
</tr>
<tr>
<td>PD</td>
<td>Postnatal Depression (undated) Mental Health Foundation of New Zealand, P.O. Box 37 438, Parnell, Auckland 1, New Zealand.</td>
<td></td>
</tr>
<tr>
<td>CYCH</td>
<td>Can Your Child Hear? (undated) Royal New Zealand Plunket Society Inc.</td>
<td></td>
</tr>
<tr>
<td>PAB</td>
<td>Pregnancy and Breastfeeding (undated) Published by the Market Milk Federation Inc., P.O. Box 1 156, Wellington, New Zealand.</td>
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<tr>
<td>UFTM</td>
<td>Understanding the First Three Months (undated) Child, Adolescent and Family Health Service, 285-295 South Terrace, Adelaide, South Australia 5000, Australia.</td>
<td></td>
</tr>
</tbody>
</table>

Booklets

B  Breastfeeding (1990) Department of Health, New Zealand

HDR Health and Development Record (1989) Department of Health, New Zealand

YP1 Your Pregnancy (1985) Department of Health, New Zealand

YP2 Your Pregnancy (1990) Department of Health, New Zealand


YBIB  Your Baby is Beautiful (1987)  Department of Health, New Zealand

TAT  Tots and Toddlers (1989)  Gribben, T. Morgan Marketing Ltd, P.O. Box 4 156, Christchurch.


Books


TT  Toddler Taming by C Green (1984)  Green, C. Doubleday Australia Pty Ltd.

Video

Parents of new babies get a lot of advice from many different places. Many things influence how we care for babies such as what we know, what we are told, what others do, what the baby seems to like, what we can afford, what the weather is like et cetera.

This study is being undertaken as a research thesis by the Education Department of the University of Canterbury. It hopes to find out whose advice or what advice parents say is influencing them when they are choosing how to care for their baby and who or what they say might influence them to change their minds later.

The study is more interested in whose or what advice parents say influences the choice than in the choice itself.

The results will be useful for educating about caring for babies so by agreeing to help with the study you will be helping future parents.

What is involved for you.
There are two parts

Part 1. a short interview now to find out

a) how you intend to
   - feed your baby
   - sleep your baby
   - check if your baby is warm enough

b) where advice about these things is coming from and whether or not you agree with it

Part 2. in about eight to ten weeks time

a) keeping a diary for three days to record feeding method and sleep position chosen, (just marking the right box)

b) a short follow-up interview at home to find out what you think of the advice you have received in the meantime.

If you do agree to help, you will be sent a summary of the study next March. Thank you for your time.

Stephanie Cowan (Researcher)
APPENDIX 10

Education Department
University of Canterbury

PARENT ADVICE STUDY - CONSENT FORM STAGE 1

Consent form: (for part 1 of "Parent advice" study)

I, . . . . . . . . . . . . , have read and discussed the information sheet and understand that this study has been approved by the Area Health Board’s Ethics Committee. I agree to being part of stage 1 (hospital interview) of the study and understand that this does not commit me to being part of stage two.

Signed: . . . . . . . . . . . . Date: . . . . .

Witness: . . . . . . . . . . . . Date: . . . . .

Education Department
University of Canterbury

PARENT ADVICE STUDY - CONSENT FORM STAGE 2

Consent to be obtained prior to follow-up interview at home.

I, . . . . . . . . . . . . , have read and discussed the information about the "Parent advice" study and understand that this study has been approved by the Area Health Board’s Ethics Committee. I agree to being part of stage 2 (diary/interview) of the study.

Signed: . . . . . . . . . . . . Date: . . . . .

Witness: . . . . . . . . . . . . Date: . . . . .
APPENDIX 11

Education Department
University of Canterbury

PARENT ADVICE STUDY
Hospital Interview Form

Date: Subject: Ward: No:

1. (a) From these, (show named and coded cards), whose advice about caring for babies would you trust?
   not at all
   maybe
   yes

   (b) From these, (show named and coded cards), who has shown a preference for how to feed a baby? (either by what they do/did themselves or by what they have said/say)
   prefer bottle feeding
   prefer breast feeding
   no preference / either

   (c) Do you remember their reasons for preferring ...? (if yes, ask what they were)
   prefer bottle feeding
   prefer breast feeding
   no preference / either

   (d) Do you think that how you want to feed your baby was influenced by what others think or do? (to what degree?)
   not at all
   a little
   quite a bit
(e) From these, (show named and coded cards), who has shown a preference for how to lie a baby down for sleep? (either by what they do/did themselves or by what they have said/say)

- on the tummy
- on the side
- on the back
- combination

(f) Do you remember their reasons for preferring ...? (if yes, ask what they were)

- prefers tummy
- prefers side
- prefers back
- prefers combination

(g) Do you think that how you want to lie your baby down for sleep was influenced by what others think or do? (to what degree?)

- not at all
- a little
- quite a bit

(h) From these, (show named and coded cards), who has shown a preference for how to check that a baby is warm enough? (either by what they do/did themselves or by what they have said/say)

- method 1
- method 2
- method 3
- no method
(1) Do you remember their reasons for preferring ...? (if yes, ask what they were)

prefers 1
prefers 2
prefers 3

(j) Do you think that how you will check that your baby is warm enough was influenced by what others think or do? (to what degree?)

not at all
a little
quite a bit

2. (a) Here is some information that new parents sometimes get (display coded materials). Which ones have you seen (and read)?

seen but not read
seen and read

(b) Do you think that reading any of these has influenced how you will feed your baby?

not at all
a little
quite a bit

(c) Do you think that reading any of these has influenced how you will lie your baby down for sleep?

not at all
a little
quite a bit
(d) Do you think that reading any of these has influenced how you will check that your baby is warm enough?

not at all
a little
quite a bit

3. (a) How do you plan to feed your baby?
breast
bottle
both
haven't decided

(b) How do you plan to lie your baby down for sleep?
tummy
side
back
combination
haven't decided

(c) How do you plan to check that your baby is warm enough?
method 1
method 2
method 3
haven't decided
For experienced mothers only

(d) Is ... how you fed your last baby? yes / no
(e) If no, how did you feed your last baby? . . . . .
(f) Why have you changed for this baby? . . . . . . .

(g) Is ... how you lay your last baby for sleep? yes / no
(e) If no, how did you lie your last baby? . . . . .
(f) Why have you changed for this baby? . . . . . . .

(d) Is ... how you checked your last baby's warmth? yes / no
(e) If no, how did you check your last baby? . . . . .
(f) Why have you changed for this baby? . . . . . . .

4. (a) It would be helpful if you could give me the following details about you and your baby:

baby's date of birth:

baby's expected due date of delivery:

baby's birth weight:

mother's age:

completed years at secondary school:

number of children (including this baby):

Did you attend any antenatal classes? yes / no

Did you smoke during pregnancy? yes / no
Do you agree to further involvement? yes / maybe / no

What is your address?

If you have a phone, what is your number?

(b) Now I would appreciate your ideas. What do you think is a good way for new parents to learn about babies and their needs?

(c) From where have you learned most of what you know about caring for babies?
APPENDIX 12

Education Department
University of Canterbury Christchurch 1 New Zealand
Telephone: (03) 667-001
Fax: (03) 642-999

PARENT ADVICE STUDY

Dear

Thank you for helping with the second part of this study.

Please fill in this card as soon as you can. I will call to collect it and to have the second interview one day between and

I will phone before I come to arrange a time. Please call me on 3516 775 if your plans change and you will be out.

I look forward to seeing you and your baby and thank you very much for your trouble. I really appreciate it.

Yours sincerely,

Stephanie Cowan (Researcher)
**SLEEP DIARY**

Write down how you put your baby down to sleep and how s/he ends up sleeping. Do this for every sleep for 3 days in a row.

**FEEDING DIARY**

Write down on the chart how you fed your baby, (breast, bottle or both). Do this for each feed for three days in a row.

Put:  
- f for front,  
- b for back,  
- s for side,  
- br for breast,  
- bb for bottle,  
- bs for both

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<td>ends up on</td>
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APPENDIX 13

Education Department
University of Canterbury

PARENT ADVICE STUDY
Home Interview Form

Date: Tmin: Tmax: Map code: No:

1. (a) Since being home with your baby have you wanted to know more about breastfeeding? 
yes / no

   (i) If "yes", what did you want to know?

   (ii) Where did you go to find out?

(b) Since being home with your baby have you wanted to know more about bottle feeding? 
yes / no

   (i) If "yes", what did you want to know?

   (ii) Where did you go to find out?

(c) Since being home with your baby have you wanted to know more about your baby's development and stages? 
yes / no

   (i) If "yes", what did you want to know?

   (ii) Where did you go to find out?

(d) Since being home with your baby have you wanted to know more about your baby's crying? 
yes / no

   (i) If "yes", what did you want to know?

   (ii) Where did you go to find out?
(e) Since being home with your baby have you wanted to know more about your baby and sleep?
    yes / no

(i) If "yes", what did you want to know?

(ii) Where did you go to find out?

(f) Since being home with your baby have you wanted to know more about colds and sickness?
    yes / no

(i) If "yes", what did you want to know?

(ii) Where did you go to find out?

(g) Since being home with your baby have you wanted to know more about cot death?
    yes / no

(i) If "yes", what did you want to know?

(ii) Where did you go to find out?

(h) Since being home with your baby have you wanted to know more about clothing and warmth?
    yes / no

(i) If "yes", what did you want to know?

(ii) Where did you go to find out?

(i) Since being home with your baby have you wanted to know more about your baby's feelings?
    yes / no

(i) If "yes", what did you want to know?

(ii) Where did you go to find out?
(k) Since being home with your baby have you wanted to know more about anything else to do with your baby?

yes / no

(i) If "yes", what did you want to know?

(ii) Where did you go to find out?

(l) Did you find what you needed to know?

always

usually

sometimes

never

2. (a) Since being home with your baby have you seen or read any of these? (Show pamphlets one at a time and sort according to the response)

seen only

seen and read

(b) Sort out which ones you would say have been helpful in anyway. (ask for degree of helpfulness)

quite a bit

a bit

not really

unhelpful

can't really say

(c) Which ones would you recommend to other new parents?
(d) Since being home with your baby have you seen or read any of these? (Show booklets one at a time and sort according to the response)

seen only
seen and read

(e) Sort out which ones you would say have been helpful in anyway. (ask for degree of helpfulness)

quite a bit
a bit
not really
unhelpful
can't really say

(f) Which ones would you recommend to other new parents?

(g) Since being home with your baby have you referred to your Plunket book?

yes / no

(h) Did you find it helpful at all?

quite a bit
a bit
not really
unhelpful
can't really say

(i) Have you seen this video before? (show "The Biggest Love")

yes / no
(j) Did you find it helpful at all?
quite a bit
a bit
not really
unhelpful
can't really say

(k) Where is your copy of this wall frieze which you got in hospital? (show wall frieze)
on the wall
in a drawer
in the bin
don't know

(l) Have you seen and read this pamphlet? (show "Health Care for Your Baby")
seen only
seen and read

(m) Did you find it helpful at all?
quite a bit
a bit
not really
unhelpful
can't really say

(n) Where did you go for your antenatal classes?
Parent Centre
Christchurch Women's Hospital
Other
(o) How well do you think antenatal classes prepared you for being a mother? (at least for the first few weeks at home)
   really well
   quite well
   not very well

(p) How well do you think your time in hospital prepared you for being a mother? (at least for the first few weeks at home)
   really well
   quite well
   not very well

(q) Since being home with your baby how helpful have you found the following? (Show labelled cards one at a time)
   quite a bit
   a bit
   not really
   unhelpful
   can’t say

(r) Which of these would you say has been the main influence on how you care for your baby day by day? (Show the labelled cards and introduce another card labeled "baby")

3. (a) What clothing was your baby wearing in bed last night after midnight?
   number of clothing layers

(b) What bedding was your baby covered with in bed last night after midnight?
   number of bedding layers

(c) Was there heating on, in the room where baby slept, for
most of the night, last night after midnight?
heating off
heating on low / medium / high

(d) Was your baby in good health last night?
yes
no mildly unwell / very ill

(d) How are you feeding your baby? (from the diary)
breast bottle both

(e) Why have you changed from what you thought you would do when in hospital? (for subjects who have changed)
reason

(f) How are you putting your baby down for sleep? (from the diary)
tummy side back combination

(g) Why have you changed from what you thought you would do when in hospital? (for subjects who have changed)
reason

(h) Show me how you check that your baby is warm enough? (demonstrate using the baby if awake, or a doll)
torso extremities other

(e) Why have you changed from what you thought you would do when in hospital? (for subjects who have changed)
reason
4. It would be helpful if you could give me the following details about you and your family.

Do you belong to parent support group?

Does the baby’s father live with you?

Is the family income earned from

wages or salary / benefits / both

Does anyone in the family smoke? yes / no

Who smokes? mother, / father / other