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Research paper

Impact of structured programs on breastfeeding initiation rates in preterm neonates in a socioeconomically deprived area in France: A 10-year population-based study

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ABSTRACT

Structured programs have a positive impact on breastfeeding (BF) but have rarely been evaluated for preterm neonates, frequently combining prematurity and socioeconomic deprivation as risk factors of a low BF rate. We aimed to assess BF initiation rates in very preterm (< 33 weeks' gestational age), moderately preterm (33–36 weeks), and term neonates from 2002 to 2011 in a French administrative district characterized by socioeconomic deprivation. Structured activities to promote and support BF have been implemented in this area since 2002; they all started in neonatal units. This retrospective population-based study analyzed 302,102 first health certificates. Overall, the BF initiation rate significantly increased, from 52.9% [95% CI: (52.3; 53.4)] in 2002 to 61.0% [95% CI: (60.4; 61.6)] in 2011. In 2002, BF initiation rates did not differ between groups, but in 2011, it was higher for very preterm than for term and moderately preterm neonates [74.7% (69.7; 79.6)] vs. 60.9% (60.3; 61.5) and 59.9% (57.6; 62.2), respectively, both $P < 0.001$. In 2011, however, no difference was observed between moderately preterm children and term-born children ($P = 0.40$). The 2.2% yearly increase observed in very preterm neonates significantly differed from the 0.9% yearly increase in the French general population ($P < 0.001$).

Conclusion: Structured BF programs initiated in neonatal care units may have a positive impact on BF initiation rates in very preterm neonates, but not in moderately preterm neonates, whose specific needs should be further evaluated.

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1. Introduction

Breastfeeding (BF) has short- and long-term health benefits, and its importance for child health is recognized at a global policy level [1,2]. Consequently, policies and guidelines have recommended the introduction of programmes to support BF. A recent

systematic review of structured and unstructured programs concluded that structured BF programs significantly improved BF initiation rates [3]. Most of these programs were based on the ten steps of the Baby-Friendly Hospital Initiative (BFHI) and all studies were conducted in a maternity care setting. BF has also been found to have specific benefits for preterm neonates [4–6]. Although some practices are known to promote breastfeeding in preterm neonates [7], little is known about the impact of structured programs on BF initiation and duration in this population because BFHI recommendations for neonatal units have only recently been published [8]. Furthermore, because the

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prevalence of premature birth is less than 10% in European countries, the impact of policies on the BF initiation rate has to be explored at a population level.

In France, studies on BF showed the lowest BF initiation rates in the early 1970s, with a mean of 36% in maternity wards [9]. Since then, the rate has increased from 62.3% in 2003 to 68.7% in 2010 according to the National Perinatal Surveys [10]. In 2012, the rate was 69.1% for neonates born at ≥ 33 weeks' gestation [11]. French data on BF rates in the preterm population are scarce. In the Epipage-1 cohort, 32% of neonates born before 33 weeks' gestational age (GA) received their mother's milk at birth and 19% received any breast milk at discharge [6]. In the MOSAIC cohort, from eight European regions, BF rates in preterm infants paralleled the BF rates for the whole population, and the BF rate at discharge among very preterm infants was the lowest in France [12].

The Nord department is an administrative district located in the north of France, in a historically industrialized area. It is characterized by a young population and a high birth rate. As compared with other districts, it has the highest socioeconomic deprivation prevalence: in 2010, 32% of pregnant mothers were receiving social subsidies because of unemployment, single parenthood, or low income [10]. At this time, the BF rate in maternity wards was 58.3%, significantly lower than in the whole country [10]. Since the early 2000s, several structured activities to promote and support BF were implemented in the district. They all started in neonatal units.

The aim of the present study was to describe the evolution of BF initiation rates in the Nord department during a 10-year period and to analyze this progression in terms of gestational age (GA), to explore the potential impact of these programs on BF initiation rates in preterm and term neonates.

2. Methods

2.1. Setting

The Nord department has 23 maternity units organized around two level-III perinatal units [unit with neonatal intensive care unit (NICU)], three level-IIB units (transient ventilation for < 48 h for babies born after 29 weeks' GA), seven level-IIA units (standard

neonatal care for babies born after 33 weeks' GA excluding mechanical ventilation and parenteral nutrition), and 11 level-I units (care for neonates admitted to maternity wards).

2.2. BF promotion initiatives

Initiatives to promote BF started in neonatal units in 2002, with progressive dissemination to maternity settings (Table 1). All initiatives were initially focused on education about BF. Steps were taken to favor training of professionals in BF knowledge and attitudes. In 2004 and 2005, International Board-Certified Lactation Consultants (IBCLCs) were introduced in the two level-III neonatal units to support mothers, train professionals, and evaluate their activities. The first main messages delivered to professionals were based on existing recommendations [13] and were about the benefits of breast milk, early frequent breast milk expression and maintenance in mothers with very low birthweight infants, encouragement of simultaneous pumping, and avoidance of bottle feeding. Models of care relevant for BF support were progressively implemented in several units: Kangaroo Mother Care [14], Newborn Individualized Developmental Care and Assessment Program (NIDCAP) [15], Baby-Friendly Hospital Initiative (BFHI) [16] and a Peer-Counseling Program based on the Rush Mother Milk model [17]. After 2007, these activities were disseminated to all organizations involved in perinatal care and training of professionals: maternity wards, community nurses, perinatal networks, and medical schools.

2.3. Data from health certificates

We conducted a retrospective analysis of BF initiation rates from 2002 to 2011 based on data extracted from First Health Certificates (FHCs). The FHC is a compulsory chart completed by physicians who record events occurring during the first days of life for all live births in France. Data are recorded during the mother and child's stay in the maternity ward or during hospitalization in a neonatal unit if required. FHCs are centralized, validated, and rendered anonymous by the Childhood Departmental Services. Data for two variables were extracted for this study: GA and whether or not the mother had initiated BF when the certificate was completed. GA was calculated taking into account the results

Table 1
Activities to promote and support breastfeeding (BF) in the Nord department in France between 2002 and 2011.

Setting	Years 2002–2007	Years 2008–2011
Neonatal units ($n=12$)	Inclusion of lactating consultants in the teams ($n=4$, 2 level III and 2 level IIB units) Implementation of NIDCAP ($n=1$ level III unit) Implementation of KMC ($n=1$ level III unit)	BFHI accreditation of perinatal units ($n=3$, 1 level III, 1 level IIB, 1 level IIA) Engagement in the BFHI ($n=5$) Implementation of NIDCAP ($n=1$ level IIB unit) Implementation of peer-to-peer support groups ($n=3$, 2 level III, 1 level IIB)
Maternity ($n=23$)	BFHI accreditation ($n=1$ level I unit)	BFHI accreditation ($n=1$) Inclusion of lactation consultants in the teams ($n=12$ units) Engagement in the BFHI ($n=4$ units) Implementation of peer-to-peer support group ($n=1$, 1 level III unit)
Community ($n=44$)	4-day sessions training on breastfeeding	Lactation consultations ($n=6$) 4-day sessions training on breastfeeding Implementation of peer-to-peer support groups ($n=2$) Inclusion of lactating consultants in the team ($n=8$)
Perinatal networks ($n=2$)		Lactation consultation ($n=5$) Creation of a group to support implementation of the BFHI Logistic support for the training of lactation consultants ($n=98$) Creation of tools for mothers and professionals to be used by every structure Organization of annual courses on baby rhythms and breastfeeding
Human milk bank ($n=1$)		Inclusion of parents and pharmacists in the group Increasing support for mothers of preterm babies to donate milk
Medical school ($n=2$)		Integration of the BFHI rules in the organization Integration of a course on breastfeeding for students Integration of lactating consultant professionals in the training for nurses and midwives

BFHI: Baby-Friendly Initiative Hospital; NIDCAP: Neonatal Individualized Developmental Care and Assessment Program; KMC: Kangaroo Mother Care.

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