


Research

Formula for deception: Corporate violations and State negligence; Labelling and advertising in breast-milk substitutes in Argentina

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The protection of breastfeeding is a human rights issue. It is closely related to the right that babies and mothers have to the highest attainable standard of health, to adequate nutrition and to reliable information.

Argentina has incorporated the "International Code of Marketing of Breastmilk Substitutes" into different regulations in a partial and fragmentary manner, being considered a country "with some provisions of the Code included".

This article is intended to present an assessment of the level of compliance with the rules currently in force in Argentina by corporations as well as by state agencies responsible for enforcement and supervision, focusing on labelling and advertising aspects.

The study comprised two different methods for data collection. First, labels found on containers of infant formulas and modified milks for children were collected and analysed according to NetCode Protocol for periodic assessments. Second, ads in digital ecosystem were collected and a content analysis of texts and images was performed.

The packages of 54 types of breastmilk substitutes were photographed and examined. 100% of the examined labels of substitutes were in violation of the national rules and regulations and the provisions set forth in the Code. The most frequent reasons were nutrition and/or health claims or declarations, imagery and language idealizing the use of the product, and invitations to make contact with the company. Regarding mandatory texts or designs, violations included the omission, modification, and font size or position that minimizes their presence.

In relation to advertising, a database of 440 Instagram and Facebook ads was created. The most profusely advertised products were modified milks for children from 1 year of age, marketed with a figure '3', which constitutes a way of cross-promoting all the line-products.

In addition, it was documented that the state agencies involved in approval and control of product labelling and the supervision of advertising either accepted or did nothing about companies' violations. Moreover, the channels to file complaints were fragmented and usually non-responsive.

All of this constitutes a "formula for deception", an abusive marketing environment. Therefore, currently the major imperative is for Argentina to immediately apply the existing regulations, and to monitor and penalize violations. In the longer term, it is necessary to design a comprehensive law that covers all the provisions of the Code.

INTRODUCTION

Breastfeeding is a cornerstone of health protection and is vital to both children and women. It produces short-term and long-term effects, such as a decrease in neonatal mortality, diarrhoea and respiratory diseases in early childhood and, later on, a decrease in the risk of obesity in infancy and of diabetes in adulthood (Victora et al. 2016; Rollins et

al. 2016; Global breastfeeding collective 2020; Horta, Loret de Mola, and Victora 2015; Rito et al. 2019). For women, it prevents breast cancer, uterine cancer and type 2 diabetes (Victora et al. 2016; Mazariegos et al. 2019).

Indeed, the protection of breastfeeding is a human rights issue (United Nations Special Rapporteurs 2016). It is closely related to the right that babies and mothers have to the highest attainable standard of health, to adequate

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nutrition and to reliable information. Moreover, breastmilk is the first self-produced, sovereign, “zero-kilometre” food, with no negative impact on the environment (Filardi 2022).

One of the factors aggressively affecting and undermining breastfeeding practices is predatory marketing and advertising of breastmilk substitutes with quite unethical tactics (Baker et al. 2021; Rollins et al. 2023).

It is four decades since the World Health Assembly adopted the “International Code of Marketing of Breastmilk Substitutes” with the aim of regulating the marketing of substitutes, forbidding harmful and unethical advertising, promotion and sales practices, in order to protect breastfeeding. The Code has been updated through subsequent resolutions adopted by the World Health Assembly, which clarified or specified aspects related to the Code. The products covered therein are infant and follow-up formulas, growing-up milks, any other milk for children aged 0 to 36 months (WHA Resolution 69.9 2016), as well as any other commercial solid or liquid food addressed to nursing infants under the age of six months. Among the regulated products, it also includes feeding bottles and teats. Regarding complementary foods (for children from 6 months of age), it establishes that neither labelling nor advertising can be used to cross-promote breastmilk substitutes (WHO 2017). The most relevant points covered by the Code are the prohibition of promotion and advertising to the public at large, and to mothers and health care workers in particular, the regulation of the link with health care facilities (prohibition to receive donations for the institution, gifts, and/or free samples to health care workers, and to make offers for sponsored professional associations and scientific meetings), and the definition of labelling standards that establish mandatory information and forbid certain advertising resources on the food package.

Unlike other international pacts and treaties, the Code is not binding, but it has to be incorporated by the countries into their national legislation. At present, few countries have integrated it in a complete and updated way into their national normative corpuses.

In Argentina, the Code was accepted through a resolution adopted by the Ministry of Health (Resolution 54) in the year 1997 and, ten years later, it was partially included in the Argentine Food Code (*Código Alimentario Argentino - CAA*) (Act No. 18284 n.d.). In 2013, the Code is mentioned in Act No. 26873 on Breastfeeding Promotion and Public Awareness, specifying that it is applicable to children aged up to 2 years.

The inclusion of the Code in the Argentine Food Code (Section 1359 *bis*) resulted in the incorporation into the national legislation of the articles dealing with the public at large and mothers, manufacturers and distributors, labelling, quality, implementation and monitoring. Articles 6

and 7 concerning health care systems and health workers have not been incorporated, since those articles go beyond food standards. Nevertheless, the articles referring to the health care system were in fact included in the resolution of 1997, adopted by the Ministry of Health, although the legal rank of a resolution is lower than that of a statute.

In addition, a Pronouncement adopted in 2005 by the National Administration of Drugs, Food and Medical Devices (*Administración Nacional de Medicamentos, Alimentos y Tecnología Médica - ANMAT*), which sets forth the general standards for advertising foods, established that “the foods covered by the WHO International Code of Marketing of Breastmilk Substitutes have to comply with the provisions contained therein” (Pronouncement 4980/2005 n.d.).

In 2018, a new section (Section 1353 *bis*) was included in the Argentine Food Code reaffirming that “all the information displayed on food labels and advertising will have to comply with the provisions contained in the International Code of Marketing of Breastmilk Substitutes and its subsequent resolutions, (...) making it clear that it will be applied (...) to children aged up to 2 years.” This section of the Argentine Food Code establishes that the term “formula” corresponds to breastmilk substitutes during the first year of age (infant formula, from 0 to 6 months; follow-up, from 6 to 12 months). While in other countries the other substitutes¹ are known as growing-up milks or formulas, in Argentina they are called modified milks for children over one year of age. Section 1353 *bis* is in line with the provisions of the International Code of Marketing of Breastmilk Substitutes. Therefore, in the status report, which is published every two years by the World Health Organization, Argentina was assigned 13 out of the 15 theoretic points under the category “Labelling.” However, within the global scoring, Argentina obtained only 33 points out of 100 (WHO, UNICEF, and IBFAN 2022), thus being considered a country “with some provisions of the Code included.”

Although the normative framework in Argentina would require significant improvements to be considered “substantially aligned with the Code,” in recent years, there have been some advances, particularly: establishing that the Code is applicable to milks for children aged up to 2 years, the express prohibition of nutrition or health declarations or claims, and the list of mandatory language on food packaging regarding infant formulas.

This article is intended to present an assessment of the level of compliance by corporations as well as by state agencies responsible for enforcement and supervision with the rules currently in force in Argentina, focusing on labelling and advertising aspects.

¹ In this article we have decided to maintain the use of the term “substitutes” because it is the one that is recognized in Argentine law. However, we believe that the concept of “commercial milk formula” proposed in the articles of the Breastfeeding Series of The Lancet (Pérez-Escamilla et al. 2023; Rollins et al. 2023 and Baker et al. 2023) to encompass all milk formulations marketed for infants and young children up to 36 months serves to avoid any confusion of these products with human milk and to highlight their ultra-processed nature.

MATERIAL AND METHODS

The study comprised different types of data. First, the collection of labels found on containers of infant/follow-up formulas and modified milks for children. Second, the collection of adverts in the digital ecosystem from June 2022 to February 2023. Finally, complaints were systematized after verification of non-compliance.

Before collecting the labels, information was researched regarding the market of breastmilk formulas in Argentina in order to identify the companies and the marketed brands as well as their site of production, within the country or overseas, and the food safety authority responsible for authorizing the product (data available at <http://inal.sifega.anmat.gov.ar/consultadealimentos/>).

A comparison was made against the official websites of the Argentine brands to make sure that the whole range of products marketed across Argentina was listed.

For the photographic records, pharmacies and supermarkets were visited by one author (LRP) until the list was saturated.

Labels were recorded by taking photographs of all sides of the containers of the products that were considered breastmilk substitutes under Argentine legislation: infant formula (0 to 6 months of age), follow-up formula (6 to 12 months of age), formulas with specific nutritional characteristics/foods for special medical purposes for infants, and modified milks suitable for children from 1 year of age.

Pictures were taken of each type of package in powdered form (tin, box, pouch) or in liquid form. When a brand was not exhibited on shelves at brick-and-mortar stores, the cheapest presentation of the product was bought from an online store. Some imported foods for special medical purposes, which were not exhibited on shelves either, were not bought online due to their high price, but the pictures of the final label approved by the National Institute of Foods (*Instituto Nacional de Alimentos - INAL*), were obtained from the Federal System of Food Management (*Sistema Federal de Gestión de Alimentos - SIFeGA*).

The labels were examined following a checklist for the texts and images that must or must not appear according to the product category. To achieve this, Form 7 of NetCode Protocol for Periodic Assessments (WHO-UNICEF 2017) was adapted to the national laws. The information was entered on Excel spreadsheets to later estimate the prevalence of each characteristic in the category of breastmilk substitute and calculate the aggregate score.

In addition, in order to measure cross-promotion, the 'similarity score' elaborated by Conway et al. (2023) was used. This score examines five characteristics: (i) container colour; (ii) size and position of the logo; (3) position of product name; (iv) imagery/drawings on the container, and (v) position of the image/drawing. When making the comparison, each variable is assigned 0 if there are differences, 0.5 if there are similarities, and 1 if it is identical. The higher the score, the greater the similarity and, accordingly, the greater the difficulty in visually telling the difference among the categories of substitutes.

In Argentina, 89% of individuals have a mobile phone and 88% of individuals use the Internet (INDEC 2022). For the collection of advertisements in internet-based environments on a systematic basis, a methodological decision to restrict the compilation of information to Instagram and Facebook adverts was made.

Instagram and Facebook adverts are available through the Meta Ad Library. Created in 2019, this is a database where you can search for paid ads that are currently active for any product, by selecting the country in which the ad is shown. This way you have access to all the ads in use at a given time and you can visualize the text, images or videos just in the same way as they are shown to users when they surf the Net, and you can also get the specific localizer or URL (an essential element required when reporting an ad). However, it does not disclose the number of users to whom each ad is shown or the audience segmentation criteria used. We included ads that appeared from June 2022 to February 2023.

Following the methodological framework proposed by the WHO to monitor digital advertising of unhealthy feeding products to children, known by the acronym CLICK (WHO Europe 2018), the second step consists in identifying the landscape of advertising campaigns.

Ads were compiled by downloading and taking screenshots, because a characteristic of this form of advertising is the high rotation of the created and disseminated contents, so that ads have a limited time of "active life," after which they cannot be visualized any longer, despite having the URL or specific localizer.

After creating a database of saved ads, the contents of the texts and images were analysed to identify the main topics used in the messages, using the classification included in Annex 7 of the NetCode Protocol (WHO-UNICEF 2017).

Finally, we documented different complaints filed by us during the data collection and analysis of information stage, after identifying violations of Argentine laws concerning labelling and advertising of breastmilk substitutes.

RESULTS

THE BREASTMILK SUBSTITUTE MARKET IN ARGENTINA

Argentina produces, imports and exports infant, follow-up formulas and modified milks for young children. Since November 2021 there have been three companies involved: Danone/Nutricia-Bagó, Nestlé, and Roemmers, resulting in a highly concentrated oligopoly (PAHO 2015; Baker et al. 2023). However, most of the powdered preparations for special medical purposes are imported.

The food safety authority responsible for authorizing and registering the products will depend on the geographic location where the manufacturer is established. For example, Danone/Nutricia-Bagó has registered the powdered products within the province of Buenos Aires, the imported products with the National Food Institute (*INAL*) while the liquid products are registered in the province of Santa Fe.

The packages of 54 types of breastmilk substitutes were photographed and examined. As shown in [Table 1](#), most of

Table 1. Distribution of standard substitutes according to type of product, company and brand

Characteristic		Number of products	Percentage of products
Type of product	Total	54	100%
Infant and follow-up formulas		18	34%
Presentation form	Powder or liquid	16	
	Only powder	2	
Foods for special medical purposes (FSPMs) and formulas with specific nutritional characteristics (FSNCs)		27	50%
Presentation form	Powder	27	
Modified milks for children from 1 year of age		9	16%
Presentation form	Powder and liquid	8	
	Only powder	1	
Company	Brand		
Danone/Nutricia-Bagó		23	43%
	Nutrilon	11	
	Vital	5	
	Kas1000	1	
	La Serenísima Baby	3	
	La Serenísima Baby Crecer	3	
Roemmers		19	35%
	Sancor Bebé	3	
	Sancor Bebé Advanced	3	
	Enfabebe	4	
	Nutramigen	1	
	Nutribaby	8	
Nestlé		12	22%
	Nan	7	
	Nidina	3	
	Nido	1	
	Alfaré	1	

the products fall within the category of special preparations (FSPMs and FSNCs), followed by infant and follow-up formulas and, finally, modified milks. The company with the largest quantity of products in the market is Danone/Nutricia-Bagó, which also has a correspondence with the highest proportion of sales as illustrated on the map published by Baker et al. (2021) (Figure 1).

FIRST INGREDIENT OF THE FORMULA: ABUSIVE BUT APPROVED LABELLING

In Argentina, the labelling of substitutes requires a number of elements applicable to all packaged feeding products (company details, batch number, expiration date, list of ingredients, table of nutritional composition), including other specific details established under the Argentine Food Code. These can be divided into two groups: (i) mandatory information, texts and graphics; and (ii) forbidden claims, disclosures and illustrations.

As shown in Table 2, concerning mandatory information for infant formulas (“Breastmilk is the best food for your baby”) and for follow-up formulas (“Breastmilk continues to be the best milk”), the level of compliance was 88% while for Foods for special medical purposes (FSPMs) (“Use only under medical supervision”), it was 91%.

The guidelines of the Argentine Food Code concerning the name of product (“Powdered/liquid infant/follow-up formula,” “Food for special medical purposes,” “Modified milk for children from 1 year of age”) were complied with in 80% of the products. Non-compliance was mainly related to infant/follow-up formulas and formulas with specific nutritional characteristics that add the list of minerals and/or vitamins to the description. These are nutrients that all formulas must compulsorily contain in quantities that are specified in Section 1353 *bis* of the Argentine Food Code. Hence, they should not be stated as a distinctive characteristic in the name of product, brand or other text.

A lower level of compliance (51%) was noted for the required identification of optional ingredients (such as long-

Table 2. Percentage of labels of breastmilk substitutes including general and specific information under Sections 1353 bis, 1359 bis, 1383 bis and 1390 bis of the Argentine Food Code, according to type of product and total

Category	Information Type	Products (%)			
		Infant and follow-up formulas (n=18)	FSPMs and FSNCs (n=27)	Modified milks for infants (n=9)	Total (n=54)
General					
	Label well-attached to the container**	100	100	100	100
	Written in Spanish**	100	100	100	100
	Manufacturer/Importer**	100	100	100	100
	Batch number**	100	100	100	100
	Expiration date**	100	100	100	100
	List of ingredients**	100	100	100	100
	Table of nutritional composition*,**	100	100	100	100
Specific					
Mandatory	Product name as required by the Argentine Food Code*	75	78	100	80
	Optional ingredients (DHA, FOS/GOS, taurine, nucleotides) or specific nutritional properties (lactose free, with hydrolyzed proteins or anti-reflux formulas) detailed BELOW the name of the product*	29	63	50	51
	"Gluten-free" mandatory symbol*, ****	88	63	100	76
	List of each monosaccharide and disaccharide in the table of nutritional composition*	25	30	N/A	28
	"IMPORTANT NOTICE" message, with required font size and background*	38	33	50	37
	Mandatory phrase for infant formulas: "Breastmilk is the best food for your baby. Up to 6 months of age, your baby does not need any other food or beverage"*	88	65	N/A	71
	Mandatory phrase for follow-up formulas: "Breastmilk continues to be the best milk for your baby up to at least 2 years of age" and a statement that the product is only suitable for infants aged 6 months or beyond and as part of their diversified diet, and that it should not be used during the first 6 months of age"*	88	N/A	N/A	92
	Mandatory phrase for FSPMs: "Use only under medical supervision". "Do not use parenteral routes" ****	N/A	100	N/A	100
	Indication of target age*	100	91	100	97
	Mandatory phrase: "Consult with a doctor"*	100	100	100	100
	Mandatory phrase: "For inquiries, you can call the breastfeeding helpline at 0800-222-1002 from any location within the country"*	88	41	N/A	51
Mandatory phrase for powdered formulas: "Reconstitute with drinkable water" *	63	26	N/A	40	

	Information indicating that the powdered products are not sterile*	88	63	25	65
	Graphics illustrating the method of preparation*	100	100	100	100
	Instructions for storage, use and removal of any remains*	100	100	100	100
	Warning about the hazards that may be derived from inadequate storage, preparation or use*	100	100	100	100
Forbidden	Declarations about nutritional properties and/or claims that declare, suggest or imply that there is a relationship between the formula or a formula ingredient and the infant's health *	100	89	100	94
	Term "maternized" or "humanized"***	0	0	0	0
	Texts or images that idealize their use**	100	78	100	88
	Texts or images that may discourage breastfeeding**	75	78	38	71
	Invitation to contact manufacturers**	100	100	100	100

Note: N/A = Not Applicable

*Under Section 1353 bis; **Under Section 1359 bis; ***Under Section 1383 bis;

****Under Section 1390 bis

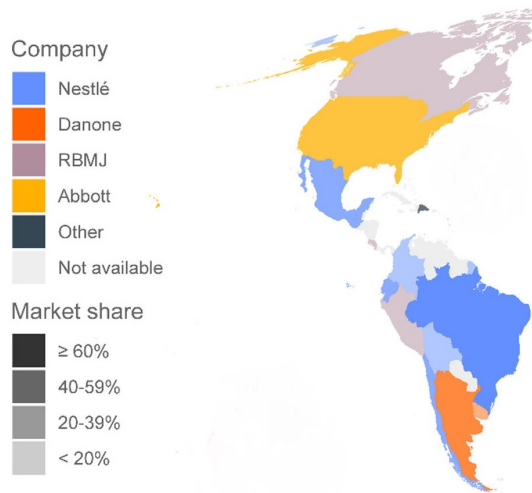


Figure 1. Map showing the market share (%) of leading companies in the Americas region

Authors' Note: Data obtained from Euromonitor Passport; the colour corresponds to the leading corporation in the market in each country and the intensity of the tone shows their % of market share.

Source: Baker et al. (2021).



Figure 2. Examples of highlighted optional ingredients included in nutrition and health claims

chain polyunsaturated fatty acids, nucleotides, prebiotics, galactooligosaccharides, fructooligosaccharides, taurine) below the name of the product. These ingredients are considered optional because there is not enough scientific evidence to back up their effectiveness in providing a nutritional or health benefits (EFSA, 2014). In all formulas having optional ingredients, whether or not disclosed below the name of the product, these were highlighted in nutritional claims and, in some cases, claiming a correlation with the health of infants (Figure 2).

Only 51% of the products included the mandatory sentence: “For inquiries, you can call the breastfeeding helpline at 0800-222-1002 from any location within the country.” Furthermore, for the containers that did have the text printed, in most cases it was at the back or on one side of the container but not clearly visible, in contrast to text (which is actually forbidden) inviting users to contact the manufacturers.

Another mandatory text that was quite conditioned by the graphic design of the containers was the title “Important Notice,” which must appear before the phrase that emphasizes breastmilk superiority, using a font size with a minimum of height of 4 mm, with a clearly visible and conspicuous message. These characteristics were satisfied in only 37% of the examined cases.

Finally, as to mandatory information, only 28% of the formulas listed each monosaccharide and disaccharide among the carbohydrates in the nutritional composition table.

In relation to forbidden phrases or images, almost all the formula labels (94%) had nutrition and/or health claims or declarations, as shown in Table 3. Some of these claims use artificial terms by combining words in other languages (“advanced protectus”), acronyms that are trademarks of ingredients (OPTIPRO), or acronyms that are abbreviations of ingredients (GOS/FOS to refer to galactooligosaccharides/fructooligosaccharides; PDX to refer to poly-dextrose; DHA/ARA to refer to docosahexaenoic and arachidonic fatty acids). Some brands also use as nutritional claims some terms (postbiotic, symbiotic) or acronyms for optional ingredients that are not included in the Argentine Food Code: MFGM to refer to the milk fat globule membrane, and HMO without explaining the meaning of the acronym (except for one case which will be discussed below).

50% of the infant and follow-up formulas, 11% of FSPMs/FSNCs, and 38% of modified milks have labels stating “no sugar added”/“no sucrose added.” Those texts constitute a Nutritional Claim that, according to the standards regulating those declarations (Section 235, subsection 5 of the Argentine Food Code), it cannot be applied to the foods for special purposes such as formulas and modified milks. In addition, when used in other feeding products, the “no sugar added” claim cannot be used in relation to specific sugars (in this case, sucrose). In other words, almost a half of standard formulas and modified milks have in a bold way a declaration on the front of package that is not allowed under the Argentine Food Code. Furthermore, under the Argentine Code, sucrose cannot be included anyway among the ingredients of standard formulas. These declarations were deceptive, because these products do have added sugars like maltodextrin or glucose syrup. On one cynically deceptive label (see Table 3, line 3), messages referred to the harm caused by consuming foods and beverages with sugars.

88% of label texts or imagery idealized the use of the product. Texts presented the product as a result of scientific and technological developments, as an enhancer of optimal child growth and development, as a means of showing care and affection, and/or as environmentally friendly (Table 3). Imagery included drawings of animals with infantile or anthropomorphized traits, imitating child development milestones at every age at which the product was targeted (See example in Figure 3). Other drawings that sought to idealize the product, such as hearts or shields, were also common and one product displayed a drawing of the facial profile of a baby.

Table 3. Examples of forbidden texts

Nutrition and/or health properties claims	
"With GOS/FOS prebiotics: unique blend supporting immune health. With HMO postbiotics: with oligosaccharide found in breastmilk." (Nutralon 1, 2 & 3)	
"With bifibres, vitamins, minerals, proteins, calcium, iron, omega-3 and omega-6," "Bifibres. A blend of prebiotic fibres acting on the colonic microflora and helping digestion and absorption of nutrients," "Did you know that the Digestive System of your child is crucial for their development and well-being? It provides barrier defences of the body mechanism. It is connected with their brain and has an impact on their good mood. It is responsible for absorbing + the necessary nutrients for their growth." (Vital 1, 2 & 3)	
"NO SUGAR ADDED * *Meaning sucrose (common table sugar). Did you know what effects are produced from excess intake of foods and beverages that contain sugar*? Higher caries risk. Preferences for sweet food. Higher overweight risks or excessive weight gain." (Vital 1, 2 & 3)	
"Total nutrition, iron, zinc, vitamins A & D, proteins, minerals, omega-3 & omega-6, calcium" (La Serenísima Baby 1, 2 & 3)	
"DHA & ARA, prebiotics, proteins, vitamin C +25 vitamins and minerals," "No sugar added, without colorants, without preservatives." (Sancor Bebé 1 & 2 - liquid)	
"OMEGA-3 & OMEGA-6 are involved in the development of the brain and retina. PREBIOTICS favour natural defences. PROTEINS help form muscles. VITAMIN C +25 VITAMINS and MINERALS contribute to a strong and sound growth." (Sancor Bebé 3)	
"GOS, PDX;" "MFGM, DHA, ARA"; "Fibres" (Sancor Bebé 1, 2 & 3 - Advanced)	
"Nutri-mix; DHA-ARA, Prebiotics, Probiotics, Vitamins and Minerals," "PREBIOTICS + PROBIÓTICOS = SYMBIOTICS," "Nutritionally complete" (Nutribaby 1, 2 & 3)	
" Advanced Protectus. Zinc and Iron. Immune health nutrients." (Nidina 1 and 2)	
"OPTIPRO, HM-O" "HMO is an oligosaccharide (2'FL) that helps to reinforce the baby's natural defences. It contains OPTIPRO, a unique, optimized protein blend in terms of quantity and quality, according to the infant's nutritional needs. DHA-ARA are essential fatty acids for the baby's development." "Did you know that proteins are involved in your baby's health during their lifetime? Research shows that proteins are one of the most important nutrients for your baby's growth and development because they contribute to the formation of their whole body, including their brain and muscles. The quality and quantity of proteins that they receive today can help to establish a solid basis for a healthy future." (Nan 1, 2 & 3)	
"Advanced protectus. Immune system, Vitamin C and immune health nutrients. Motor skills, Calcium and Vitamin D. Milk A2 & Prebio 1," "Double action in defences, double action in growth, double action in digestion," "Vitamins A, B & D, iron, zinc and selenium, immune health nutrients to maintain defences," "Vitamin C, improving iron absorption," "Calcium, Vitamin D and Proteins, for the development of bones and muscles," "Vitamin D, improving calcium absorption" (Nido 3)	
Language idealizing the use of the product	
Main themes	Phrases
Scientific evidence, innovation	"Best improved unique formula. Leading brand in Argentina," "With more than 120 years of expertise in early nutrition, we have been research pioneers for 40 years thanks to a team of 500 scientists and experts." (Nutralon 1, 2 & 3)
	"New and improved" (Nido 3)
Child growth and development	"Specially adapted to the nutritional needs of your child at this stage" (Nutralon 1, 2 & 3)
	"Designed to help your child grow up healthy and strong! Providing all the nutrients necessary for their age thus offering a total nutrition." (La Serenísima Baby 1, 2 & 3)
	"GROWING-UP MILK that contains the NUTRIENTS that they need." (Sancor Bebé 3)
	"It provides the necessary nutrients that are involved in the baby's growth and development." "The early days: a window of opportunities. During this period, nutrition plays a fundamental role in your baby's growth and development." (Nidina 1)

	"It contains essential nutrients for growth and development." (Nan 1 & 2)
	"It favours your baby's natural defences and enhances learning skills at this new stage." (Nido 3)
Care and affection	"Letting your child experiment the world is a way to favour their adaptation and to prepare them for the future." (Nutrilon 1, 2 & 3)
	"For you to enjoy this unique stage in their life to the full!" (La Serenísima Baby 1, 2 and 3)
	"Specially elaborated for your baby." (Nidina 1 & 2)
	"Loving mom-led formula." "Congratulations! Your child turned 1 year! Your child is starting a journey of self-discovery that is why they need nutrition, specifically developed for their age." (Nido 3)
Environ-mentally friendly	"WE ASSUME A DOUBLE COMMITMENT: First, taking care of the youngest children with a GROWING-UP MILK containing the NUTRIENTS they need, and second, taking care of the environment through a more SUSTAINABLE PACKAGE that reduces our environmental footprint. This little box of SANCOR BEBÉ 3 is made of pasteboard from RECYCLED AND RECYCLABLE material, a certified and sustainable FSC paper. Tons of PAPERS AND CARDBOARDS are recycled on a monthly basis and are CONVERTED into CONTAINERS that, in turn, WILL BE RECYCLED to return to pasteboard and to begin the cycle again. KNOW MORE ON OUR COMMITMENT TO THE ENVIRONMENT AT www.sancorbebe3.com.ar " (Sancor Bebé 3)
	"Package designed to be 100% recyclable." (Nido 3)
	"Paper straw. Cutting down on plastic. We use paper straws to cut down on plastic." (Nido 3 - liquid)



Figure 3. Examples of anthropomorphized drawings

In 71% of the products, there were labels that discouraged breastfeeding, such as: “When breastfeeding is not possible or proves insufficient,” “When the mother is not able to breastfeed her baby, partially or totally.”

The only prohibition that was obeyed by the majority of manufacturers was not using such adjectives “humanized” or “maternized.” Only in one line of products in liquid form was an explicit statement comparing the product with breastmilk found: “Postbiotic HMO, an oligosaccharide found in breastmilk,” which is a phrase that also draws a false similarity since they are synthetic ingredients (First steps nutrition trust 2020).

Another message, found in two modified milks for children from 1 year of age, also marketed by Nestlé, one powdered and one liquid, stated that the product “is not a breastmilk substitute,” in violation of the legislation in force (Executive Order 22/2025 n.d.), under which any milk marketed for children up to 24 months of age is considered a breastmilk substitute.

Of the 27 standard formulas and modified milks, 30% (8 products) highlighted the mandatory and/or optional ingredients and 70% (19 products) added health declarations, both forbidden. Out of the latter, 47% (9 products) included one declaration and 53% (10 products) had two or more. The most common declaration claimed that the product (or its ingredients) “helps/supports child’s growth and development” (16 products), then the fact that they “strengthen the immune system” (13 products) and, finally, that “the product supports cognitive/brain and/or retina development” (4 products).

When applying the ‘similarity score’ elaborated by Conway et al. (2023), high scores were obtained in all cases, just with some slight differences deriving from variations in the

colour codes, in the drawings or in the brand name of the product (See examples in [Table 4](#)).

SECOND INGREDIENT OF THE FORMULA: FORBIDDEN BUT ALLOWED ADVERTISING

Facebook and Instagram ads pop up even when people are not account followers, by using digital fingerprinting and their eligibility as the target of the ad.

In Argentina, the number of active ads varied enormously every month, from 96 to 32, resulting in a total database of 440 ads. Nevertheless, digital ads of infant / follow-up formulas and foods for special medical purposes were scarce. They were captured only twice, both for products marketed by Danone/Nutricia-Bagó, which promoted follow-up formulas, lactose-reduced formulas, formulas with hydrolysed proteins and anti-regurgitation formulas, with “exclusive discounts” and “free shipping across Argentina.”

The most advertised products were modified milks for children from 1 year of age marketed with a figure ‘3’ (forbidden by the Breastfeeding Awareness and Promotion Act of 2015) and, to a lesser extent, for children over 2 years of age, marketed with figures ‘3+’ or ‘4’. For example, in June 2022, 96 digital ads for modified milks were examined, 74% with a figure ‘3.’ Images and videos of these advertisements are also used in posts on social networks belonging to the brands and, in some cases (Nutrilon, Vital, Sancor Bebé, Sancor Bebé Advanced), they were part of campaigns involving traditional media (such as television, radio) and in ads placed in public areas. In most of the ads in digital media for modified milks 3, 3+ & 4, the visualization of the container occupies a central place, aiming at creating a

	Infant milk formula (No. 1)	Follow-up milk formula (No. 2)	Modified milk for children from 1 year of age (No. 3)	Modified milk for children from 2 years of age (No. 3+ & No. 4)	Similarity score (0 to 5)
Danone/Nurricia-Bagó					4.5 Colour: 0.5 Logo: 1 Name position: 1 Image position: 1 Image position: 1
					4 Colour: 0.5 Logo: 1 Name position: 1 Image position: 1 Image position: 0.5 Image position: 1
Roemmers					4 Colour: 0.5 Logo: 1 Name position: 1 Image position: 0.5 Image position: 1
					4.5 Colour: 0.5 Logo: 1 Name position: 1 Image position: 1 Image position: 1
					4 Colour: 0.5 Logo: 1 Name position: 1 Image position: 0.5 Image position: 1
Nestlé					4.5 Colour: 0.5 Logo: 1 Name position: 1 Image position: 1 Image position: 1
					3.5 Colour: 0.5 Logo: 0.5 Name position: 1 Image position: 0.5 Image position: 1

Table 4. Images of containers of infant, follow-up formulas and modified milks for children according to the company marketing the product and the similarity score



Figure 4. Images of babies in advertisements

textual and visual recognition of the brand and the line of products (Table 4).

Advertisements amplified nutrition claims on the labels by making reference to particular ingredients and describing the purported benefits to child nutrition, health, growth, and development, in particular to the immune system and cognitive development.

Two examples:

- “A unique formula that helps to strengthen your child’s immune system. OPTIPRO, Bifidus BL, HM-O 2FL Probiotics,” “Unique formula in the country with HM-O” (Nan 3);
- “Unique with MFGM and three benefits,” “Immune System, MFGM + prebiotics,” “Digestive system, a blend of GOS+PDX probiotics,” “Cognitive development, neuro-nutrients DHA+MFGM,” “What is MFGM? The milk fat globule membrane is a complex structure of bioactive components. Found in breastmilk, it favours brain development and immune functioning. It is made up of over 190 proteins that protects intestinal health and produces antimicrobial effects. It contains three layers of phospholipids and cholesterol with effects beneficial to the child’s health and neurodevelopment. That way, thanks to the benefits of the MFGM, children can grow healthy and strong.” (Sancor Bebé 3 Advanced).

The allusion to breastmilk created a false equivalency with it. This was also reinforced by including images of babies, as shown in Figure 4.

Another frequent resource was the use of the term “formula” in the adverts for modified milks (Figure 5), relying on the polysemy of the term to refer to infant and follow-up formulas, resulting in another language resource for cross-promotion of the whole line.

Messages in ads also made reference to a purported endorsement by health care professionals, disclosed in texts or images (Figure 6).

Several brands had included in their ads references to gender issues, in particular parental roles (Vital, Sancor Bebé, Nestlé) and respect for identities in child rearing (Nutrilon). Voicing a social debate that highlights the importance of joint responsibility in child rearing, the messages in the adverts associated artificial nutrition with parent in-

volvement in care tasks and with liberation from motherhood mandates imposed by society, insinuating a link between social pressures to be “a good mother” and breastfeeding. Vital’s campaign encouraged you “to listen to your own voice” and “to silence ‘opinion makers’”, Sancor Bebé said “Daddy gets motivated” and affirmed “You are doing it well.”

The Vital campaign even used the supposed nutritional characteristic of the product, “sugar-free”, as a metaphor for the style of motherhood with which they proposed to identify “sugar-free motherhood”, i.e. without idealisations, leaving as a subtext that exclusive and continued breastfeeding would constitute a romanticisation of motherhood. (Figure 7).

Another common advertising resource was the use of discounts, promotions and raffles, often focused on special dates like the Children’s Day, Mother’s Day, start of spring, Christmas or during shopping events such as CyberMonday or Black Friday (Table 5).

THIRD INGREDIENT OF THE FORMULA DECEPTION: INSTITUTIONAL CHANNELS FOR COMPLAINTS, EITHER FRAGMENTED OR NON-RESPONSIVE

The National Administration of Drugs, Food and Medical Devices (ANMAT) and the National Food Institute (INAL) offer e-mail addresses for filing claims, as do the food safety authorities in the provinces responsible for approving the labels and controlling the products produced and marketed within their territories.

In 2021 and 2022, we filed non-compliance complaints related to labelling with the five food safety authorities, with the offices of Consumer Protection at a national level and in the City of Buenos Aires. In several cases, due to a lack of response, applications to have “Access to Public Information” were submitted.

For example, in March 2022, a complaint was filed with the Bureau of Consumer Protection within the City of Buenos Aires regarding non-compliance with labelling of Vital infant and follow-up formulas, only after receiving no satisfactory response from the company, as well as sending a photo of a purchase receipt, as required. Shortly afterwards, a legal representative of the company informed us by phone that they considered there was no violation of labelling standards, since these were all approved by the relevant food safety authority.

In Argentina, food labelling is approved at the time of registration before the food safety authority within the jurisdiction where the establishment of the manufacturer is located (or before the National Food Institute, when it comes to imported products). The aforementioned authorities grant a National Food Product Registration Number (*Registro Nacional de Producto Alimenticio -RNPA*) that is valid for 5 years, thereby authorizing commercialization within the national territory.

Later, the Bureau of Consumer Protection responded that they would not accept the claim because they did not have proper jurisdiction over the matter and that the complaint should have been channelled via ANMAT. We did so with both ANMAT, ASSAI, the food safety authority within



Figure 5. Use of the term ‘formula’ in ads for modified milks



Figure 6. Examples of references to endorsement by health care professionals

the province of Santa Fe (where the Vital infant formulas are manufactured), and the Hygiene and Food Safety Administration of the Governmental Control Agency, City of Buenos Aires, adding that when purchased the product had expired.

The Epidemiology Department of ASSAI ordered an audit of the manufacturer to verify the batch numbers of batches sold after the expiration date. Within only 10 days, this resulted in a re-registration of the label, without urging the company to conform to the terms under Section 1353 bis of the Argentine Food Code. In doing this ASSAI ignored the non-compliance, at the same time accepting the inclusion of forbidden nutrition and health statements, deceptive declarations on added sugars, drawings idealizing the use of the formula, improper mandatory declarations, recognizing the fact that the company did not comply with font size requirements and that they failed to itemize carbohydrates in the nutritional information table indicating

each monosaccharide and disaccharide, as well as allowing invitations to make contact with the company.

ANMAT ignored the complaint, forwarding it to ASSAI. The Hygiene and Food Safety Administration of the City of Buenos Aires responded that they had sent an auditor to the pharmacy where the product was bought whose irrelevant confirmation was that “the premises have suitable conditions for operation.”

Six complaints were filed with different food safety authorities and consumer protection agencies about this issue of labelling.

As for the example above, this indirectly resulted in the validation of non-compliance with labelling standards.

This created a serious legal scenario, because not only was there a deficit in monitoring and surveillance, but there was also an acceptance of non-compliance on the part of specific state agencies responsible for enforcing the rules set forth in the Argentine Food Code. When approving a label in violation of the legal scheme, they were conferring



Figure 7. Examples of the use of gender issues as an advertising resource

validity and legality, shielding companies from claims while leaving consumers defenceless. This was the red tape labyrinth that gave priority to corporate business activity over the right to information and to health protection of the population.

In relation to advertising, complaints made by one of the authors (LRP) were filed some years ago, after the passage of the regulations governing the Breastfeeding Act, and again in 2022. ANMAT did not respond. Applications submitted to request access to public information resulted in the knowledge that the complaints had not been acted upon.

In June 2022, one complaint did have an effect. Roemmers launched a multi-media campaign (radio, television, digital media) for modified milks for children from 1 year of age (Sancor Bebé 3) and from 2 years of age (Sancor Bebé 3+) in a single advertisement. The complaint argued that this was cross-promotion and a deceptive ad.

The ANMAT Monitoring and Supervision Programme requested a change in the advertisement because “such an ad could lead to error and/or confusion as to product recognition.” The company responded that the ad was no longer running and that it had also been removed from their YouTube channel.

The Ombudsman Office for Audiovisual Media, while agreeing that it implied “a confusion that could lead audiences to equate one product with the other one (Sancor Bebé 3 and Sancor Bebé 3+)”, dismissed the argument of “cross-promotion” relying on the disclaimer included in the advert: “It is not a breastmilk substitute.”

That sort of disclaimer implied a convenient “self-exclusion”, denying the substitute status of modified milks for children from 1 year of age, which circumvented Argentine

legislation (Breastfeeding Act in the year 2013, implementing Executive Order dated 2015, Section 1353 bis in 2018).

The Bureau of Consumer Protection actually held that “there are no elements with sufficient characteristics to lead to error, deception or confusion in potential consumers”. The Advertising Council of Self-Regulation did not analyse the ad because it was no longer running. Nevertheless, “when verifying that the ad continued to be available on the official channel of the advertising brand on YouTube,” they requested its removal. The Child Nutrition Business Association responded via a phone call that the executive committee would not address the complaint because the situation did not entail any health hazard.

A further exception to agency inaction occurred in response to a new complaint about an ad of “Sancor Bebe Advanced 3” in January 2023, when the ANMAT Monitoring and Supervision Programme for Advertising concluded that “the alluded product falls within the scope of the International Code of Marketing of Breastmilk Substitutes according to Breastfeeding Act No. 26873 and its implementing Executive Order 22/2015, given the age group to which it is addressed.” The company was told to refrain from advertising the product in the mass media, whether digital or otherwise, and to remove any advertising material related to the same product from their web-based platforms.

This twist in the actions taken by the regulatory authority, based on a tight interpretation of the specific national statute referring to the Code, became rapidly reflected in the digital ecosystem. In February 2023, when 32 adverts were examined, they had migrated to the category of children over 2 years of age, which accounted for 80%. It will be necessary to continue to monitor whether this change endures over time.

<p>Children's Day</p>		
<p>Raffles for the Mother's Day</p>		
<p>Other raffles</p>		
<p>Christmas</p>		
<p>Cyber Monday</p>		

Table 5. Examples of promotions and discounts

DISCUSSION

Three elements that structure the marketing of breastmilk substitutes in Argentina are: labelling, advertising and poorly functioning institutional channels for complaints, the three main ingredients for a “formula for deception.”

In a recent systematic review (Becker et al. 2022) of 153 studies that have documented persistent violations of the Code in 95 countries (including Argentina), labelling violations were detected in 86 studies, 66 of which were nutrition and health declarations. However, there were no reports in other works of the (deceitful) text “no sugar added,” found in 50% of the infant and follow-up formulas marketed in Argentina. There, companies had satisfied the composition requirement (no sucrose allowed), but had turned it into a deceitful advertising text. The other sugars used instead were mentioned in the list of ingredients, but were not included in the table of nutritional information.

Nutrition and health declarations on formula labels are not allowed under Argentine legislation nor are they allowed under the Code (Resolutions by the WHA 58.32 dated 2005 and 63.23 dated 2010). They play an advertising role (Nestle 2018; Munblit et al. 2020) and companies use them to introduce a product line as premium and/or to imply breastmilk equivalency (or even superiority to breast milk) (Hastings et al. 2020; Rollins et al. 2023; Mangialavori, Della Rosa, and Finkelstein 2022; Sánchez 2013).

Cheung et al. (2023) found that nutrition and health declarations on infant formulas marketed in 15 countries, lacked adequate scientific evidence. Two thirds did not provide references or cited articles that were not peer reviewed; when registered clinical trials were cited, these tended to include authors with conflicts of interest or were funded by the industry itself.

These misleading nutrition and health declarations have even been identified in countries with national laws that are substantially aligned with the Code (Cheung et al. 2023; Lutter et al. 2022), highlighting that, in addition to robust laws, state agencies often fail to apply the rules, to monitor and sanction violations.

Similar to the Argentine case, Becker et al. (2022) reviewed 54 studies reporting cross-promotion. Labelling has been widely documented as a type of promotion used by formula companies (Ares et al. 2022; Rollins et al. 2023).

Indeed, plain or generic labelling would reduce much of the problem of infant formula promotion (Rollins et al. 2023; Mota-Castillo et al. 2023).

In relation to advertising strategies, the use of nutrition and health claims and endorsement by health workers, known as “nutri-washing,” is widely used in the food industry (Scrinis 2008), often highlighting the presence of isolated nutrients to construct a “health halo” over infant feeding products.

Again, similar to the Argentina case, Rollins et al. (2023) noted the manipulation of gender issues, associating the use of commercial formulas with “women’s liberation” and with joint responsibility concerning care tasks on the part of men. This is sometimes referred to as a “pink washing” strategy, that is to say, to superficially appropriate feminist

debates to create a positive image of the product. Rollins et al. (2023) also found that the industry often uses messages that call upon the need to ignore other people’s opinions about child nutrition choices, similar to our case of a campaign urging consumers to silence “opinion makers.” Finally, as in our case, “green-washing” was another consumer concern appropriated by formula companies.

Exposure to the above plus advertisements to women from pregnancy to the immediate post-natal period or their family, helps to configure a landscape that negatively affects breastfeeding practices (Baker et al. 2023).

Messages in digital environments are known for their ubiquity, intensity, personalization, and, often, their underhand nature. The greater the exposure to this environment, the shorter and the less exclusive breastfeeding may be (Romo-Palafox, Pomeranz, and Harris 2020; Unar-Munguía et al. 2022; Rollins et al. 2023).

Moreover, the legal trick attempted by Argentinian companies (claiming a product aimed at infants from 12 months is not a BMS, when national law says it is) is a special local version of the ongoing dispute taking place in the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU). Despite the proposals made by the World Health Organization and the civil society groups like The International Breastfeeding Action Network, known as IBFAN, for the drafts of the Codex team documents, this section has not been aligned yet with the World Health Assembly Resolution 69.9 (2016) in a way that it specifies that cross-promotion tools are forbidden. Codex work teams are quite influenced by the industry and its standards are used in the World Trade Organization to challenge stricter national laws (Boatwright et al. 2021; Russ et al. 2021; Baker et al. 2023). As is common, during a virtual meeting in November 2021 held by the CCNFSDU, 50% of the members of the Argentine team had a connection with the industry or chambers of commerce (Codex Alimentarius Commission 2021).

Limitations of the present study include not addressing labelling and advertising of feeding bottles and teats or complementary food, and not including some forms of promotion such as point of sale, traditional media and public signage. Furthermore, this study did not include healthcare institutions and conflicts of interest, whether personal or institutional. A detailed inquiry into these areas will likely introduce further ingredients of the “formula for deception”.

Although a correlation between stricter laws and better breastfeeding rates has been documented, this depends on the intensity of corporate political activities in interfering with the implementation of public policies (Lutter et al. 2022). Recent improvements in the normative scheme in Argentina have failed to have an impact on improvements in marketing environments for substitutes, probably because of the impact of such a large industry on policy-makers and public institutions.

Argentina needs a comprehensive law containing all the provisions of the Code, establishing the scope up to 36 months of age and specifically incorporating the prohibition of nutrition and health claims and/or declarations in

all categories of substitutes, prohibition of cross-promotion and creating effective and transparent mechanisms to monitor, supervise, handle complaints and impose sanctions. The need for this latter action was highlighted by the United Nations Rapporteur on the Right to Food during a visit to Argentina in 2018 (Hilal 2019).

As argued in a newly released document of the Pan-American Health Organization (2022), “The best practices to promote health require affirmative actions within the state apparatus and these actions have nothing to do with omission or silence.”

CONCLUSIONS

This work examines the breaches of the Code and Argentine laws concerning labelling and advertising of breastmilk substitutes, committed by the three companies marketing these products across Argentina. This study also includes a description of the actions by state agencies validating non-compliance and yet failing to apply existing rules and sanctions, while also failing to adequately handle complaints, lacking transparency and accountability mechanisms. All of this configures the ingredients of a “formula for deception” that defines a marketing environment that violates the right to information, to health and to adequate nutrition.

The single case in which effective action by a regulatory agency took place illustrates that it is essential to demand enforcement on the part of the state agencies with controlling and supervising powers. Whether this change endures needs to be monitored.

Finally, on a world scale, in the present era important research and legal efforts are being made by the agencies of the United Nations, the civil society groups, and scholars with no conflicts of interest to place the promotion and protection of breastfeeding as a key priority within public health (WHO 2022; WHO-UNICEF 2022; Doherty et al. 2023).

In Argentina, it proves vital to advance in that direction, immediately applying existing rules and designing a comprehensive law to incorporate in an updated way all the provisions of the Code. Only in this way will progress be made to restrict marketing practices, giving priority to the

protection of fundamental human rights of children, women and families over commercial interests.

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COMPETING INTERESTS

None to be declared. All authors completed the ICMJE uniform disclosure form available at <https://www.icmje.org/disclosure-of-interest/>.

ETHICAL APPROVAL

This study followed an observation and documentary approach. In addition, there were no persons involved. Therefore, it is framed within the exceptions regarding the requirement of a revision by a Research Ethics Committee for the Research, as well as the administration of an informed consent, as per Resolution 1480/2011 issued by the Ministry of Health of the Argentine Republic.

AUTHORS’ CONTRIBUTIONS

LRP collected and analysed the data, and drafted the work. BN and IP made substantial contributions to the draft and FG revised it. All authors read and approved the final manuscript.

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