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Breastfeeding Practices in Ireland: a Review

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Symposium on 'The challenge of translating nutrition research into public health nutrition'

Session 1: Public health nutrition
Breast-feeding practices in Ireland

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Breast-feeding is the superior infant feeding method from birth, with research consistently demonstrating its numerous short- and long-term health benefits for both mother and infant. As a global recommendation the WHO advises that mothers should exclusively breast-feed for the first 6-months of life, thus delaying the introduction of solids during this time. Historically, Irish breast-feeding initiation rates have remained strikingly low in comparison with international data and there has been little improvement in breast-feeding duration rates. There is wide geographical variation in terms of breast-feeding initiation both internationally and in Ireland. Some of these differences in breast-feeding rates may be associated with differing socio-economic characteristics. A recent cross-sectional prospective study of 561 pregnant women attending a Dublin hospital and followed from the antenatal period to 6 months post partum has found that 47% of the Irish-national mothers initiated breast-feeding, while only 24% were still offering 'any' breast milk to their infants at 6 weeks. Mothers' positive antenatal feeding intention to breast-feed is indicated as one of the most important independent determinants of initiation and 'any' breast-feeding at 6 weeks, suggesting that the antenatal period should be targeted as an effective time to influence and affect mothers' attitudes and beliefs pertaining to breast-feeding. These results suggest that the 'cultural' barrier towards breast-feeding appears to still prevail in Ireland and consequently an environment that enables women to breast-feed is far from being achieved. Undoubtedly, a shift towards a more positive and accepting breast-feeding culture is required if national breast-feeding rates are to improve.

Breast-feeding practices: Initiation determinants: Ireland

Breast-feeding is promoted as the optimal mode of infant feeding for both term and preterm infants[1,2] with short- and long-term health benefits also afforded to the mother[3]. While the evidence for the nutritional benefits of breast-feeding is robust, the practice also confers a number of non-nutritional advantages to young infants relating to the protection against acute infections[4,5], including neonatal enterocolitis[6], respiratory illness[7] and otitis media[8,9], as well as enhanced behavioural and physiological development[10].

Particular interest over the past decade in the persisting long-term benefits of breast-feeding during childhood and even adulthood lends further support to the promotion of the practice[2,11]. Well-designed studies using large sample sizes, follow-up to preschool age, and appropriate adjustment for important potential confounding factors suggest a modest protective effect of having been breast-fed on later obesity risk[12–14]. Research is also emerging to indicate a link between early feeding mode and risk for CVD in adulthood via a potential early programming mechanism[15,16]. Breast-fed infants have been shown to have decreased systolic[17] and diastolic[18] blood pressures during childhood, as well as more favourable lipid profiles[19] during adulthood, compared with their formula-fed counterparts. Thus, the promotion of breast-feeding may be seen as a potential component of the primary public health

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Table 1. Breast-feeding definitions developed by the World Health Organization[23,96]

Feeding type	Requires the infant to receive	Allows the infant to receive	Does not allow the infant to receive
Breast-feeding	Breast milk, either direct from the breast or expressed breast milk	Any food or liquid including non-human milk or breast milk via a bottle	
Exclusive breast-feeding	Breast milk including milk expressed or from a wet nurse	Drops, syrups including vitamins, minerals and medicines	Anything else
Predominant breast-feeding	Breast milk including milk expressed or from a wet nurse as the predominant source of nourishment	Liquids (water, and water-based drinks, fruit juice, oral rehydration solutions, ritual fluids) and drops or syrups (vitamins, minerals and medicines)	Anything else (in particular, non-human milk, food-based fluids)
Complementary feeding	Breast milk and solid or semi-solid foods	Any food or liquid including non-human milk	

Full breast-feeding: the definitions exclusive breast-feeding and predominant breast-feeding together constitute 'full' breast-feeding

strategy to decrease the inequalities of health in Ireland and worldwide[20], as well as population levels of obesity and CVD risk factors. Despite the fact that almost all mothers, if adequately informed and supported, could provide sufficient breast milk for their infants[4], a large proportion of mothers in Ireland do not attempt the practice. Moreover, low breast-feeding rates are as much a feature of the society of today, as they were 50 years ago, warranting further examination of the barriers that prevent mothers from initiating and continuing the practice. The present paper will review secular and current breast-feeding practices in Ireland as well as providing an overview of the documented determinants and influences of mothers' infant feeding decisions.

Breast-feeding definitions

Importantly, when reviewing the topic of breast-feeding and comparing inter- and intra-country rates, it is crucial to understand the definitions of breast-feeding. It is widely recognised that precise and consistent use of standardised breast-feeding definitions and indicators is paramount in breast-feeding research[21], enabling unambiguous calculation and observation of breast-feeding trends over time[22]. It is also vital when exploring breast-feeding as an exposure in any aetiological investigations. The World Health Organization has developed a common set of breast-feeding definitions concerned with 'base of measurement' rather than the 'biological impact' of breast-feeding, as outlined in Table 1, which enable a standardised assessment of breast-feeding practices in the global context[23]. Other derivative breast-feeding categories and terms have been subsequently used in the literature, including: 'any' breast-feeding, a term that incorporates infants fed any human milk or a combination of human milk and formula milk or cow's milk: partial breast-feeding, whereby an infant receives some breast-feeds and some artificial feeds (milk, cereal or other food[24]). As the inclusion of even small amounts of non-human milk supplements including water or other fluids can affect health outcome for infant mortality[25] and morbidity in both developing[26] and developed countries[27] as well as affecting the mother's risk of ovulation during lactation[28], the literature suggests that the definition of exclusive breast-feeding should be used in strict accordance with the World Health Organization[23] definition.

National breast-feeding data

A number of limitations exist in relation to the collection of breast-feeding data both in national breast-feeding monitoring and in existing regional Irish studies. Although low breast-feeding rates, both traditionally and currently, remain a national public health issue, it is a further concern that very limited high-quality breast-feeding and infant feeding data exist in Ireland[29,30]. In fact, only two nationally-representative infant feeding studies, in 1982[31] and 1986[31] respectively, have been carried out in Ireland, reflecting the extent to which breast-feeding rates, practices and determinants have been under-studied relative to the ongoing problem of the persistently-low breast-feeding rates. Although regional studies have been conducted to examine breast-feeding rates and the issues surrounding breast-feeding during the last 30 years, many of these studies have been criticised for the small sample sizes recruited and variation in the infant ages at follow-up[33], as well as being potentially biased towards selected participants or mothers of higher socio-economic status[30,34,35]. Moreover, several studies have not specified the definition of breast-feeding[34,36–38] making interpretation of the reported 'breast-feeding rates' difficult to compare. Incomplete data collection has been acknowledged as a limitation in other regional studies[39]. The exclusion of non-Irish-national mothers and asylum-seekers because of the difficulties in following up these groups has also featured in more recent Irish infant feeding research[40]. It could be argued that more in-depth research on breast-feeding practices was conducted in the 1980s in Ireland, which saw the completion of two national infant feeding studies, in comparison with more recent years.

Breast-feeding in Ireland

Secular trends

One of the earliest regional Irish-based studies from Cork (*n* 1007) reported a particularly high breast-feeding initiation rate of 63·5% relative to more recent

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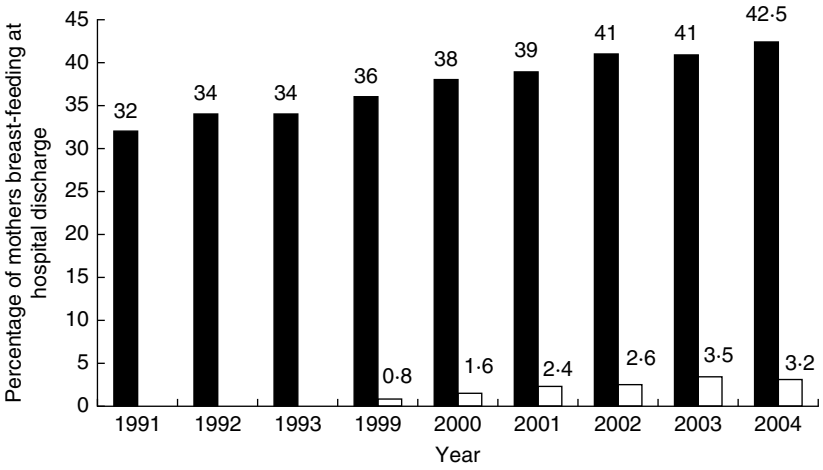

Fig. 1. Selected National Perinatal Statistics from 1991 to 2004[47,48]. (■), Exclusive breast-feeding rate (rounded up (>0·5%) or down (<0·5%)); (□) partial breast-feeding rate.

decades; however, similar to current trends, the breast-feeding rate dropped to 46·6% of infants still being breast-fed at 2 weeks[41]. The fact that higher breast-feeding rates were more prevalent during the mid-1900s is further confirmed by a study in the late 1970s that examined the change in feeding methods in a single generation, reporting that the older generation had an overall breast-feeding rate of 65% while the rates in the younger generation (under study) dropped to 22%[42].

The advent of formula milk across Europe occurred during the late 1800s (discovered by Justus von Liebig in 1867); however, formula milk was only introduced and launched in Ireland during the mid to late 1950s (formula feeding history timeline; SMA Nutrition, Dublin, Republic of Ireland, personal communication). Interestingly, the literature from the 1970s, post introduction of formula milk, indicates that breast-feeding initiation and duration rates decreased rapidly. As far back as 1974 a breast-feeding initiation rate of 11% was reported in the Rotunda Hospital in Dublin (*n* 551)[43], while in a smaller multi-centred study (*n* 198) incorporating mothers who gave birth in one of four Dublin maternity hospitals an initiation rate of 16% was found[42]. A low initiation rate of 24% was also found in a regional study based in Wexford (*n* 111), with the investigators concluding that formula feeding had become an 'accepted feature of life' in Ireland[44].

During the 1980s two nationally-representative infant feeding studies reported 'any' breast-feeding rates of 32%[31] and 34%[32] at discharge from the maternity hospital, with similar (35%)[45] and slightly higher rates (45%)[46] reported in other studies during that decade.

The National Perinatal Statistics indicate that the exclusive breast-feeding rates at hospital discharge have remained consistently low from the early 1990s through to the most recent data reported in 2004[47,48] (see Fig. 1). A 10·5% increase in exclusive breast-feeding from 1991 to 2004 indicates that breast-feeding rates are modestly improving by an average of 1%/year; however, the rates are far from the achievement of the 50% breast-feeding target by the year 2000, as set out in the 1994 National Breast-feeding Policy for Ireland[29].

Regional variation

Further evidence indicates that there may be wide geographical variation in terms of breast-feeding initiation both internationally[49–51] and in Ireland. As far back as 1986 the highest breast-feeding rates were observed in the Dublin maternity hospitals (43%), while no mother was reported to have breast-fed in Carlow or Dundalk[32]. The Mid-Western Health Board 1997 survey has reported the lowest breast-feeding initiation rate in Newcastle West in Co. Limerick (18·5%) compared with higher rates found in Ennis in Co. Clare (46%) and the North Clare region (53%)[52]. A North Eastern Health Board survey in 1996 has highlighted higher breast-feeding initiation rates in Co. Meath (44%) in comparison with Co. Cavan and Monaghan (29%), and at 16 weeks the trend persists, with 17% and 9% of mothers breast-feeding in the two regions respectively[53].

Variation has been found even within the confines of the north inner city in Dublin. In a small study (*n* 76) undertaken by the Rotunda Hospital in 1996 it was reported that in Ballymun, a known socio-economically-disadvantaged area in north Dublin, 16% of mothers initiated breast-feeding, while in more socio-economically-thriving areas of Millmount and Larkhill all mothers were reported to have initiated breast-feeding[54]. This survey did not document the sample sizes of the mothers living in these regions; however, it highlights the socio-economic and geographical divide in breast-feeding rates within north Dublin. Similarly, a 1992 study has reported breast-feeding rates to be lower among mothers in the inner city (22%) compared with those living in the outer suburbs (56%)[35].

In the south-east of Ireland the South Eastern Health Board in a 1999 report has indicated that the initiation rates in the region are lower in comparison to the national rate, with a considerable decline in rates following hospital

Table 2. Irish breast-feeding initiation and duration rates (1954–2008)

Study	*n*	Initiation (%)	Discharge from hospital (%)	6 weeks (%)	12 weeks (%)	6 months (%)
Curtin[41]*	1007	63·5	46·6 at 2 weeks	–	19	9
Kalapesi & Kevany[43]*	551	11	–	–	–	–
McSweeney & Kevany[31]†‡	1195	–	32 AB (29 EB and 3PB)	21 AB, 16 EB	11 AB, 7 EB	5 AB, <1 EB
Sayers *et al.*[37]*	145	38	32	23	13	–
Twomey *et al.*[62]*	197	51	–	28	16	8
Ward *et al.*[40]*‡	247	51	–	18 EB, 13 PB	13 EB at 14 weeks	–
Tarrant[63]*‡	401	47	31·7 EB	14·5 EB	12·7 EB	0·2 EB

AB, any breast-feeding rate; EB, exclusive breast-feeding rate; PB, partial breast-feeding rate; –, no data available.
*Regional Irish-based breast-feeding studies.
†A nationally-representative infant feeding study.
‡Studies that specified the breast-feeding definition.

discharge and between 4 and 6 weeks post partum[55]. Concurring with this observation, a cross-sectional national health survey (*n* 5992) published in 2003 has recorded the number of mothers who reported breast-feeding 'any' of their children, revealing the lowest rates in the south-eastern (30%) and the north-western (33%) regions of Ireland, compared with higher rates recorded in the east coast area (41%) and the western region (42%)[56]. Although the aim of this study was to collect information on the general health behaviours of a representative sample of the population and it was not designed as an infant feeding study, these data are still valuable and add to a body of evidence that may suggest higher breast-feeding rates in the east, west and mid-west regions and lower rates in the south-east and north-west of Ireland.

International comparisons in breast-feeding initiation and duration

Historically, it has been well recognised that Irish breast-feeding initiation and duration rates have remained strikingly low in comparison with international data. Vast differences exist in breast-feeding prevalence both within[49,57] and between European countries[21] and it has previously been highlighted that Irish breast-feeding rates fall markedly below those of European counterparts[58]. It is clear from the literature, however, that the exclusive breast-feeding rate at 6 months appears low throughout Europe[59–61]. Although national infant feeding studies have not been carried out in Ireland over the last 20 years, recent regional Irish studies report initiation rates of 51%[62,40] and 47%[63], which are higher than the exclusive breast-feeding rate (42·5%) reported in the National Perinatal Statistics in 2004[48]. Higher initiation rates have been documented in large international longitudinal studies, including 69% in 2002 in the UK[64], 69·5% in 2002 in the USA[50], 88% in 2001 in Australia[65], 97% in 2004 in Switzerland[66] and 99% in 2003 in Norway[67]. As an example of international comparison, the frequency of breast-feeding in Sweden is high, with 98% of infants born in 2004 reported to have been exclusively breast-fed at 1 week and >91% of infants being exclusively or partially breast-fed at 2 months[68]. While most mothers cease breast-feeding between 6–12 months in the USA[69] and Australia[65], it appears that most mothers in Ireland discontinue breast-feeding between hospital discharge and 6 weeks post partum[58], with 'any' breast-feeding rates at 6 weeks of 21%[31] and 19%[45] reported in previous Irish studies in the 1980s.

Although the World Health Organization advises that exclusive breast-feeding should continue during the first 6-months of life, with the introduction of solid foods thereafter and continued breast-feeding until 2 years[70], recent data indicates that <1% of Irish-national mothers are exclusively breast-feeding at the 6 month time point[63]. It thus appears that low initiation rates in Ireland remain an unchanged feature of society; however, the high discontinuation rates during the early weeks after birth represent a further public health concern (see Table 2). Based on current breast-feeding patterns and from a public health perspective, greater priority should be placed on motivating mothers to attempt breast-feeding, rather than emphasising the exclusivity of the practice until 6 months.

Determinants of breast-feeding initiation

Considerable evidence suggests that the determinants of a mother initiating breast-feeding hinge on several diverse factors including socio-demographic influences, infant characteristics, ethnicity and mother's support network, as well as maternal attitudes to breast-feeding and the confidence within the mother herself in being able to breast-feed (see Fig. 2). In order to comprehensively examine the determinants of breast-feeding initiation and duration it is essential to consider all the potential influencing factors, with a particular focus on socio-demographic, biomedical and environmental influences.

Socio-demographic influences

Regional and national studies in Ireland consistently demonstrate that mothers who initiate breast-feeding are more likely to be from a higher socio-economic background[47,48], well-educated[40], married[62], older[71] and non-smokers[37]. Breast-feeding exposure, such as having friends or family with previous breast-feeding experience[37] and having breast-fed previous children[40] have also been reported as important determinants. A Dublin-based study (*n* 200) has found that mothers who were breast-fed themselves are significantly more likely to

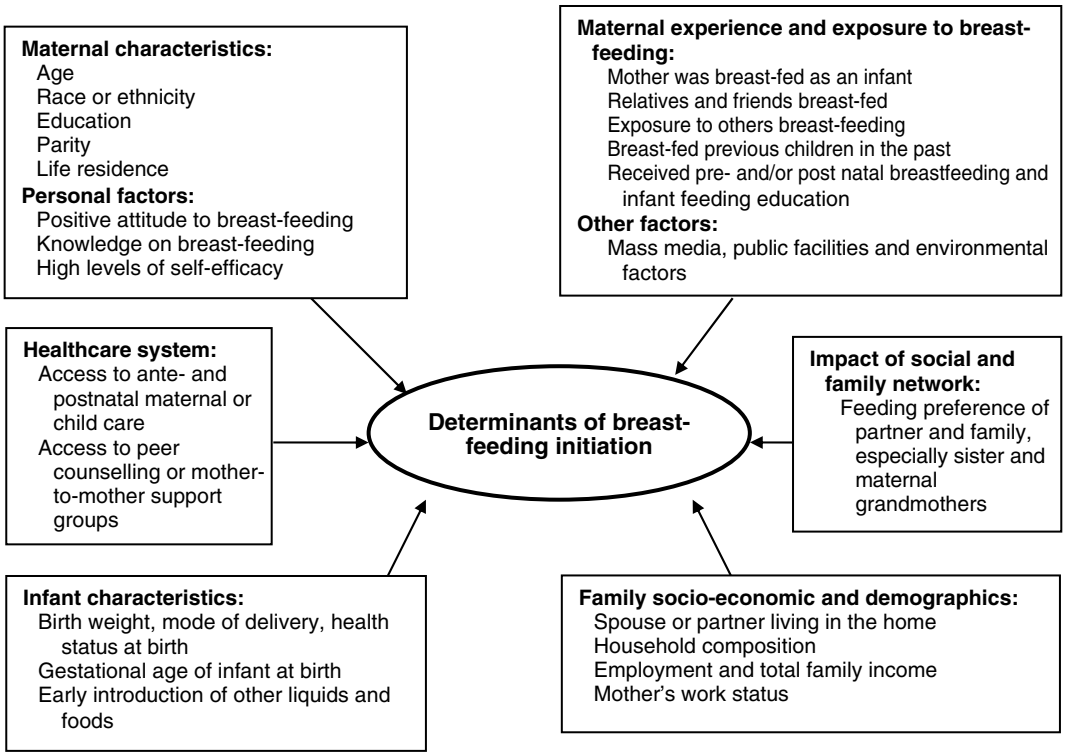

Fig. 2. *A priori* model developed from published literature indicating potential determinants of breastfeeding initiation. (Adapted from Meyerink & Marquis[97].)

breast-feed ($P<0{\cdot}001$) and most mothers who breast-feed also have sisters or sisters-in-law (65%) and friends (83%) who have breast-fed their children[71]. The most consistently cited, strongest and most predictive variables of breast-feeding behaviour, however, point towards maternal socio-economic status, age, smoking status and education attainment level. Although initiation rates have been indicated as being lower among smokers[72], it has been suggested that these mothers are less likely to breast-feed as a result largely of lower motivation to breast-feed rather than a physiological effect of smoking on their milk supply[73].

In addition, some regional Irish studies indicate that working, compared with non-working, mothers are more likely to initiate breast-feeding[37,40], while other studies have not confirmed this finding[52,71]. However, as the duration of statutory maternity leave in Ireland has increased from 22 weeks to 26 weeks[74], the influence of work return on breast-feeding initiation and duration may appear less likely to negatively affect such practices.

Antenatal factors

Several Irish[34,40] and international studies[75] highlight the positive relationship between the mother's antenatal intention to breast-feed and breast-feeding initiation post partum[76], with some mothers known to make their infant feeding decision even before conception[55]. A major finding from more recent regional Irish-based data (n 401) is that among the mothers who initiate breast-feeding (47%), 94% have decided antenatally to breast-feed post partum[63]. Furthermore, maternal intention to breast-feed has been suggested as a stronger predictor of both breast-feeding initiation and duration than the standard demographic factors combined[77].

It has also been shown that the majority of mothers who formula feed know that they 'always wanted to bottle feed' (46%) compared with 32% who decide to formula feed during the pregnancy while 39% of mothers who breast-feed report that they 'always wanted to breast-feed'[78]. Although international studies indicate that attendance at antenatal classes[79] and early commencement of antenatal care[80] positively influence initiation, a previous Irish report has indicated that mothers from lower socio-economic groups are less likely to attend antenatal classes, and among the few who do attend the classes the feeling is that the midwives are too 'pushy' about breast-feeding[55]. It appears that as an effective and practical measure to improve breast-feeding rates in Ireland, greater emphasis on informing and motivating mothers to breast-feed during the antenatal period needs to be considered.

Environmental and cultural influences

Maternal attitudes to breast-feeding have also been suggested as major determinants of breast-feeding outcome[81,82], and in one recent study have been found to be better predictors of feeding choice at hospital discharge than socio-demographic characteristics[83]. It is also likely that maternal attitudes to infant feeding are closely associated with cultural perceptions as to what defines the normal feeding mode for infants. Moreover, cultural

beliefs may have an important influence on breast-feeding practices[84].

Earlier work by Curtin[41] has found a negative maternal attitude towards breast-feeding to be the principal barrier to breast-feeding initiation. Similarly, the attitude among mothers that breast-feeding is a 'social taboo' and 'embarrassing' has been reported in a regional study from Galway[38]. The perception that breast-feeding is still viewed as an embarrassing practice in Ireland is supported by recent data indicating that 31 % of mothers choose not to initiate breast-feeding for reasons of embarrassment[63].

In support of the negative cultural attitude towards breast-feeding, a cross-sectional study of young men (*n* 115) and women (*n* 62; overall age range 16–19 years) has found that 'embarrassment and discomfort' are the predominant emotions expressed around the subject of breast-feeding, with the majority of participants reporting that they disapprove of breast-feeding in public[85]. While the cultural barrier towards breast-feeding appears to still prevail among mothers in Ireland, this problem is further compounded by the fact that the past two generations have experienced low exposure to breast-feeding. Thus, many maternal grandmothers in recent times have no practical experiences with the practice, resulting in a loss of traditional practice, knowledge and support for Irish-national mothers who initiate breast-feeding. The public health challenge not only lies in encouraging mothers to attempt breast-feeding, but also in supporting mothers who breast-feed once they leave the maternity hospital. Such support calls for greater provision of public health nurses with dedicated time to support mothers who breast-feed in the community, the possible implementation of a 24 h national breast-feeding hotline, as well as encouragement of mothers to attend weekly breast-feeding peer and professionally-mediated support groups. However, if the Irish breast-feeding rates are to improve at a national level, more aggressive and creative breast-feeding campaigns that relate directly towards addressing the negative cultural perception of the practice need to be considered.

The Irish context

Some of the principal determinants of breast-feeding initiation in Ireland from the earliest data through to current practices, as reported by regional and national Irish studies, are outlined in Table 3. It is of particular interest from a public health view point that the factors associated with breast-feeding initiation are currently, and have historically been, strongly socio-economically related. A common modifiable determinant of initiation points to the partner's infant feeding preference towards breast-feeding[31,63], suggesting the important role and potential for the partner to positively influence breast-feeding practices.

Unquestionably, the literature demonstrates that the maternal attitude towards breast-feeding as being an embarrassing method of infant feeding features as a strong and consistent barrier to initiation. Based on the data presented, it is evident that mothers who choose not to breast-feed place little value on the benefits of breast-feeding, perhaps also reflecting the overall negative cultural perception of the practice. In addition, the principal reasons for early discontinuation appear to be associated with maternal-related factors including the maternal perception of having an inadequate breast milk supply and the insufficiency of breast milk to satisfy infant hunger. Reasons related to maternal tiredness and the general stress associated with breast-feeding have featured in more recent research[76,82].

Improving breast-feeding rates

Need for more comprehensive national monitoring of breast-feeding rates

In Sweden there is a considerable public health and government investment to ensure up-to-date monitoring and documentation of infant feeding practices, thus enabling an assessment of changes in feeding trends over time. In contrast to the approach of such European counterparts, in Ireland there is no national mandatory monitoring of breast-feeding initiation or other breast-feeding duration rates beyond the point of hospital discharge. The National Perinatal Statistics (1985–2004) represent the only national monitoring of exclusive breast-feeding rates (expressed as a proportion of all newborn infants) at the point of discharge from the maternity hospital or unit or of those under domiciliary midwife care in Ireland (these data are published every 2 years in the National Perinatal Statistics Report). From 1999, information on exclusive and partial breast-feeding rates has been included in the data collection system, and from 1 January 2003 strict use of the definition of exclusive breast-feeding in accordance with the World Health Organization guidelines[23] has been emphasised. Ideally, a national monitoring system, as recently recommended[86], that aims to collect well-defined breast-feeding data at standardised time points during the infant's first year needs to be considered at a population level.

Currently, a national infant feeding study by the School of Nursing and Midwifery of Trinity College Dublin, Dublin, Republic of Ireland is underway, a component of which will examine breast-feeding rates and practices during the first 6 months of life. However, because of the paucity of data on breast-feeding duration rates at a national level in Ireland, the implementation of a national breast-feeding monitoring system would be an ideal measure for comparing rates across regions in Ireland, as well as for inter-country comparison. Indeed, it has been suggested that a common breast-feeding surveillance system across Europe should be considered[87]. In Ireland, the collection of breast-feeding rates at the 6-week check up with the general practitioner or paediatrician and at the 3-month and 9-month developmental check-up with the public health nurse could be considered as appropriate time points at which to collect such data.

Future research

Country-specific knowledge about the type and importance of the determinants for breast-feeding is essential for building effective promotion programmes[87]. To address

Table 3. Irish studies reporting on breast-feeding practices through past decades (1954–2008)

Study	*n*	Determinants of breast-feeding initiation	Reasons for not choosing to initiate breast-feeding	Reasons for early discontinuation
Curtin[41]*	1007	–	Mother did not believe in breast-feeding (21·2%) Abnormality of the breasts or nipples (17·9%)	Insufficient breast milk supply (69%) Poor general health (problems unspecified; 7·8%)
Kevany *et al.*[42]*	198	Higher social class (based on husband's occupation) Higher education level (did not specify whether maternal or paternal) Male infants	Maternal-related reason‡: Formula feeding is more convenient Breast-feeding does not appeal to mother Embarrassed about breast-feeding Infant related reason‡: Fear of not having adequate breast milk to feed the infant	–
McSweeney & Kevany[31]†	1195		Of formula feeders 10·5% specifically mentioned 'embarrassment about breast-feeding ' as a reason for choosing to formula feed	Insufficient breast milk supply or baby hungry (28·5%) Work return (13·5%) Physical reason, e.g. mastitis (11%)
Sayers *et al.*[37]*	145	Higher social class ($P<0·05$) Maternal grandmothers having breast-fed ($P<0·0005$) Non-smoking ($P<0·001$)	–	During the first 2 weeks post partum: Hungry infant (42%) Sleepy baby (17%) Tender nipples (8%)
Tarrant[63]*	401	Primiparous mothers ≥ 35 years Positive maternal antenatal intention to breast-feed Encouragement from the partner to breast-feed during the antenatal period	Embarrassment issue (31%)	During the first 6 weeks post partum: Maternal tiredness (26%) Restrictions and demands associated with breast-feeding (23%)

–, No data available.
*Regional Irish-based breast-feeding studies.
†A nationally-representative infant feeding study.
‡Percentages unspecified.

the knowledge gaps concerning breast-feeding in Ireland, there is a clear need for robust prospective regional and national infant feeding studies including all socio-economic groups, with an emphasis on ensuring the standardised ages of infants at follow-up and use of well-defined breast-feeding definitions. The inclusion of the non-Irish-national population also appears pertinent in Irish-based research because this population accounts for 10% of the current population in Ireland[88]. Furthermore, it has been shown that the infant feeding practices of non-Irish nationals differ from those of the Irish-national population[63].

Breast-feeding interventions

The literature indicates a lack of well-designed breast-feeding intervention studies. In specifically addressing the deficiencies surrounding breast-feeding in Ireland, there is a clear need for the implementation of hospital- and community-based breast-feeding interventions with an emphasis on the antenatal period as being a particularly effective time in which to affect mothers' infant feeding attitudes and decisions[63]. Future research could assess the influence on initiation and duration rates post partum of antenatal midwife-led breast-feeding motivation clinics for prospective parents. Interventions that specifically focus on the strong influence of the partner, implemented during the ante- and postnatal period, may also prove valuable. High-priority action and research especially targeting young, low-income and less-educated mothers appears particularly important. The effectiveness of daily direct or indirect contact with the public health nurse on breast-feeding duration rates is another area worthy of investigation. Moreover, incorporating both the psychosocial and practical aspects of breast-feeding in postnatal support initiatives has been suggested[89].

Considerable evidence indicates that encouraging the implementation of professionally-mediated peer-support groups at local level can increase breast-feeding duration rates as well as maternal satisfaction with breast-feeding[90,91], suggesting their possible role in future interventions. Inter-disciplinary and collaborative research between social science, public health, psychology and nutrition departments may also prove effective in exploring and addressing specific cultural barriers that prevent mothers from initiating and continuing breast-feeding.

In addition, a study from the mid-west of Ireland has highlighted the deficiency of formal training in relation to breast-feeding among general practitioners (*n* 164)[92]. As the role of the general practitioner has the potential to positively influence breast-feeding rates and it is likely that the general practitioner is the first health professional whom mothers encounter during early pregnancy, future work could optimise their role in both introducing antenatally the importance of breast-feeding, and in providing formal breast-feeding training postnatally.

Conclusions

Finally, and principally, the challenge for all health professionals in Ireland lies in re-establishing breast-feeding within what has become, a predominantly formula-feeding culture. For infants born in Ireland, a country with one of the highest birth rates in Europe[93] and one with rapidly increasing childhood[94] and adult obesity levels[95], increasing breast-feeding initiation and duration rates has never been so important in society.

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