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BREAST FEEDING IN AUSTRALIA: A COMPARATIVE STUDY OF ABORIGINAL AND NON ABORIGINAL WOMEN

by

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ABSTRACT

The superiority of breast feeding over bottle feeding is universally acknowledged, and its crucial contribution to infant health is accepted by health authorities. Australia in recognition of the importance of breast feeding to infant health, aims to increase the prevalence of breast feeding. Breast feeding provides benefits for all children, however the health advantage that is gained by breast feeding in comparison to artificial feeding is more apparent among disadvantaged groups. Aboriginal Australians are identified as one such disadvantaged group. This study compares the available literature regarding the prevalence of breast feeding in Aboriginal and non Aboriginal women. It is apparent that breast feeding prevalence differs, between population groups within Australia. Aboriginal children are less likely to have been breast fed than non Aboriginal children. The comparison, indicates that there are deficiencies in the research regarding breast feeding prevalence in both population groups. Many factors affect a woman's decision to breast feed, and the duration of her breast feeding. These factors include, socioeconomic status, age, marital status, educational attainment, occupation and smoking status. These factors are clearly associated with breast feeding in non Aboriginal women. For Aboriginal women, the factors influencing breast feeding are more complex. It is recommended therefore, that it is essential for future research to examine the attitudinal and social determinants of infant feeding practices in Aboriginal women. This is necessary, if educational or interventional strategies are to be effective for this population.

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CHAPTER ONE

INTRODUCTION

It is the responsibility of health professionals to foster the establishment of practices that positively effect health. Breast feeding is one such practice.

Breast milk is recommended as the best food source for infants in the first six months of life (NHMRC, 1996). As well as providing the most appropriate nutrition for the infant, breast milk also has other advantages. Breast milk is important in the prevention of gastrointestinal and lower respiratory tract diseases, otitis media, bacteraemia and meningitis. Breast milk has been shown to reduce the risk of certain chronic diseases including coeliac disease, Chron's disease, ulcerative colitis and insulin dependent diabetes mellitus (Cunningham, Jelliffe and Jelliffe, 1991).

Breast feeding also benefits the mother. Evidence suggests that breastfeeding hastens uterine involution after birth and may provide substantial contraceptive benefits (NHMRC, 1996). Other health benefits to the mother includes a reduced risk of osteoporosis and breast cancer (NSW Health Department, 1995).

Aside from the benefits to infant and maternal health, breast feeding promotes physical and emotional bonding between mother and child. It is economically advantageous for the family, the community and the national health care system (WHO/UNICEF, 1992).

In Australia the benefits of breast milk appear less evident due to the fact that most of the population has access to clean water and hygienic living conditions (Baghurst, 1988). However, for Aboriginal communities that live in poor environmental conditions with inadequate water supplies, the health benefits of breast feeding are apparent. Breast feeding is globally recognised as a primary health care measure (WHO/UNICEF, 1992), and is endorsed as such by the National Health and Medical Research Council (NHMRC), the World Health Organisation (WHO) and the United Nations International Children's Emergency Fund (UNICEF).

There is evidence that there is in Australia an increasing awareness of breast feedings benefits (Morrow and Baraclough, 1994; Baghurst, 1988). The Commonwealth Government is committed to protecting, promoting and supporting exclusive breast feeding for the first four to six months of life (NHMRC, 1985). Australia is one of the few developed countries in the world to include a guideline on breast feeding in its dietary guidelines for adults (NHMRC, 1992). The inclusion of breast feeding as a dietary guideline is a recognition of the nutritional, health, social and economic benefits of breast feeding to the Australian community. In the dietary guidelines for children and adolescents, developed by the National Health and Medical Research Council, the guideline for breast feeding is listed first, acknowledging its importance to the health of this age group. Furthermore, as part of the national aim to improve the health of all Australians by the Year 2000 and beyond, goals and targets for breast feeding have been established.

The prevalence of breast feeding in Australia appears to be high. Recent data from the National Health Survey (Jain, 1996), suggest that seventy seven percent (77%) of infants are breast fed. There are however large variation in

breast feeding practices between different groups in the Australian society. There is evidence that Aboriginal women and in particular urban Aboriginal women are less likely to breast feed than the general population (McLennan, 1994).

AIM

The purpose of this study is to use the available literature to compare the prevalence of breast feeding in Aboriginal and non Aboriginal women in Australia. This study determines what is known about the breast feeding patterns of these two groups, what similarities there are, and what differences. The comparison of the two groups, highlights the deficiencies in research and investigation into the infant feeding practices of the Aboriginal and non Aboriginal populations in this country.

METHODOLOGY

To compare the breast feeding practice among Aboriginal and non Aboriginal Australian women, an extensive literature review was conducted, using computer searches, references from published papers and relevant articles from journals.

The data appearing in the literature have their own shortcomings. There are methodological issues in the collection of data about breast feeding that make it difficult to compare or interpret the results of studies. As a result it is difficult to gain a clear impression of the total picture. In many instances the recording of statistics is patchy and unreliable. The monitoring of breast feeding initiation and duration has been somewhat haphazard in most Australian states.

The initiation of breast feeding is traditionally measured at the time of hospital discharge, primarily because collection of data for other variables of interest are often done at this time. However, often information about breast feeding is either not collected in hospital discharge statistics, or it is not collated or analysed. Other methodological issues facing this study include, the lack of consistency in the definition of breast feeding. It is impossible to compare results when the unit of analysis differs, that is the percentage of women who have ever breast fed can not be compared to the percentage of children breast fed. In addition the greatest difficulty in using this methodology was that there is a lack of recent studies regarding breast feeding practices. There has only been two national studies conducted, with the most recent of the two having been conducted seven years ago in 1990.

CHAPTER TWO

BENEFITS OF BREAST FEEDING

Breast feeding is widely regarded by health authorities as the most appropriate method for feeding infants and to be closely related to infant health (NHMRC, 1992). Such recognition is based on scientific studies of the health of infants and the unique properties of breast milk (Rogers, 1993).

Hill in 1968, suggested that "formula feeding has become so simple, safe and uniformly successful that breast feeding no longer seems worth the bother " (cited in Cunningham et al, 1991; p 659). Research however disputes this myth. Recent epidemiological evidence confirms the protective effect of breastfeeding in both developed and developing nations (NHMRC, 1996). A global epidemiologic review of breast feeding and health, has found that breast feeding prevents gastrointestinal and respiratory illnesses and immunologic disorders (Cunningham et al, 1991). Breast feeding also appears to reduce the risk of certain chronic diseases. Much of the important data concerning the protective health benefits of breast feeding is not widely known amongst health professionals.

BREAST FEEDING PROTECTS AGAINST ILLNESS

Several comprehensive reviews of the evidence relating to the health outcomes of breast feeding have been published in the last few years (Chandra, 1990; Cunningham et al, 1991; Walker, 1993). The effects of breast feeding on infants are wide ranging, with benefits seen in the short as well as long term. The main benefits to infants as found by the reviews by

Chandra (1990), Cunningham et al (1991) and the NHMRC (1996) include, evidence of a lower incidence of respiratory tract illness and a lower prevalence and duration of otitis media. Breast fed infants have been found to have a lower risk of developing nectrotising enterocolitis, bacteraemia (septicemia) and meningitis.

MORTALITY RATES

Breast feeding is associated with reduced mortality rates in developed societies. In industrialised nations the impact of breast feeding on mortality rates is small because the hazards of bottle feeding in sanitised environments are reduced (Cunningham et al 1991).

LONG TERM HEALTH EFFECTS

The long term effects of breast feeding are still subject to research. The relationship between breast feeding and the development of obesity, insulin dependent diabetes mellitus, heart disease and other chronic conditions is currently a subject of research interest (New South Wales Health Department, 1995). Scientific research, suggests that breast feeding lowers the risk of the development of immune system disorders such as coeliac disease, Chron's disease, ulcerative colitis, lymphomas, asthma, food allergies and chronic liver disease in adults (Cunningham et al, 1991; New South Wales Health Department, 1995).

PSYCHOLOGICAL EFFECTS

Along with illness prevention, studies have found correlations between consumption of breast milk and higher levels of intelligence. Recent studies have demonstrated that preterm infants given breast milk for at least one month had enhanced cognitive development at seven to eight years of age

compared with formula fed pre term infants (Lucas, Morley, Cole, Lister and Leeson-Payne, 1992; Bauer, Ewald, Hoffman and Dubanoski, 1991). This research has been extended to term infants with similar results in the enhancement of both cognitive and visual development (Makrides et al 1994).

BENEFITS TO THE MOTHER

There are also health benefits for women who breast feed. Evidence suggests that breast feeding mothers benefit in terms of a reduced risk of osteoporosis and breast cancer, in pre-menopausal women (N.S.W. Department of Health, 1995). Breast feeding hastens uterine involution after birth. Whilst breast feeding is not regarded as a reliable method of contraception in Australia, lactational amenorrhoea provides a woman with substantial contraceptive benefits (NHMRC, 1996).

Despite the scientific recognition of the benefits of breast feeding, there are still many questions about the mechanisms by which breast feeding affects infant health, the extent to which breast feeding is protective throughout life and the risk-to- benefit ratio of consuming contaminated human milk (N.S.W. Health Department, 1995). The mechanism by which breast feeding protects the infant from a variety of illnesses are poorly understood, though it is widely accepted that breast milk contains immunologic properties and other defence factors (Cunningham et al, 1991). Such mechanisms are the subject of considerable inquiry.

BREAST MILK

Breast milk has been termed the perfect food for infants because it contains necessary nutrients in a readily bioavailable form while simultaneously providing many anti infective components. Indeed, formula companies

compete with one and other by claiming that their product is "most like mother's milk" (Riordin, 1993). Breast milk, is species-specific, like all other milks; it meets the nutritional requirements of the human infant to ensure optimal growth, development and survival (Riordan, 1993).

Like all other consumed foodstuffs , breast milk is not free of contaminants, nor of the risk of illness from contamination. Current issues of concern include the pesticide content of breast milk, the risk of transmission of HIV through breast milk and the aflatoxin content of breast milk (NSW Health Department, 1995).

The health benefits of breast feeding are attributed to the infants' immune system being relatively underdeveloped at birth. Breast milk contains factors such as Immunoglobulin A (IgA), which protect the infant from disease while the child's own immune system develops. Immunoglobulin A is the most abundant antibody in breast milk. It is manufactured in and secreted by the breast in response to specific bacteria and viruses to which the mother is exposed. This provides protection against pathogens to which the infant is most likely to encounter in her local environment. Other immunoglobulins such as IgG and IgM offer further protection against specific pathogens (NHMRC, 1996). There are a number of IgA antibodies in human milk which act upon viruses or bacteria that cause respiratory and gastrointestinal tract infections (Riordin, 1993).

Lactoferrin, is another protective factor present in breast milk. Lactoferrin binds with iron, diminishing the iron available to micro organisms such as E Coli and Candida Albicans which require iron for growth (NHMRC, 1996).

Lactoferrin is abundant in human milk, but is not present in cow milk (Riordin, 1993), which is often the basis for formulas.

Lysozyme, is bactericidal against certain gram negative rods and gram positive bacteria. Lysozyme acts directly against many bacteria, and indirectly by potentiating bacteriocidal activity of immune antibodies. Breast milk contains three times the concentration of lysozyme found in cows' milk (NHMRC, 1996).

Cellular components of breast milk, such as macrophages and monocytes, neutrophils and B- and T- Lymphocytes inhibit and/or destroy bacteria and viruses (NHMRC, 1996). Oligosaccharides provide specific growth factors for the desirable bifido bacteria of the large intestine. They inhibit pathogenic bacteria from attaching to the mucosal surfaces of the intestinal and urinary tracts and may provide important precursors for the development of the brain in early infancy (NHMRC, 1996). The large amount of oligosaccharides in human milk is about ten times the amount in cow milk (Riordin, 1993). The fatty acids that are present in breast milk have antimicrobial actions (NHMRC, 1996).

The concentration of most of these protective factors is highest in colostrum, with the concentration decreasing as lactation is established. While breast feeding is of particular value in the first four to six months, when the infants own immune system is immature, it continues to offer some protection throughout the entire course of lactation (NHMRC, 1996; Cunningham et al, 1991).

CHAPTER THREE

BENEFITS OF BREAST FEEDING FOR ABORIGINAL COMMUNITIES

Breast feeding provides benefits for all children, however, the health advantage that is gained by breast feeding in comparison to artificial feeding is more apparent among disadvantaged groups. An overview of the health status of Aboriginal Australians, shows that Aboriginals can be considered as one such disadvantaged group.

ABORIGINAL HEALTH

Although the analysis of comparative health is inhibited by the uneven collection of statistics (Saggers and Gray, 1991) it is plain to see that by virtually every health status measure, the health of Aboriginals is much worse than that of other Australians (Thomson, 1991). The past twenty years has produced a significant improvement in life expectancy, infant mortality and a lower incidence of infectious and parasitic diseases. However, examination of the rates of hospitalisation, maternal mortality and disability, plus high adult mortality, show that the proportion of disease is still higher in Aboriginals than it is in non Aboriginal Australians (Australian Institute of Health and Welfare, 1994). The extent of Aboriginal health disadvantage is reflected in expectation of life at birth, which is decidedly lower than that of other Australians, and in the case of the Northern Territory figures, poor even by international standards (Thomson and Briscoe, 1991).

Improvements over the past two decades in life expectancy have largely been achieved through reductions in infant mortality (Australian Institute of Health and Welfare, 1994). Regardless, the life expectancy at birth remains profoundly lower for Aboriginal Australians than it does for the total Australian population. Figures for 1990-1992 suggest that the average life expectancy for a newborn Aboriginal male was up to 18.2 years shorter than a non Aboriginal boy, similarly the difference for females was 19.8 years (Australian Institute of Health and Welfare, 1994).

Aboriginal death rates for age groups vary between two and four times those of the total Australian population (Thomson, 1991). The most telling data of Aboriginal mortality are the high death rates of young adults. Compared to non Aboriginals the age pattern of Aboriginal mortality is greatly different, the ratio of Aboriginal total Australian age specific death rates being highest for young and middle aged adults. (Thomson, 1991).

Infant mortality has shown improvement since 1973, but still the rates remain unacceptably high and, depending on location, can be three to four times the rate for the overall Australian population (Australian Institute of Health and Welfare, 1994; Bates and Linder-Pelz, 1991).

Russell and Schofield (1986) have suggested that malnutrition is directly related to Aboriginal morbidity and mortality. Consistent with this opinion are the results of a study which found that one in five Aboriginal children under the age of two, who reside in the Northern Territory are malnourished. The twenty percent prevalence of malnutrition in the community is over six times higher than the three percent expected in the general Australian population (SMH, 1995).

Over the decade from 1971 - 1980 there was a decline in the number of Aboriginal children admitted to hospital with infections in Western Australia. The most marked change occurred in admissions for gastroenteritis and other infections in the Kimberley region. Despite this decline, there is still a large difference between the rate of admissions to hospitals for infectious diseases in Aboriginal and non Aboriginal infants and children (McNeilly, Cicchini, Oliver and Gracey, 1983).

Although the incidence of maternal deaths has decreased in the Australian population by almost two thirds since the period of 1970-1972, there is no evidence of a reduction in the number of Aboriginal maternal deaths. (Australian Institute of Health and Welfare, 1994). The maternal mortality rate for Aboriginal women in New South Wales (1982-1990) was 5.8 times higher than the rate for non Aboriginal mothers (Woodward and Bhatia, 1995).

The leading cause of death for Australians, in both the Aboriginal and non Aboriginal population is diseases of the circulatory system (Thomson, 1991; Australian Institute of Health and Welfare, 1994). However, the situation for Aboriginal people is much worse. Not only are overall death rates for Aboriginals much higher than non Aboriginals, the figures are between ten and twenty times higher for young and middle aged adults (Thomson, 1991).

Compared to the general Australian population, injury and poisoning contribute to more deaths in the Aboriginal community. Infectious and parasitic diseases cause disproportionate mortality among Aboriginals. The Australian Institute of Health and Welfare (1994) found that death from such

preventable causes was 12.2 times (males) and 13.4 times (females) that of Australia as a whole. Infectious diseases such as diarrhoea, leprosy, tuberculosis, pneumonia and venereal diseases are between four and nine times higher than the non Aboriginal population (Bates and Linder-Pelz, 1990).

In addition to experiencing diseases commonly associated with developing countries, Aboriginal people have a high rate of so called "lifestyle diseases" of developed countries (Bates and Linder-Pelz, 1990). This point can be illustrated using circulatory system diseases as an example. Aboriginal people experience rheumatic heart disease, often associated with developing countries, as well as ischaemic heart disease, which is a disease of developed countries (Thomson, 1991).

There is a growing impact of non communicable diseases, most notably diabetes, on Aboriginal mortality and morbidity. Bhatia (1995), provides statistics that suggest, with adult prevalence rates exceeding thirty percent in some communities and age standardised mortality more than seven times that of the non Aboriginal rate, diabetes is being increasingly identified as a leading cause of Aboriginal male deaths. There is evidence to indicate that among Aboriginal females, deaths attributed to diabetes, increased, albeit at a lower proportional increase than seen in males (Bhatia, 1995). Indigenous Australians are believed to be hospitalised, seven to ten times more frequently and die up to nine times more frequently from diabetes than the non Aboriginal Australian population (Thomson, 1991).

Aboriginal Australians are hospitalised (two to three times) more than non Aboriginals and their length of stay is longer (Thomson, 1991). The study

conducted by the Australian Institute of Health and Welfare (1994) found that hospitalisation rates for Aboriginals were higher in all age groups than for non Aboriginals. Particularly high rates were noted for males between the ages of 25 and 54. Aboriginal women were relatively high users of hospital services in their later years. Despite these figures, Saggers and Gray (1991) suspect that Aboriginal people may, in fact ,be under represented in hospitalisation data because of hospitals geographical inaccessibility. Support for this assumption lies in the hospital data from the Northern Territory, which shows little difference between the Aboriginal and non Aboriginal admission rates.

Over the past forty years the health of Aboriginal infants and children (as reflected in death rates) has improved but the health of adults has deteriorated (Bartlett and Legge, 1994). In the Northern Territory, between 1958 and 1985 death rates between infancy and 25 years improved substantially while death rates from age 35 years onward increased (Australian Institute of Health, 1988). Similarly in New South Wales, between the periods 1955-1964 and 1980-1981, death rates of infants and young children declined while death rates from age 15 years and above increased significantly (Australian Institute of Health, 1988). Caution, however, must be used in interpreting declining death rates amongst children as evidence of improved health (Bartlett and Legge, 1994). There remain unacceptably high levels of disease and disability among children which are in many cases reflected in adult rather than child death rates (Thomson, 1991; Franklin and White, 1991).

The high rate of diabetes, hypertension and diseases of the circulatory system present in Aboriginal adults is closely related to patterns of nutrition and the dietary practices established in childhood (Bartlett and Legge, 1994).

Health and education are mutually related, that is health affects education. Educational disadvantage among Aboriginal adults will continue while Aboriginal children suffer from middle ear disease and consequent deafness at far higher rates than among non Aboriginal children (Sharwood, 1993).

While the health problems of Aboriginal people vary across Australia there are general trends that can be identified. The health of Aborigines is much worse than that of other sectors of the Australian population. While the reasons and causes of for this ill health are complex, some may be explained in terms of social and economic disadvantage. Social and economic disadvantage may be reflected in higher rates of unemployment, inadequate housing, and accommodation (Bhatia, 1995). These factors contribute towards Aboriginal peoples poor health.

It is therefore possible to conclude that, to be an Aboriginal Australian results in very different health outcomes, when compared to non Indigenous populations. Aboriginal Australians have a lower life expectancy, a higher rate of hospitalisation, maternal mortality, disability, malnutrition, infectious diseases and greater morbidity than the total Australian population. The cause of Aboriginal ill health is a complex issue and reflects, social , political and economic issues.

BENEFITS OF BREAST FEEDING TO ABORIGINAL HEALTH

Australia is a developed country, therefore, the benefits of breast milk in comparison to artificial feeding are not evident due to the fact that most of the population has access to clean water and hygienic living conditions (Baghurst, 1988). However in some parts of Australia, Aboriginal people still live under poor environmental conditions, with less than adequate water supplies, sewerage, sanitation, housing and electricity (Reid and Trompf, 1991). The health benefits of breast feeding in comparison to artificial feeding are evident in these communities, where difficulties with food supplies may be experienced and where environmental hazards increase the risk of infection. Breast feeding protects against many diseases that are prevalent in Aboriginal communities, such as gastrointestinal infections, respiratory infection, otitis media and *Haemophilus influenzae*, and as such breast feeding must be considered to be an important primary health care strategy, in the fight to improve the health status of Aboriginal Australians. Encouraging Aboriginal mothers to breast feed has the potential to be extremely effective in the fight against infant illness.

Diarrhoeal disease in Aboriginal children still cause excess morbidity and mortality, although some improvement has been achieved. The National Aboriginal Health Strategy (1989) aims reduce the incidence and rate of morbidity and mortality of diarrhoeal diseases, through the encouragement of breast feeding. Diarrhoeal diseases are a major cause of presentation to clinics in rural communities (Torzillo and Kerr, 1991). Acute diarrhoeal disease is second only to respiratory disease as a cause of hospitalisation for Aboriginal children less than ten years of age in Western Australia in 1986, and in the Northern Territory, ten percent of the deaths of Aboriginal

children aged less than five years (in the period 1973 to 1983) were as the result of diarrhoeal diseases (Thomson, 1991; McNeilly, Cicchini, Oliver and Gracey, 1983). Breast feeding is likely to protect against diarrhoeal diseases in Aboriginal communities where sterilisation and refrigeration are impossible (Saggers and Gray, 1991). Breast feeding prevents diarrhoea because contaminated bottles are avoided (Cunningham et al, 1991). It was estimated in 1987 that over 70,000 Aborigines were homeless or living in inadequate accommodation, characterised by overcrowding, inadequate water and washing facilities, poor sanitation and sewage disposal, limited food storage and sub optimal food preparation facilities (Thomson and Briscoe, 1991). It is possible to see the positive effect breast feeding could have on the health of infants.

The death toll extracted by diarrhoea from unsanitary bottle feeding has drawn attention away from the fact that bottle feeding imposes an increased risk of respiratory disease as well. Morbidity from respiratory disease is an important cause of significant illness in the Aboriginal community (Thomson, 1991). Although mortality from respiratory disease in Aboriginal children is low compared to that in developing countries, it is still significant. For example, in the Northern Territory, it remains the leading cause of death of Aboriginal children, apart from perinatal conditions (Torzillo and Kerr, 1991). Studies have found that hospitalisation for respiratory infections is more frequent in bottle fed infants. This has been shown in at least three well controlled studies from Newcastle (England), Dundee (Scotland) and Shanghai (China) (Cunningham et al, 1991). When respiratory infections develop in breast fed infants, the illnesses are likely to be less severe (Cunningham et al, 1991). The protection afforded by breast feeding against respiratory illnesses

is most evident during the first six months of life, but are still evident through the second year. The advantages are seen in any setting but are especially important where living conditions are unfavourable (Cunningham et al, 1991).

Aboriginal children have ten times the rate of otitis media than the general Australian community (Sharwood, 1993). In one community all the babies have had affected ears by the time they are three months old (Kemp, Nienhuys, Leach, Kantilla and Mayo, 1993).Another study of a community on Bathurst Island found that by four months of age all babies had diseased ears and poor hearing (Nienhuys, Keagan, Kemp and Boswell, 1993). Otitis media can have adverse medical, social and educational effects. The associated hearing loss or deafness caused by chronic and recurrent otitis media creates serious language and learning difficulties for Aboriginal infants and children. The result of recurring otitis media can result in a degree of hearing loss which can effect the child's developing behaviour, language abilities and educational performance (Campbell, Keagen, Nienhuys, Boswell, Koops, Leach, Lowell and Matthews, 1992; Koori Mail, 1992).

Breast feeding is likely to protect Aboriginal infants against otitis media. It is possible that bottle feeding causes middle ear disease because of the regurgitation of fluid through the eustachian tube, due to positional effects. it is likely however that such a theory is an oversimplification of the protection afforded by breast milk (Cunningham et al, 1991). Studies of infant feeding and otitis media have occurred almost exclusively in Europe and North America and show that bottle feeding increases the risk of otitis media. A Finnish study of upper middle class children, found that infants who were weaned early (before two months of age) were 3.3 times more likely to have

had two or more episodes of otitis media, than were children who had been exclusively breast fed for six months (Saarinen. 1982 cited in Cunningham et al, 1991). If such an effect is found in Finnish children of high socioeconomic status, it can be assumed that a protective effect (of perhaps a greater magnitude) would be found in disadvantaged Aboriginal communities. The duration of secretory otitis media is also reduced in breast fed children, and chronic granulomatus otitis media is seen only in Inuit children bottle fed before six months of age (Cunningham et al, 1991).

Breast feeding appears to protect against *Haemophilus influenzae.* An exceptionally high incidence of disease caused by *H. influenzae* has been documented for young Aboriginal children in Central Australia (Hansman, Hanna and Morey, 1986). For Aboriginal children aged up to five years in 1985-1986 the average annual incidence of *H. influenzae* disease was estimated at 990 cases per 100 000, much higher than for non Aboriginal children in central Australia (350 per 100 000) (Thomson, 1991). The incidence among these Aboriginal children is exceptionally high, even by world standards, as it is more than twice as high as that documented for other indigenous populations, such as the Eskimos of Southern Alaska and the Navajo Native Americans of New Mexico (Hansman et al, 1986). Meningitis accounted for thirty seven percent of all diagnosis of *H. influenzae* (Hansman et al, 1986). Breast feeding has been found in studies throughout the world to protect against *H. influenzae.* Bottle feeding has been found to impose a four to sixteen fold risk of developing *H. influenzae.* A Finnish study found that *H. influenzae* meningitis is much less frequent during the first year of life for breast fed infants, and children breast fed longer than six

months are only one third as likely to have this invasive disease during the second year of life (Cunningham et al, 1991).

In summary, breast feeding, has the potential to be a powerful weapon in the fight against illness in the Aboriginal community. Breast feeding must be recognised as a simple and effective strategy that will improve Aboriginal health. Steps taken to assist Aboriginal mothers to breast feed their babies will produce lasting benefits to the Aboriginal people as a whole.

CHAPTER FOUR

BREAST FEEDING IN AUSTRALIA

The health benefits of breast feeding have been recognised, and as such Australian goals for breastfeeding to be reached by the year 2000 are;

1) To increase the prevalence and duration of breast feeding.

2) To increase the percentage of infants who are breast fed following hospital discharge to 90%.

3) To increase the percentage of infants at three months being fully breast fed to 60% and those being partially breast fed to 80%.

4) To increase the percentage of infants at six months being fully breast fed to 50% and those being partially breast fed to 80% (Nutbeam, Wise, Bauman, Harris and Leeder 1993).

While the goals for breast feeding have clear aims it is difficult to gain a clear impression of what is happening amongst the Australian breast feeding community (Lowe, 1994; Morrow and Barraclough, 1994). In Australia the recording of infant feeding behaviour is patchy and unreliable, and breast feeding statistics are far from complete. Indeed, the working party on the implementation of the World Health Organisation Code in Australia, noted its 'disappointment' that Australia had been 'among the very few western countries' unable to satisfy the reporting requirements on infant feeding

patterns requested of member states of WHO (NHMRC, 1985). They further suggested that,

> "Questions which relate to patterns of morbidity in the infant and child populations ... and detailed information about infant feeding (breastfeeding, weaning patterns, weaning foods, etc.) cannot be answered at all or only in very general descriptive terms (NHMRC, 1985; p25).

MONITORING OF BREAST FEEDING

The authors of the 1993 Review of the implementation in Australia of the WHO international code of breast milk substitutes (CDHHCS, 1993), recommended that the Australian government establish a co-ordinated national system whereby the rates of breast feeding at discharge, two, four and six weeks and three, six and twelve months in both the general community and specific groups be collected (cited in NSW Health Department, 1995). This would thereby provide an important monitoring system for the national targets, which relate to the prevalence and duration of breast feeding at the time of hospital discharge and at three and six months after birth.

Until 1989 there was no mechanism available for the regular monitoring of the age specific breast feeding rates of Australian infants. The National Health Survey of 1989-1990 included questions on breast feeding and had the potential to provide, for the first time, national age specific prevalence data. It was also seen as the vechile to monitor progress towards the national breast feeding targets (Lund-Adams and Heywood, 1994). The data does not provide, however breast feeding prevalence rates according to the child and are therefore inadequate to use in monitoring progress towards national targets (Lund-Adams and Heywood, 1994). In the survey, questions were asked only of women aged eighteen to fifty, who at the time of the survey had a child aged five years or under. Hence breast feeding rates for children whose mother

was under eighteen years of age was not collected. This is an important omission when you consider that in 1990, two percent of all births in Australia were to women aged under eighteen (ABS unpublished data, cited in Lund-Adams and Heywood, 1994). Another methodological problem with the survey is that women were not given a clear definition of breast feeding. From the data collected, it is not known what proportion of children were exclusively or partially breast fed.

It has been correctly noted that the unit of analysis in the National health survey is the mother and not the child (Rogers 1993; Lund-Adams and Heywood, 1994). Therefore the percentage of children ever breastfed has not been calculated. For those women who reported having breast fed, the duration of each breastfeeding experience was provided. However, neither the duration or breast feeding prevalence rates were given by the age of the child (Lund-Adams, 1994).

The monitoring of breast feeding initiation rates and duration have been somewhat haphazard in most Australian states. The initiation of breast feeding is traditionally measured at the time of hospital discharge, primarily because collection of data for other variables of interest are often done at this time. However, often information about breast feeding is either not collected in hospital discharge statistics, or it is not collated or analysed (NSW Health Department, 1995). As the Federal government must in most cases rely on the states for health statistics, it is worrying that Victoria's Maternal and Child Health Service at present appears to be the only state service annually collecting and publishing breast feeding statistics (Morrow and Barraclough, 1994).

In Victoria, data on the proportion of mothers fully breast feeding at three and six months has been compiled on an annual basis. Data on the proportion of mothers fully and partially breast feeding have also been collected annually since 1985-86 (NSW Health Department, 1995). Currently in New South Wales there is no mechanism for the regular data collection about the initiation or duration of breast feeding. While there have been various studies conducted, most have looked at limited geographic areas or population groups.

Despite this there have been useful studies on breast feeding patterns. Yet it is clear that improved data collecting techniques are essential for a broader understanding of Australia's breast feeding patterns and trends (Morrow and Barraclough, 1994).

AUSTRALIA'S BREAST FEEDING PATTERNS AND TRENDS

As in other developed countries of the world, breast feeding rates in Australia have followed a J curve since the turn of the century. The downward trend gathered momentum after World War Two, finally plateauing in the 1960s when in Victoria records show only fifty to sixty percent of infants were breastfed at hospital discharge. Breast feeding rates began increasing in the early 1970s, led by women in higher socioeconomic groups (NHMRC, 1992).

Breast feeding rates over the last ten years are significantly higher than they were in the 1960s. Variations however still occur across states and territories and within socioeconomic and migrant groups. These differences may be actual, or the result of different subject criteria and methodological issues. The New South Wales Health Department (1995) suggests that there are methodological issues in the collection of data about breast feeding that make

it difficult to compare or interpret the results of studies. The methodological issues include, the lack of consistency in the definition of breast feeding, that is, exclusive as opposed to partial breast feeding. Further, it is impossible to compare results when the unit of analysis differs, the percentage of women who have ever breast fed, can not be compared to the percentage of children breast fed.

Over the last ten years, two studies have researched Australian breast feeding rates. Statistics from the National Health Survey in 1989-1990 indicate that seventy seven percent of Australian infants were breastfed at discharge from hospital. This result is low compared with rates found in 1983 by Palmer (1985), where eighty five percent of Australian infants were fully breast fed at hospital discharge. Without comparing methodology, it can not be assumed that national breast feeding rates have dropped as significantly as the data indicates. Indeed, Rogers (1993) argues that the eighty five percent and seventy seven percent are not comparable figures. The former measures the percentage of infants and the latter the percentage of mothers who breast fed infants during the previous five years. Some of the mothers had more than one child during that period. It is important to note, that statistical analysis suggests that there has not been any substantial change in breast feeding duration over the last five years (Jain, 1996).

The most recent statistics pertaining to breast feeding in Australia, are those published by the Australian Bureau of Statistics in 1996. The paper documents the breast feeding in Australia based on the 1989-1990 National Health Survey (Jain, 1996). Results from the 1989-1990 National Health Survey show that approximately one million women aged eighteen to fifty years had a child or children aged five or younger at the time of the survey. Of these, seventy

seven percent had breast fed one or more of those children for some period of time (Jain, 1996). The survey showed that mothers aged twenty five to thirty four years had the highest proportion reporting breast feeding (eighty percent) followed by mothers aged eighteen to twenty four (seventy seven percent) and thirty five to forty four years (seventy one percent). Women aged forty five to fifty years indicated that they were more likely to have bottle fed babies. Of mothers who breastfed, most were likely to have breast fed between six and twelve months (thirty seven percent). Only seven percent of breast feeding mothers did so for longer than eighteen months (Australian Institute of Health and Welfare, 1994).

The National Health Survey reported that younger mothers were likely to have breast fed for shorter periods than older mothers; forty eight percent of mothers aged eighteen to twenty four years breast fed for less than three months, thirty two percent for more than six months and ten percent for more than twelve months. In comparison, seventy four percent of mothers aged thirty five to forty four years and sixty three percent of mothers aged twenty five to thirty four years breast fed for more than six months and forty percent of mothers aged thirty five to forty four years breast fed for more than twelve months (Australian Institute of Health and Welfare, 1994).

A reanalysis of the National Health Survey data (Lund-Adams and Heywood, 1994), indicated that of infants aged one month, only forty eight percent were breast feeding. Of those aged three and six months, this percentage dropped to twenty eight percent and twenty three percent respectively. These proportions are so low that if confirmed they raise doubts about whether the national target of eighty percent of infants up to the age of six months being breast fed by the year 2000 is achievable.

The Nursing Mothers' Association of Australia compiles statistics on the prevalence of breast feeding at the time of the mothers discharge from hospital, or from the first visit to the baby health centre or the clinic which is usually about a week after discharge. Their evidence suggests that since the early 1970s, there has been an upward trend in the proportion of women initiating breast feeding from approximately forty to forty five percent in the 1970s to about eighty percent in the 1990s. The most recent figure from Victoria reports that seventy six percent of babies were being breast fed when discharged from hospital in 1992-1993 (Jain, 1996). The national result of seventy seven percent is therefore consistent with the figure for Victoria. Indeed statistical analysis suggests that there has not been any substantial change in breast feeding duration over the last five years (Jain, 1996).

The available data for Victoria from the Nursing Mothers' Association of Australia give a figure of forty eight percent for children fully breast fed at age three months in 1950, with a reduction to twenty one percent in 1971, with a rise to about fifty three percent by the early 1990s. At six months the percentages follow the same pattern but are lower - thirty nine percent in 1950 to nine percent in 1971 and thirty nine percent in the 1990s (Jain, 1996, Australia Institute of Health and Welfare, 1994). This data is consistent, with the national results found by Palmer (1985), who found that the incidence of breast feeding at three months was fifty four to fifty five percent and at six months, forty to forty two percent.

It must be noted that Palmers figures (compiled in 1983) represent national averages and give no indication of the differences between different locations. For example Palmer (1985) notes that incidence at time of discharge

from hospitals is at least ten percent higher in both the Northern Territory and Western Australia than the National average (between ninety five and ninety seven percent), which is in turn almost this much greater than the average for Tasmania. It is not evident however, that breast feeding rates differ across Australian states as a study by Hitchcock and Coy (1989) reported that the prevalence of breast feeding by mothers on discharge from hospital was eighty six percent in Western Australia and eighty one percent in Tasmania. Clearly the results of Hitchcock and Coy (1989), are comparable to the National average (eighty five percent) found by Palmer (1985), yet are very different to the figure Palmer (1985), gives for infants breast fed in Western Australia upon discharge (ninety five to ninety seven percent).

While it is not clear what the differences are between the States and Territories of Australia, it is apparent that there is an influence of locality. For example breast feeding rates for infants in metropolitan areas of Perth were fourteen percent higher at three months and six months than for infants in country areas. (Hitchcock, McGuiness and Gracey, 1982). These findings are contradicted by the results of the National Health survey which reports that women living in capital cities tend to breast feed for shorter durations than those living in other urban or rural areas (Jain, 1996). Similarly an examination of regional variation in the duration of women breast feeding in Victoria, found that the proportion of women breast feeding at six months was greater in all rural health regions than it greater Melbourne (Lowe, 1993).

Breast feeding rates at hospital discharge to six months have been documented in various parts of Australia. In 1984, eighty one percent of Tasmanian infants were breast fed at hospital discharge (seventy seven

totally breast fed and four percent partially breast fed), sixty percent were breast fed at three months (fifty one percent totally breast fed and nine percent partially breast fed), and forty six percent at six months (thirty nine percent totally breast fed and seven percent partially breast fed) (Hitchcock and Coy 1988). A study by the same authors (Hitchcock and Coy 1988), using similar methods in Western Australia indicated that the rates were eighty six percent at hospital discharge (eighty four percent totally breast fed and two percent partially breast fed), sixty one percent at three months (fifty three percent totally breast fed and eight percent partially breast fed) and forty five percent at six months (forty one percent totally breast fed and four percent partially breast fed).

If the national targets for breast feeding are to be achieved, future breast feeding surveys need to address several issues. Firstly, age specific breast feeding prevalence rates must be the outcome of survey analyses. Further, the unit of analysis must be the child and not the mother. Finally, if the infant is being breast fed, information must be gathered as to whether the breast feeding is exclusive or partial breast feeding (Lund-Adams and Heywood, 1994).

Improved monitoring techniques are essential, not only for determining whether national targets are being met, but are important in influencing breast feeding. Important ways monitoring can influence breast feeding are by providing regular feedback to health professionals about trends in breast feeding, including initiation and duration and by identifying problem areas such as at risk population sub groups and times when women are most likely to cease breast feeding (NSW Health Department, 1995).

CHAPTER FIVE

FACTORS ASSOCIATED WITH BREAST FEEDING

Many factors can affect not only a mothers decision to breast feed, but also the duration of her breast feeding. There is a large amount of literature examining the factors that influence Australian women in their choice to breast feed . These factors include the age of the mother, her marital status, educational attainment, her occupation, whether she smokes or not, her socioeconomic status and whether she has previously breast fed.

MOTHER'S AGE

A mother's age is one of the most important characteristics influencing the duration of breast feeding (Jain, 1996). An Australian study (Redman, Booth, Smyth and Paul, 1992), found a significant association between the age of the mother and breast feeding duration. The results of this study indicate that women under twenty six years of age were twice as likely as older women to have ceased breastfeeding at four months. Similarly, another Australian study (Rutishauser and Carlin, 1993) found that there is a greater proportion of women aged over thirty, breastfeeding for six months.

MARITAL STATUS

Married mothers tend to breast feed their infants for longer periods than those who are separated, divorced or widowed, and single (Jain, 1996).

EDUCATION

Educational attainment is associated with the choice and duration of breast feeding. The duration of breast feeding generally increases as the level of

educational attainment increases. However the National Health Survey found that women who had no post school qualifications breast fed for slightly longer durations than those with trade and apprenticeship qualifications. Mothers with a degree or higher qualification tend to breast feed for longer periods than those with other qualifications (Jain, 1996). Similar results have been described by Redman et al (1992), who found that women who had less education were more likely to have ceased breast feeding at four months. Women who had not completed the Higher School Certificate were nearly six times more likely to have ceased breast feeding than women who had a trade certificate and seventeen times more likely to be not breast feeding than women with tertiary education.

OCCUPATION

A woman's occupation has been found to have no effect on breastfeeding (Jain, 1996). This however, is contradicted by the findings that suggest that a woman's socioeconomic status effects the initiation and duration of breastfeeding. It is well known that ones occupation directly relates to your socioeconomic status. It is also difficult to accept that occupation has no effect on breastfeeding, when educational attainment has been found to be associated with the choice and duration of breastfeeding. Occupation and educational attainment are similarly related to socioeconomic status.

SMOKING STATUS

There are substantial differences in the duration of breast feeding among mothers according to whether they are smokers, ex-smokers or had never smoked. Mothers who never smoked, breast fed longest followed by those who were ex-smokers and smokers (Jain, 1996). Women who smoke are less likely to breast feed, and if they do breast feed the duration is likely to be shorter

than in non smokers (McIntyre, 1992; Woodward, Douglas, Graham and Miles, 1990). Women from lower socioeconomic groups are more likely to smoke (McIntyre, 1992). Bailey and Sherriff (1992), noted that over half the mothers in their study were smokers. As well as possibly affecting breast feeding, smoking also affects the infant directly, via the breast milk and through passive smoking. There is an increase in the incidence of respiratory illness in infants living with parents who smoke, but breast milk seems to have a modifying effect (Woodward et al, 1990). Therefore if a mother does smoke it is still better that she breast feeds rather than give the child infant formula.

Further, evidence suggests that infants who are bottle fed and whose mothers smoke are at a greater risk of Sudden Infant Death Syndrome than infants whose mothers smoke and breast feed (Redman et al, 1992). Reinforcing these findings are the results from another Australian study (Rutishauser and Carlin, 1993), which indicate the effect of smoking on breast feeding. The estimated effect of smoking, was that if a women was a ten cigarettes a day smoker, she was 2.5 times more likely to stop breast feeding at any time than a non smoker. This study further indicates that the proportion of non smokers still breast feeding at six months was fifty percent compared to twenty percent of smokers.

SOCIOECONOMIC STATUS

The socioeconomic status of the family is related to infant feeding practices. Breast feeding is more prevalent and sustained among mothers from higher social groups in the community (Hitchcock and Coy, 1988; Ryan and Dent, 1984), than for mothers in the lower social groups. Hitchcock and Coy (1988), in a study of infant feeding practices in Western Australia and Tasmania found that there were significant differences in breast feeding rates between

social class A (highest) and social class D (lowest). Interestingly the social group ranking was closely related to educational attainment. The highest social rank (group A) was assigned to professional and academic occupations and the lowest social rank (group D) was assigned to unskilled occupations. The study indicated that all mothers (100%) in social group A in both Western Australia and Tasmania breast fed for at least six weeks and further that 35.3% of Western Australian in group A were still breast feeding at twelve months and fifty percent of Tasmanian. By contrast, 64.9% of the Western Australian mothers and 50.3% of the Tasmanian mothers in the lowest social group (D) breast fed for six weeks, and 8.6% of these mothers in Western Australia and 9.5% in Tasmania were breast feeding at twelve months (Hitchcock and Coy, 1988). Similarly, results from a study in Canberra (Ryan and Dent, 1984) indicate a positive relationship between higher socioeconomic status of women and longer duration of breast feeding.

The socioeconomic status of the family is related to infant feeding in several ways. As already described breast feeding is more prevalent and sustained among mothers from the higher social groups. It was also apparent in the Hitchcock and Coy (1988), study that the mothers from the higher social groups, had greater educational attainments and were on average, older at the birth of their first infant than those from lower social groups. These findings thereby support the notion that educational attainment and age are important factors in affecting the decision to breast feed.

PARITY

Previous feeding experience, powerfully influences whether an infant is breast fed. If a mother breast feeds her first child, then most will repeat this decision with subsequent children, while mothers who choose to artificially

feed will repeat that decision. This continuity in feeding behaviour suggests that it is important to distinguish primiparas from other expectant mothers in developing programs (Lawson and Tulloch, 1995).

The NSW Health Department (1995) considers that some other influences on breast feeding are:

- maternal expectations of the breast feeding experience,
- knowledge, attitudes and beliefs of mothers, their partners, other support people, health professionals and the general public,
- issues of sexuality,
- availability of facilities for breast feeding in public places and attitudes of proprietors of service establishment towards breast feeding,
- employment and work environments which lack breast feeding policies, paid maternity leave, onsite child care, nursing breaks for mothers, flexible working arrangements, appropriate places to express and store breast milk,
- promotion and portrayal of infant formulas,
- hospital policies and practices,
- medical practices such as interventions during and after labour, unsupported or inadequately supported early discharge plans, inappropriate diagnosis and management of low weight gain and other infant problems, and
- availability and promotion of mothers support groups.

An examination of the similarities and differences between women who breast feed for short and long durations (Hewat and Ellis, 1986), discovered the following. The similarities that existed between the mothers who breast

fed for short or long durations were; desire to breast feed, ambivalent feelings about breast feeding, preparation for breast feeding prenatally, physical discomfort related to breast feeding, sensitivity to other peoples feelings when feeding in public places and pressure from others to breast feed. Mothers who breast feed for longer have the following different characteristics: establishment of frequent feeds, less concern with infant weight loss, positive interpretation of the infants behaviour, better ability to relax, a flexible daily routine, greater ability to incorporate other children into the feeding experience and more emotional and psychological support from partners.

REASONS FOR CEASING BREAST FEEDING

Despite relatively high initiation rates for breast feeding in Australia, many women cease before the optimum time.

Williams and Carmichael (1983), found that the main reason given by mothers for ceasing breast feeding at six weeks was that the milk supply was inadequate. Complications of breast feeding such as cracked nipples and breast inflammation and an inability to cope with breast feeding were also common reasons for cessation. Women who discontinued breast feeding between six and twenty seven weeks, also gave inadequate milk supply as the most common reason, but also cited a similar variety of other reasons such as complications of breast feeding, inability to cope, illness in the mother or baby, a return to the work force, and the feeling that "it was long enough".

An examination of the reasons for ceasing breast feeding at six weeks (Stamp and Crowther, 1995), similarly found that the main reasons given for stopping breast feeding were that the baby was not suckling or settling well

and that the woman was not confident her baby was receiving sufficient milk.

Again, a study of breast feeding duration (Lawson and Tulloch, 1995), found the most common explanation for ceasing breast feeding was a perceived supply problem. Other reasons included medical suggestion, quality of milk perceived as inadequate for weight gain, baby fussed at the breast, breast feeding was tiring and sore nipples.

Supporting the studies that indicate that insufficient milk is the most common reason cited by women for the early termination of breast feeding is a study by Bailey and Sherriff (1992). It was found that, the women used characteristics of the infants behaviour to explain the perceived insufficiency, namely, baby demanding too many feeds, baby crying or irritable and baby not sleeping enough. Other frequently used indicators of insufficient milk were baby not gaining weight and breasts feeling empty. Further, reasons given for the cessation of breast feeding included, tiredness, desire for increased freedom and the babies refusal to suck, baby losing weight, using nipple shields, baby sleepy, lactose intolerance, gastric reflux, mastitis, milk not strong enough, too hot, milk thin - not enough nutrients, stress, too much force from hospital and too many supplementary feeds (Bailey and Sherriff, 1992).

Although returning to work is commonly found to be a factor involved in the early termination of breast feeding (Goodine and Friend, 1984; Feinstein, Berkelhammer, Gruszka, Wong and Carey, 1986), only one subject in Bailey and Sherriff's (1992) study of forty five low income women, selected

returning to work as a reason for cessation. The fact that this is not an important determinant for most women has also been noted by Palmer (1985).

The studies suggests that among a complex set of interrelated factors - social, psychological and biological - insufficient milk is the reason that women give most frequently for the early cessation of breast feeding. It is possible that many of the problems encountered by the women in these studies, pertain to poor management of early problems and a lack of appropriate support both social and medical in the weeks after birth.

More information must be gathered about the factors causing early cessation of breast feeding. It is not sufficient to talk about promoting breast feeding unless their is an understanding of the factors affecting the duration of breast feeding. The acquisition of such information is essential if the recommendations of the Better Health Commission that eighty percent of Australian infants be breast fed at three months is realised.

CHAPTER SIX

ABORIGINAL WOMEN AND BREAST FEEDING

An examination of breast feeding in Australia would be incomplete without describing the situation within the Aboriginal community. It appears to be commonly accepted that there is a particular need to focus on promoting breast feeding to Aboriginal women. Unfortunately there are very few studies (either descriptive or quantitative) that address the prevalence and duration of breast feeding in the Australian Aboriginal community (Phillips and Dibley 1983, Hitchcock 1989). The studies that are available are dated, as the research and publication of papers regarding the infant feeding practices of Aborigines, appears to be limited to the 1970's and early 1980's. Documentation of the dietary practices of Aboriginal infants and children is important because of the contribution nutrition makes to growth and health (Phillips and Dibley 1983). It does however, appear that there is limited interest in researching the breast feeding practices of Aboriginal women, which is a shame given the effect breast feeding imparts on infant health, especially amongst infants from disadvantaged communities. It is imperative that research be conducted into infant feeding among Aboriginal groups, if the national breast feeding targets are to be reached across all segments of society.

Whilst there are limitations in the number, several useful studies have been conducted that allow health professionals to deduce a profile of breast feeding prevalence amongst Aboriginals.

An interesting article (Robert, Simon and Coyne, 1978), which illustrates descriptively the prevalence of breast feeding amongst Aboriginal women in New South Wales interviewed two Aboriginal health workers about breast feeding in their communities;

Terry: .... we know that breast feeding is the best way to feed babies. Do you find many Aboriginal mothers are breast feeding their babies?

Nola: No, down our way, very few of the mothers breast feed.

Marion: Well, not many mothers breast feed in my area either. But it is getting better. When I first started four years ago, I didn't know of one Aboriginal mother who was breast feeding. Now I know of four mothers.

Statistical information is also scarce, yet what information is available, confirms anecdotal and descriptive evidence. One of the few reports of Aboriginal infant feeding practices is a study by Coyne and Dowling (1978), of a group of Aboriginal mothers from a rural region of New South Wales. Breast feeding was initiated by fifty two percent of the mothers. A pattern of early weaning was detected, with seventy percent of infants having ben weaned by three months and eighty four percent by six months. This pattern of early weaning has important nutritional implications for Aboriginal infants, as breast milk is now recognised as one of the main promoters of infant health, especially amongst infants from disadvantaged communities.

A study of urban Aborigines in Perth (Phillips and Dibley, 1983), found that eighty two percent of Aboriginal mothers initiated breast feeding, however, many failed to sustain lactation and by three months only fifty percent were

still breast feeding, with breast feeding rates declining rapidly until six months. This study found that nineteen percent of mothers were still breast feeding at twelve months. Both solids and non milk liquids were introduced into many infants diets at a young age. At one month of age, twenty five percent of the infants were receiving non milk liquids, and by four months this increased to sixty four percent and eighty nine percent at six months. Solids were initially introduced less rapidly, with only one percent receiving solids at one month of age. The usage of dietary solids increased rapidly after one month until at four months (as would be recommended), sixty five percent of the infants were on solids.

The infant feeding practices of Aboriginal mothers in Perth (as found by Phillips and Dibley, 1983) can be characterised by frequent reports of difficulties with breast feeding, the early cessation of breast feeding, a rapid decline in the use of 'humanised' milks, frequent usage of unmodified cows milk and an early introduction of solids and non milk liquids into the diet. Breast feeding was initiated by a high percentage of Aboriginal mothers, although the rate was less than that reported for non Aboriginal, Western Australian women of high socioeconomic status (Hitchcock et al, 1982).

Another significant study of infant feeding, in an Aboriginal community (Cox, 1979), demonstrates the decline in breast feeding that has occurred as traditional culture has been weakened, and as affluence and 'western' sophistication has increased. Cox (1979), compared methods of feeding in one geographical area of North Queensland where, over a period of ten years, significant changes in the degree of exposure to 'western influence' occurred. Prior to 1973, all infants were born at the mission hospital on the island, where the community lived. No bottles were sold from the mission

store, thereby ensuring that all children were exclusively breast fed to 28 weeks of age. As all the children were breast fed, the mothers received emotional support from their friends and relatives. The use of bottle feeding increased, in the community after 1973, however this was offset by the fact that infants were examined weekly at the mission hospital, and the nursing staff maintained a preference for breast feeding, thereby ensuring that most of the children were exclusively breast fed to twenty weeks before bottle feeding was introduced. Between 1973 and 1979, some of the women became more urbanised, were now living away from the mission and delivered their children in Mount Isa, hundreds of miles from their home. Accordingly, many of these women elected to bottle feed from birth, and most infants were weaned from the breast on to bottles between eight and sixteen weeks. Cox (1979), suggests that the absence of family support and encouragement and hence the resultant maternal anxiety and uncertainty may have contributed to lactational failure. The decrease in breast feeding in this particular community, may have resulted due to the increasing availability of bottles and formula.

Another study that confirms, this trend of decreasing breast feeding rates and duration with increasing urbanisation, was conducted in Western Australia in 1981 (Gracey, Hitchcock, Owles and Murphy, 1981 cited in Hitchcock, 1989). The study included more than six hundred Aboriginal infants and young children from birth to thirty months of age, living in localities throughout Western Australia, but excluding Perth. Breast feeding data was collected from three different environments, classed as : A- partly tribal, remote autonomously controlled communities, and mission oriented large groups and communities; B- largely non tribal, partly urbanised, living

as families and in groups in or outside big country towns and C- non tribal, part Aboriginal, living in the rural districts of the closely settled south west of Western Australia. The results indicated that all mothers (100%) in the partly remote communities breast fed to six months, and nearly all of them for as long as two years. It is apparent that breast feeding rates and the duration of breast feeding decreased with increasing proximity to towns and settled areas.

The National Health Survey, provided limited yet useful data regarding Aboriginal women and breast feeding. The results of the National Health Survey are limited because Aboriginal status was identified by an adult spokesperson within each household. The survey sample was designed to be representative of the population overall and not necessarily of particular groups within it such as Indigenous Australians. To the extent that a higher proportion of the Aboriginal population live in remote areas or population clusters than does the Australian population overall, those sections of the Aboriginal population may be under represented in the sample (McLennan 1994). These factors must be considered when interpreting results from the survey relating to the health characteristics of the Aboriginal population.

Although the methods employed by the National Health Survey have been criticised, the results of the survey provide an interesting comparison between, Aboriginal and non Aboriginal women, with regards to breast feeding. The results indicate that of the Indigenous women aged between eighteen and fifty years, who had a child or children aged five years or under at the time of the National Health Survey, only fifty percent had breast fed or were breast feeding their child or children. This compares with seventy seven percent for all women in the same age group. The survey

further indicate that the age at which Aboriginal women were most likely to have breast fed was younger than for all Australian women. Aboriginal women aged 18-24 years were the most likely to have breast fed (sixty one percent) compared with women aged 25-34 (seventy nine percent) for all Australian women (McLennan, 1994).

The National Aboriginal and Torres Strait Islander survey (1994), conducted by the Australian Bureau of Statistics provides data of a better quality in respect to Aboriginal people than the data available from the National Health Survey. The National Aboriginal and Torres Strait Islander survey included urban, rural and remote Aboriginal communities in all the States and Territories of Australia. In the survey questions regarding breast feeding history were asked for up to twelve years old. (McLennan, 1994). The survey determined that seventy one percent of children aged twelve years and under were breast fed as infants. While this result indicates that less Aboriginal children are breast fed than non Aboriginal children, the difference is not as large as it is often believed. Differences in breast feeding become apparent, however, when the statistics are examined for the States and Territories of Australia. As indicated in Table 1, breast feeding was most common in the Northern Territory, where about ninety percent of children under the age of thirteen had been or were currently being breast fed. By contrast, it was reported that over a third of Aboriginal children in New South Wales, Victoria and South Australia had not been breast fed.

Table 1 : Breast feeding of Aboriginal children by State and Territories

Area	Persons aged 12 years and under who were breast fed %
AUSTRALIA	70.7
New South Wales	60.0
South Australia	60.1
Victoria	61.5
Tasmania	70.8
Queensland	72.1
Western Australia	76.3
Northern Territory	89.7

Source: McLennan (1994).

Breastfeeding was more prevalent for Aboriginal women living in rural areas, than for Aboriginal women residing in urban areas. Table 2, indicates that eighty percent of children in rural areas were breast fed, compared to sixty eight percent of urban aboriginal children. Children residing in capital cities have the lowest prevalence as only sixty six percent were reported as having been breast fed. Babies in rural areas are more likely to be breastfed for longer than six months than those in urban areas (McLennan, 1994). It is apparent that this pattern is the same for both Aboriginal and non Aboriginal women, as indicated by the National Health Survey (Jain, 1996) and the results of Lowe's (1993), study which found that breast feeding at six months was greater in rural regions than in Melbourne.

Table 2: Length of time breast fed by part of state

Whether breast fed	Capital city %	Other Urban %	Rural %	Total %
Was breast fed				
< 1 month	6.2	4.8	3.3	4.7
1 to < 2 months	5.5	1.5	1.5	2.6
2 to < 3 months	5.7	5.3	3.7	4.9
3 to < 6 months	12.1	13.6	8.4	11.7
6 to < 12 months	13.2	15.9	13.7	14.5
12 months or more	19.1	23.1	42.1	27.4
Currently breastfeeding	4.0	3.2	6.2	4.2
Not stated	0.1	0.5	1.0	0.5
Total	65.9	67.8	79.8	70.7
Was not breast fed	33.3	30.4	18.2	27.7
Do not know/ not stated	0.9	1.8	2.0	1.6
Total ('000)	28.9	47.0	29.8	105.7

Source: McLennan (1994).

Aboriginal infants from households with an annual income of $25,000 or more were more likely to be reported as having been breast fed and for greater durations (as is shown in Table 3), than were infants from lower income households (McLennan, 1994). Similarly, infants from households with one or more persons working were more likely to be reported as having been breast fed for longer than those in households where no one worked (McLennan, 1994).

Table 3 : Length of time breast fed by household income.

Whether breast fed	Annual household income $25 000 and under %	Annual household income more than $25 000 %
Was breast fed		
< 1 month	5.8	4.5
1 to < 2 months	3.0	2.5
2 to < 3 months	5.8	4.4
3 to < 6 months	15.8	9.7
6 to < 12 months	13.9	15.6
12 months or more	20.9	30.2
Currently breastfeeding	3.5	4.5
Not stated	0.3	0.7
Total	69.2	72.0
Was not breast fed	29.7	26.4
Do not know/ not stated	1.2	1.6
Total ('000)	32.5	54.9

Source: McLennan (1994).

Australia wide, some twenty seven percent of Aboriginal children were breast fed for twelve months or longer. This figure is much higher than the national average provided by Palmer's study (1985) of approximately twelve percent for non Aboriginal Australians. However, there is great variation

when the Aboriginal statistics are examined state by state. The Northern Territory has the greatest prevalence of infants breast fed for twelve months or more (fifty seven percent), followed by Western Australia (thirty eight percent), Queensland (twenty six percent) and South Australia (twenty one percent). The proportion of children breast fed for over twelve months in those states are much greater than the proportion of non Aboriginal women. Yet, New South Wales, Victoria and Tasmania show similar proportions to the non Aboriginal national average at fourteen, twelve and ten percent respectively (McLennan, 1994).

Supporting, the anecdotal and statistical information that suggests that there is a low incidence of breast feeding in the Aboriginal communities of New South Wales is a study by Coyne and Dowling (1978). The results of their study indicate that fifty two percent of children were breast fed at birth. By three months of age this had dropped to thirty one percent and to sixteen percent by six months. Similarly the National Aboriginal and Islander Health Survey reported that in New South Wales, sixty percent of children were breast fed, at three months this had dropped to fourteen percent and only twelve percent of children were breast fed for six months or more (McLennan, 1994). New South Wales has the lowest proportion of Aboriginal women breast feeding, with only sixty percent of children aged twelve years and under breast fed as infants.

REASONS FOR CEASING BREAST FEEDING

Only one study (Phillips and Dibley, 1983) was located that examined Aboriginal women's reasons for ceasing breastfeeding. The reasons Aboriginal women give for not breast feeding or for ceasing breast feeding early are similar to those that non Aboriginal mothers give. The study by

Phillips and Dibley (1983), found that the reasons for ceasing breastfeeding within two months of the infants birth included; anxiety over their milk supply and insufficient milk (thirty nine percent of women), breast feeding interferes with their lifestyle (twenty two percent), anxiety about infant's illness (seventeen percent), sore breasts or nipples (nine percent), previous infant feeding practices (five percent), serious maternal illness (four percent) and health personnel advised mother to stop (four percent).

It is possible, that breast feeding support or education might have assisted up to sixty nine percent of the mothers who ceased lactation within two months. Problems such as sore nipples and breast milk insufficiency are commonly associated with the baby not being correctly positioned.

Further research must be conducted that examines the reasons why Aboriginal women cease breast feeding before the optimal time. Phillips and Dibley's study (1983), although informative is not definitive, and indeed only applies to Aboriginal infants living in Perth. It is important to know what is happening throughout Australia and in particular New South Wales especially amongst urban Aboriginal women. By understanding the reasons behind the failure to maintain lactation, it may be possible to determine interventions that may stem the early cessation of breast feeding amongst some Aboriginal communities.

CHAPTER SEVEN

A COMPARISON OF BREAST FEEDING IN AUSTRALIAN ABORIGINAL AND NON ABORIGINAL POPULATIONS.

A comparison of the breast feeding patterns of Aboriginal and non Aboriginal Australian women determines what is known about the breast feeding patterns of these two groups, what similarities there are and what differences. The comparison also highlights the deficiencies in the available literature.

If a simplistic comparison of the statistics was used as the basis for the comparison of the prevalence and duration of breast feeding amongst Aboriginal and non Aboriginal women, it would be easy to suggest that Aboriginal women breast feed less and for shorter durations than non Aboriginal women. Indeed it does appear this way, with the results of the National Health Survey indicating that of the Indigenous women aged between eighteen and fifty years, who had a child or children aged five years or under, only fifty percent had breast fed or were breast feeding (Jain, 1996). This compares with seventy seven percent for all women in the same age group (Jain, 1996). Such a comparison suggests a large difference in prevalence of breast feeding amongst Aboriginal and non Aboriginal women. The limitations, of the National Health Survey (as previously discussed) in regards to Aboriginals make such a comparison, however invalid. A much more valid comparison, is that of the National Aboriginal and Islander Health Survey and the National Health Survey results for non Aboriginal children.

The National Aboriginal and Torres Strait Islander Survey conducted by the Australian Bureau of Statistics in 1994, examined urban rural and remote Aboriginal communities in all the States and Territories of Australia. The results of the survey determined that seventy one percent of children were breast fed (McLennan, 1994). When compared with the National Health Survey, that found that only fifty percent of Aboriginal children were breast fed, a large difference is apparent. The figure of seventy one percent, from the National Aboriginal and Torres Strait Islander Survey is the more accurate, and as such should be considered the figure for comparison in the literature.

A comparison of the National Health Survey and the National Aboriginal and Torres Strait Islander Survey shows that the difference in breast feeding prevalence is not a large as is often believed. The comparison of the two surveys reveals that seventy seven percent of all Australian women breast feed compared with seventy one percent of Aboriginal women (Jain, 1996; McLennan, 1994). The relatively small difference between the two populations, as indicated by this comparison suggests that the prevalence of breast feeding in Aboriginal women need not be of concern, as the number of Aboriginal women breast feeding is very similar to the number of non Aboriginal women. However, the prevalence of Aboriginal women breast feeding becomes of concern when the differences between the States and Territories are examined.

There is a large variation in the number of Aboriginal women who breast feed, between the States and Territories of Australia. Breast feeding is most common in the Northern Territory, where ninety percent of Aboriginal

children under the age of thirteen had been breast fed. By contrast, over a third of Aboriginal children in New South Wales, Victoria and South Australia had not been breast fed (McLennan, 1994). The low percentage of Aboriginal children, breast fed in New South Wales (60%), Victoria (62%) and South Australia (60%), is of particular concern (McLennan, 1994). A comparison for the figures available for Victoria, indicates a very large difference between the breast feeding prevalence of Aboriginal women and for all Victorian women. The most recent figure for breast feeding in Victoria indicates that seventy six precent of babies were being breast fed when discharged from hospital in 1992-1993 (Jain, 1996). By contrast only sixty two percent of Aboriginal children were breast fed (McLennan, 1994). This large discrepancy between the Aboriginal and non Aboriginal prevalence of breast feeding in is also apparent in Western Australia and Tasmania. A study of breast feeding in Tasmania and Western Australia reported that the prevalence of breast feeding was eighty six percent in Western Australia and eighty one percent in Tasmania (Hitchcock and Coy, 1989). In comparison the National Aboriginal and Torres Strait Islander Health Survey indicates that the prevalence of breast feeding in Western Australia was seventy six percent, and seventy one percent in Tasmania (McLennan, 1994).

The prevalence of breast feeding in New South Wales, Victoria and South Australia by Aboriginal women is comparable to the breast feeding rates of the 1960s where Victorian records show that only fifty to sixty percent of infants were breast fed at hospital discharge (NHMRC, 1992). This is of concern as it appears that the increase in breast feeding prevalence that has been seen in Australia since the 1970s (Manderson, 1985; NHMRC, 1992; Hitchcock, 1989) has not been universal. The increase in breast feeding

prevalence, does not appear to have occurred in the Aboriginal populations of New South Wales, Victoria and South Australia, where the breast feeding rates remain at the levels seen in the 1960s. This trend may also be occurring in Queensland. A study carried out in 1979 of an Aboriginal community (Cox, 1979), found that the use of bottle feeding increased in the community after 1973, with many women electing to bottle feed from birth. It is possible to hypothesise that a reason that the increase in breast feeding seen in non Aboriginal women has not been mirrored by Aboriginal women, is that until the mid 1970s Aboriginal mothers were encouraged to bottle feed and that many women considered it 'shame' to breast feed their babies (Eckerman, Dowd, Martin, Nixon, Gray and Chong, 1992).

A trend that is apparent in both the Aboriginal and non Aboriginal breast feeding community is that breast feeding is more prevalent for women in rural areas than it is for urban living women (McLennan, 1994; Jain, 1996; Lowe, 1993). Similarly, women living in capital cities, regardless of their race tend to breast feed for shorter durations than women living in urban or rural areas (McLennan, 1994; Jain, 1996; Lowe, 1993). For Aboriginal women their appears to be a trend of decreasing breast feeding rates and duration with increasing urbanisation (Gracey, Hitchcock, Owles and Murphy, 1981; Cox, 1979). It is possible to suggest that with increasing urbanisation, there is a weakening of traditional culture. There is also often no longer a need to breast feed because safe water supplies make artificial feeding feasible. Increasing urbanisation also results in greater access to bottles and formula.

The age at which Aboriginal women are most likely to have breast fed appears to be younger than for non Aboriginal women. The National Health Survey, revealed that Aboriginal women aged 18-24 yeas were the most likely

to have breast fed (sixty one percent) compared with women aged 25-34 for all Australian women (Jain, 1996). This is not suprising, as a large proportion of Aboriginal women give birth between the ages of 15 and 24 (Thomson, 1991). Similarly, non Aboriginal women are most likely to bear children between the ages of 25 and 34 (Thomson, 1991). Interestingly an Australian study (Redman, Booth, Smyth and Paul, 1992), found that women under twenty six years of age were twice as likely as older women to have ceased breast feeding at four months. No studies could be found that have examined this trend in Aboriginal women.

It is clear from several Australian studies (Jain, 1996; McIntyre, 1992, Woodward et al 1990; Bailey and Sherriff, 1992; Redman et al, 1992; Rutishauser and Carlin, 1993), that a woman's smoking status is related to breast feeding duration and prevalence. These studies have however been conducted on the overall Australian population, no specific studies have looked at the correlation of smoking and breast feeding in Aboriginal women. Women who smoke are less likely to breast feed, and if they do breast feed the duration is likely to be shorter than in non smokers. It is possible to assume that smoking status affects the breast feeding prevalence and duration amongst Aboriginal women, in a similar way that it affects non Aboriginal women. Specific studies would determine whether this assumption is correct.

Smoking is more prevalent among indigenous women than it is among all Australian women. Forty two percent of indigenous women aged eighteen years and over were smokers at the time of the survey compared with twenty five percent for all Australian women. In addition, a higher proportion of all Australian women had never smoked (fifty seven percent) than indigenous women (forty two percent). Forty three percent of Aboriginal women who

smoked, smoked between eleven and twenty cigarettes a day. A further twenty eight percent smoked more than twenty a day, compared with thirty eight and twenty eight percent respectively for all Australian women (McLennan, 1994). It is possible to assume that because of the large percentage of women who smoke in the Aboriginal population, that smoking may effect the duration and prevalence of breast feeding.

Educational attainment has been shown to be associated with the choice and duration of breast feeding in non Aboriginal mothers. The duration of breast feeding generally increases as the level of educational attainment increases (Jain, 1996; Redman et al, 1992). Again a comparison is difficult, because there are no known studies which examine the effect of educational attainment on breast feeding initiation and duration in Aboriginal populations. However, it is possible to assume that the same effect is evident, as income is related to educational attainment. It has been found that Aboriginal infants in households with an annual income of $25 000 or more are more likely to be breast fed, than were infants from lower income households (McLennan, 1994). This assumption, may however be too simplistic.

It is also possible that educational attainment may not effect the initiation or duration of breast feeding in Aboriginal communities. The Northern Territory has the highest proportion of Aboriginal women breast feeding and the greatest prevalence of infants breast fed for twelve months or more, despite low educational attainments. In 1986, five percent of Aborigines living in the Northern Territory, aged 15-24 were participating in post secondary education, compared with ten percent of non Aborigines. Only three percent of Aborigines had achieved post secondary qualifications compared with forty two percent of non Aboriginal residents (Thomson and

Briscoe, 1991b). These proportions are quite different to those for the total Australian population: Thirty percent of all Australians had achieved post secondary qualifications, but only nine percent of Aborigines. For the Northern Territory, tertiary qualifications had been achieved by 0.8 percent of Aborigines and by 12.6 percent of non Aborigines (Thomson and Briscoe, 1991b). Therefore, educational attainment is not clearly associated with an increase in the initiation and duration of breast feeding in Aboriginal populations.

The socioeconomic status of the family is believed to be related to infant feeding practices. Studies of the Australian population suggest that breast feeding is more prevalent and sustained among mothers of a higher socioeconomic status, than for mothers of a lower socioeconomic status (Hitchcock and Coy, 1988; Ryan and Dent, 1984). The results of the National Aboriginal and Islander Health Survey, support this theory as the results indicate, that Aboriginal women living in a household with an income of $25, 000 or more are more likely to breast feed and for longer periods .Therefore it is possible to argue that breast feeding is more prevalent in Aboriginal women of a higher socioeconomic status. (McLennan, 1994).

Conversely, if increasing socioeconomic status equates with increasing initiation and duration of breast feeding, then we would expect that low socioeconomic status, equates with a low prevalence of breast feeding. Whilst this may be apparent in non Aboriginal populations, it is not necessarily the case in Aboriginal communities. The situation in the Northern Territory again questions the appropriateness of this assumption for all Aboriginal women. According to the 1986 census only thirty percent of Aboriginal families had an income of more than $22 000 (Thomson and Briscoe, 1991b),

yet the proportion of Aboriginal women breastfeeding and the duration of breast feeding is the highest in the nation, (McLennan, 1994). However, the influence of socioeconomic status on breast feeding may in part explain the low prevalence of Aboriginal women breast feeding in New South Wales.

A comparison of the reasons for the early cessation of breast feeding in both Aboriginal and non Aboriginal populations, show remarkable similarities and some differences. Mother's perceived insufficiency of milk, is for both populations the most frequently provided reason.

A comparison of breast feeding amongst Aboriginal and non Aboriginal Australian women, suggests that simplistic comparisons may be misleading. Factors such as educational attainment and socioeconomic status that may influence breast feeding in non Aboriginal populations, may not necessarily have the same effect in Aboriginal populations. In order to understand breast feeding prevalence and duration, among Aboriginal women, further studies must be conducted in order to determine, why Aboriginal women breast feed, the barriers that prevent them from breast feeding and the effect of factors such as socioeconomic status, smoking and educational attainment. Clearly the factors effecting breast feeding appear to be complex.

CHAPTER EIGHT

CONCLUSION

The health advantage that is gained by breast feeding in comparison to artificial feeding, has meant that breast feeding is widely recognised by health authorities in Australia and throughout the world, as the most appropriate method for feeding infants. Exclusive breast feeding by healthy well nourished mothers is supported as the optimum method of feeding infants for the first four to six months of life. The rates and duration of breast feeding could be higher in some Aboriginal population groups, because of the potential improvements to maternal, infant and child health.

Australia aims to increase the prevalence and duration of breast feeding, by the year 2000, to 90% of mothers breast feeding on discharge from hospital and 60% of babies breast fed at three months of age (Nutbeam et al, 1993). The most recent figures suggest that 77% of Australian women and 71% of Aboriginal women initiate breast feeding (Jain, 1996; McLennan, 1994). Clearly given these targets, the main area for improvement for the population as a whole is the maintenance of breast feeding over time, but strategies to increase the initial acceptance of breast feeding in high risk Aboriginal populations (for example New South Wales) and programs to maintain or to increase the overall level of the initiation of breast feeding are also needed.

What steps can Australian and state authorities take to make more feasible the achievement of the targets for the year 2000? Substantially improved

procedures for the collection of nationwide statistics, including the modification of the ABS Health Survey questionnaire must be put into place. Future studies examining breast feeding, must address several issues if progression towards national targets is to be achieved. Firstly age specific breast feeding prevalence rates must be the outcome of survey analysis. Further, the unit of analysis must be the child and not the mother. Finally, if the infant is being breast fed, information must be gathered as to whether the breast feeding is exclusive or partial breast feeding.

Improved monitoring techniques are essential, not only for determining whether national targets are being met, but for knowing what interventions work. Important ways monitoring can influence breast feeding are by providing regular feedback to health professionals about trends in breast feeding, including initiation and duration and by identifying problem areas such as a low prevalence of breast feeding in the Aboriginal population of some Australian states. Currently in New South Wales there is no mechanism for the regular data collection concerning the initiation or duration of breast feeding. This is particularly concerning, as the prevalence of breast feeding for Aboriginal women is lowest in New South Wales. Improved data collecting techniques are essential for a broader understanding of Australia's breast feeding patterns and trends.

Research (both quantitative and qualitative) into infant feeding patterns among both the Aboriginal and non Aboriginal populations will be important for the identification of groups not breast feeding and for the construction of programs to promote and protect breast feeding across all segments of society. Due to the limited number of recent studies, it is recommended that research be conducted that examines the prevalence of breast feeding in Aboriginal

populations. It is also necessary that any studies, must examine the duration of breast feeding in the Aboriginal community. Currently no national statistic are available regarding duration. Whilst the National Aboriginal and Islander Health Survey (McLennan, 1994) provides figures for the number of Aboriginal children breast fed for over twelve months, there is no data for prevalence at three or six months. Such information is necessary if the national breast feeding targets are to be reached across all segments of society.

For the effective planning of educational or interventional strategies it is necessary not only to have an understanding of the current levels of breast feeding in Aboriginal communities but also an understanding of the attitudinal and social determinants of infant feeding practices. Factors, such as socioeconomic status, age, educational attainment and smoking status have been shown to effect breast feeding prevalence in the general Australian population. It is not known what effect these factors have on the breast feeding prevalence of Aboriginal mothers. It is recommended therefore that future research must examine the attitudinal and social determinants of infant feeding practices in Aboriginal women, if educational or interventional strategies are to be effective for this population.

It is imperative that health professionals understand the protection afforded by breast feeding to the infant as the health benefits, constitute much of the justification for public health programs to encourage breast feeding. Often the rationale for promoting breast feeding depends significantly on a demonstration of the advantages of human milk to the infant (Goldman, 1994).

Research has shown that breast feeding is more prevalent in Aboriginal women residing in rural rather than urban areas. Breast feeding programs or interventions, must therefore be appropriate for the Aboriginal community. For example, a breast feeding program for remote rural Aboriginal communities, where there may be a lack of water, would focus on the dangers of environmental contamination, in regards to bottle feeding, and the need therefore to breast feed. Such a message would be inappropriate for urban Aboriginal women who have access to clean water. Health promotion campaigns for the Aboriginal community must recognise the importance of cultural and environmental pressures. Not only must the campaign acknowledge that the needs of Aboriginal people differ from those of non Aboriginal people, they must recognise that urban, regional and remote Aboriginal communities will have different requirements. Therefore, when designing culturally specific health promotion messages for Aboriginal people, it is important to take into account the areas and groups to which Aboriginal people belong. Intervention programs and the promotion of breast feeding must be developed with the consultation and involvement of Indigenous communities. Indigenous involvement in any new research is imperative. The involvement of the Aboriginal community promotes understanding and allows communities to be active participants. The involvement of the Aboriginal community allows the program or health promotion message to meet the specific needs of the community, rather than attempting to fit Aboriginal people to the existing system (National Aboriginal Health Strategy, 1989).

Breast feeding has been recognised by the National Aboriginal Health Strategy (1989), as a primary health care strategy that must be implemented

to help prevent diarrhoeal disease. The National Aboriginal Health Strategy does not however identify breast feeding as a primary health strategy in the prevention of otitis media or respiratory illnesses. Evidence from studies suggest that breast feeding will help reduce the mortality and morbidity from these diseases. It is therefore recommended that breast feeding should be considered as a primary health care strategy for the prevention of respiratory illness and otitis media. The National Aboriginal Health Strategy also recommends that breast feeding should be promoted as a means of preventing conception. Breast feeding, however, should not be recommended as a means of contraception when other more reliable methods are available.

It is essential that the health benefits of breast feeding are recognised by health workers. Often the positive health benefits of breast feeding in comparison to artificial feeding are not apparent in Australian society. However in some parts of Australia, Aboriginal people continue to live under poor environmental conditions with less than adequate water supplies, sewerage, sanitation , housing and electricity. These negative environmental factors could be offset by the positive health effects of breast feeding. Breast feeding protects against many diseases that are prevalent in Aboriginal communities, such as gastrointestinal infections, respiratory infections, otitis media and *haemophilus influenzae*. Therefore, breast feeding must be considered to be an important primary health care strategy, in the fight to improve the health status of Aboriginal Australians. Encouraging and supporting Aboriginal mothers to breast feed has the potential to be extremely effective in the fight against ill health.

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