DECEIT, RULE-BENDING AND OTHER MALPRACTICES

An exposé of formula milk companies' product development strategies and promotional practices in Hong Kong and mainland China

This report was researched and written by Globalization Monitor. The purpose of this report is to shed light on industry-specific issues related to the development, promotion and regulation of infant and young children formula milk products in Hong Kong and mainland China.

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Executive summary

This report exposes the most problematic and unethical business practices of breastmilk substitutes (BMS) manufacturers in Hong Kong and mainland China and identifies the inadequacies of existing regulation of the industry.

Breastmilk is widely regarded as the "gold standard" of nutrition for infants and young children. This is evident from the World Health Organization's (WHO) recommendation that infants should be exclusively breastfed for the first six months of their lives, and thereafter receive nutritionally adequate and safe complementary foods while continuing to be breastfed up to two years of age or beyond. Despite WHO's efforts, exclusive breastfeeding rates remain at around 40% globally; breastfeeding figures are notably lower in Hong Kong and mainland China, which are incidentally two of the biggest and most lucrative markets for the formula milk industry.

Studies have associated the promotion of infant formula products with declining breastfeeding rates, while doubts about the scientific underpinning of infant formula products' many supposed health and developmental benefits have persisted. We have thus written this report, which provides an overarching situation analysis of the current BMS promotional practices in Hong Kong and mainland China. It follows two earlier reports that looked at the nutritional composition and marketing practices of major formula companies (*Milking it – How Milk Formula Companies are Putting Profits before Science*) and examined Nestlé's formula milk products and promotional claims (*Busting the myth of science-based formula*).

Our report investigates how major formula companies in Hong Kong differentiate their products, the science behind their choice of ingredients and promotional claims, and the ethical issues arising from misrepresenting certain products as "premium" and charging carers extortionate prices for such products (chapter 2). It also documents the worst of BMS manufacturer's marketing practices, as found in television commercials, in-store promotion, and other channels, highlighting the Code violations they constitute (chapter 3). Finally, it evaluates the new formula registration regime implemented by the Chinese Food and Drug Administration for its effectiveness in curtailing excessive and improper product differentiation and the use of inappropriate promotional claims (chapter 4).

Key findings

Our research yielded several important findings. **Regarding product premiumisation**, we found that it is common for BMS manufacturers to:

- repackage very similar recipes under different brands (see pp.12-13 and p.17)

- distort scientific research to support their promotional claims (see pp.13-14)
- reference scientific studies that lack scientific rigour and impartiality to justify their health and nutrition claims, including studies conducted by researchers they employ (see p.19)
- create "medicalised" formulas that supposedly alleviate or avert cow's milk protein allergy, through the use of hydrolysed proteins whose efficacy have not been proven (see pp.20-21)
- make exaggerated claims about the benefits of the nutrients used in their products or suggest their products are nutritionally similar and/or comparable to breastmilk (see pp.26-28)

BMS manufacturers liberally use these strategies to portray some of their products as "premium" to justify charging much higher prices. This not only exploits carers' concern for their children's healthy development and willingness to pay high costs to provide the best for them, but can also undermine breastfeeding, as these claims misrepresent the true nutritional gap between formula and breastmilk.

We specifically investigated whether Nestlé has completed the corrective actions it promised to make following a meeting with the Changing Markets Foundation (CMF) and Globalization Monitor (GM) in March 2018, in response to the publication of *Busting the myth of science-based formula*. Nestlé pledged to phase out sucrose from its formula products for infants aged between six to twelve months, remove the nutritional advice on *NAN PRO* regarding vanilla flavourings, and phase out vanilla flavourings in several formula products for infants under 12 months old. **We found that Nestlé did not fulfil the latter two commitments**:

- Nutritional advice on *NAN PRO*, which claimed the product does not contain vanilla flavourings for babies' healthy growth, even though Nestlé uses vanilla flavouring in other products, has not been removed (see p.24)
- Three Nestlé stage two formula products (*S-26 Ultima Promil*, sold in Hong Kong; *illuma* and *S-26 Gold*, both sold in China) still contain vanilla flavourings. It appears that the batch of *S-26 Ultima Promil* in which CMF and GM found vanillin had already left Nestlé's value chain, as the *S-26 Ultima Promil* now on sale has a different packaging. We are disappointed to conclude that Nestlé irresponsibly prioritised upgrading its products' packaging over removing an unnecessary ingredient that could unnecessarily burden infants' metabolism (see p.25)

Regarding inappropriate marketing practices, we found that BMS manufacturers frequently stretch the rules detailed in the *International Code of Marketing of Breast-milk Substitutes*, adopted by the WHO in 1981 and subsequent World Health Assembly resolutions. These practices include:

- the cross-promotion of infant formula through advertising older-stage formula with similar packaging designs and similar alleged nutritional properties and benefits (see pp.33-37)

- television and online commercials that idealise bottle-feeding (see pp.38-39)
- the use of lobbying fronts, disguised as innocently-sounding nutrition associations, to advance industry interests (see p.40)

Our evaluation of the **formula registration regime, implemented in 2018 in mainland China**, revealed that its nine-product quota leaves much to be desired. Designed to limit the extent of formula product differentiation, the quota can be easily circumvented as it does not apply to whole group companies but individual "enterprises" like subsidiaries (see pp.50-53 for Yili example and pp.54-56 for Nestlé example). This ends up favouring industry heavyweights, who have the investment capacity to establish subsidiaries and joint ventures to register formula recipes, thus allowing them to retain and expand their product portfolio. On the other hand, the stipulations on the use of promotional claims narrowly focus on product labels, thus leaving misleading, unscientific and exaggerated promotional claims used on product information websites, television and online commercials, and social media channels unregulated (see pp.59-61).

Our report concludes (chapter 5) with detailed **recommendations for regulators** to help them design more effective laws and enforcement mechanisms targeting the inappropriate promotion of infant and young children formula milk products (in full, see pp.66-68). We recommend governments to:

(1) Establish a lead agency tasked with implementing the regulatory framework
(2) Identify designated products and analyse how they are currently developed and promoted
(3) Formulate and amend existing laws according to the analysis in (2)
(4) Garner awareness and political support for stronger regulations

We also created a **list of demands to BMS manufacturers** (see p. 69).

We gave the companies we investigated in this research the chance to read and respond to our findings and allegations. Their comments and our subsequent responses are recorded in full in the appendix of this report.

We hope by calling out BMS manufacturers' problematic and unethical business practices and identifying the inadequacies in existing regulations and law enforcement, this report can contribute to the global effort to protect and promote optimal breastfeeding practices and hold BMS manufacturers to account. Constraints in time and resources mean we only have a partial understanding of the infant formula industry. Therefore, we welcome efforts from other NGOs and groups interested in promoting breastfeeding and scrutinising transnational companies' business practices to help better our understanding of the threats that optimal breastfeeding practices are facing around the world.

1. Introduction

1.1 Why this research?

Breastmilk is widely regarded by the scientific community, nutrition experts, health professionals and international organisations as the optimal source of nutrition for infants, for it helps with their development and guards them against various infectious diseases and morbidities. The World Health Organization (WHO) recommends exclusively breastfeeding for the first six months of the child's life, and supplementing breastfeeding with other safe and nutritionally adequate foods up to or beyond two years of age.[1] Despite this, only around 40% of infants from zero to six months old are exclusively breastfed globally. Factors such as the lack of support from health professionals and hospitals, social stigma associated with breastfeeding, lack of breastfeeding-friendly spaces and facilities in workplaces and public areas, long working hours and insufficient maternity leave[2] have certainly contributed to this. But with numerous studies associating the promotion of infant formula products with declining breastfeeding rates, a commitment to promoting optimal breastfeeding and safeguarding infant health requires us to examine the marketing of breastmilk substitutes (BMS) and confront inappropriate practices head on.[3,4,5]

That exclusive breastfeeding is not yet prevalent globally and many infants are weaned off breastmilk prematurely mean BMS manufacturers have key responsibilities to fulfil. Firstly, they must not promote their products in any way that misleads carers about their qualities and benefits, as this would undermine optimal breastfeeding practices. Secondly, in cases where children rely on BMS as their primary source of nutrition due to the unavailability of breastmilk, BMS manufacturers must provide products that are safe, healthy, and as nutritionally complete as possible. Thirdly, where there is a demand for BMS, manufacturers should not exploit carers' desire to provide the best for their children and charge extortionate prices and use underhanded methods to generate greater profits.

Problematic product development is nonetheless common. Previous research by Changing Markets Foundation[6] demonstrated that BMS manufacturers extensively differentiate their products by dividing them into different age groups, "fortifying" them with nutrients not required by law (such as DHA, ARA, and probiotics), adding flavouring, and using allegedly non-GMO ingredients, which enable them to conduct price discrimination to maximise profits. The investigation revealed such product differentiation has little scientific basis. For example, it found that there is often more variation between the formula products of the same company in different markets than between formula produced by different companies in the same markets, which suggests that product development is primarily informed by market research and consumer preferences rather than science and infant

health. The proclaimed health benefits of many of the additional nutrients used to premiumise the product have also been doubted by organisations such as the European Food Safety Authority.

The marketing practices of infant formula companies have been similarly inappropriate.[7] The use of claims alluding to the formula's nutritional content ("close to breastmilk"), alleged health benefits ("lowers the risk of developing cow-milk protein allergy") and even improvement of infants' intelligence is prevalent, even though these are prohibited by the WHO's *International Code of Marketing of Breastmilk Substitutes* as they are misleading and may undermine breastfeeding. Other ways to circumvent the Code include cross-promotion, in which infant formula – which cannot be promoted under the Code – are nonetheless indirectly promoted by advertising older-stage formula products and complementary foods whose packaging designs are similar to infant formula products.

This report arises from an understanding of the importance of breastfeeding to infant health and how the inappropriate promotion of formula milk products can undermine breastfeeding. We hope by calling out BMS manufacturers' problematic and unethical business practices and identifying the inadequacies in existing regulations and law enforcement, this report can contribute to the global effort to protect and promote optimal breastfeeding practices and hold BMS manufacturers to account.

1.2 The state of infant feeding in Hong Kong and mainland China

The endeavour to defend breastfeeding is particularly pertinent to Hong Kong and mainland China, two of the biggest infant formula markets in the world where breastfeeding rates remain low and regulations of the formula milk industry fall short of international standards, as outlined by the WHO.

In Hong Kong, public health campaigns like the Baby-Friendly Hospital Initiative and efforts to stop public maternity wards from accepting free formula products provided by BMS manufacturers improved breastfeeding rates and duration during postpartum hospital stays,[8] but breastfeeding rates are still declining rapidly upon discharge from hospital. In 2016, only 27.9% of mothers have chosen not to use BMS up to six months after birth, lower than the worldwide average of 36%; amongst them, a vast majority supplement breastfeeding with solid foods, meaning only 0.9% of mothers fully follow the WHO's recommendation of exclusive breastfeeding up to six months.[9] The Hong Kong government is eager to ensure formula products are safe, nutritionally adequate and suitably labelled, having modelled its *Food and Drugs (Composition and Labelling) Regulation* on the Codex's guidelines.[10] However, the regulations regarding marketing practices are much more lenient, as the *Code of Marketing and Quality of Formula Milk and Related Products, and Food Products for Infants and Young Children*, launched in 2017, only operates on a voluntary basis. With BMS manufacturers trusted to

monitor their own business practices, they can easily get away with using exaggerated claims and statements that lack sound scientific justification to promote their products.

China presents us with a different picture. In spite of the 2008 food safety scandal, in which infant formula products containing melamine killed six infants and sickened an estimated further three hundred thousand, China's exclusive breastfeeding rate still fell from 27.6% in 2008 to 20.8% in 2013.[11] This figure is even lower (16%) in urban areas, while over a third of China's new-borns are given formula as their first feed.[12] With the scandal damaging Chinese carers' confidence in domestically-produced formula and breastfeeding rates still declining, mainland China has emerged as the largest and fastest-growing baby formula market in the world,[13] ripe for inappropriate business practices as regulations are poorly enforced. A 2012 Globalization Monitor investigation in mainland China discovered that, in violation of the *Rules Governing the Administration of Marketing of Breastmilk Substitutes*, foreign BMS companies were promoting themselves in maternity wards through distributing promotional pamphlets and coupons for free formula samples, as well as offering free gifts at supermarkets for milk powder purchases.[14]

The staggering reach that "Big Formula" have in China's health system was exposed in a Reuters Special Report, which revealed that several BMS manufacturers, including Danone and Wyeth, bribed doctors to encourage them to promote their products to patients and gain access to records of new births that could be used for marketing directly to mothers.[15] The Chinese Food and Drug Administration's (CFDA) implemented the *Administrative Measures on Product Formula Registration of Infant Formula Milk Powder* at the start of 2018, which imposes stricter requirements on food safety, product development and the use of promotional claims. It is hoped that this would help restore confidence in locally-produced formula, reduce the number of formula products in the market by a half, and rein in unnecessary product differentiation,[16] but the effectiveness of the new policy remains to be seen.

1.3 The architecture of this report

Given this backdrop, our research aims to identify both BMS manufacturer's problematic business practices and weaknesses in existing regulations that are vulnerable to abuse. It includes a detailed analysis of the ethical and scientific issues arising from how formula companies differentiate and premiumise their products, an exposé of BMS makers' unscrupulous marketing strategies and the Code violations that these practices constitute, an appraisal of the effectiveness of the new formula registration regime in mainland China, and recommendations for regulators and BMS manufacturers. The research is laid out in four chapters:

Chapter 2 focuses on product development strategies. It compares the ingredients contained in the products across several major manufacturer's product range and the way their nutritional value is presented, and analyses how the products are advertised and priced. It also examines manufacturers' use of functional, nutrition and health claims to promote their products and their scientific underpinning. We hope this helps us gain a better understanding of the product premiumisation and pricing strategies of BMS manufacturers and evaluate whether they are taking advantage of carers' desire for the best for their children to irresponsibly inflate prices and maximise profits.

Chapter 3 exposes the marketing practices that violate the WHO's *International Code of Marketing of Breastmilk Substitutes* and subsequent resolutions adopted by the World Health Assembly. These include the cross-promotion of formula products, the idealisation of formula feeding, and formula companies use of innocent-sounding nutrition associations to promote industry interests. It also assesses the influence and penetration formula makers have in China's healthcare system, featuring two interviews.

Chapter 4 evaluates the effectiveness of the formula registration system implemented by the CFDA that came into force on 1st January 2018. Apart from imposing stricter food safety requirements, the new regulation also limits the number of products each BMS manufacturer can register to nine and stipulates clear restrictions on claims that may be used on formula product labels. We investigate whether the new system has been successful in containing the differentiation of formula products and rooting out the use of inappropriate promotional statements.

Finally, **chapter 5** concludes our research findings and provides policy recommendations to regulators in the interest of protecting optimal breastfeeding practices from commercial influences. It also features a list of demands to BMS manufacturers, who must comply with the WHO Code and correct their malpractices.

2. Product premiumisation: for health or profit?

2.1 Overview

As discussed in the introductory chapter, a combination of social, economic, and cultural factors has led to carers in Hong Kong and mainland China developing a reliance on breastmilk substitutes (BMS) for infant feeding. This makes the infant formula industry in Hong Kong and mainland China a lucrative business. The two regions rank first and fifth globally respectively in terms of revenue generated and are responsible for more than 50% of global projected growth until 2020,[17]while infant formula sales in mainland China total up to 20 billion USD, more than double that of the US and western Europe combined.[18] We thus anticipate the competition between heavyweight international manufacturers to provide their formula products to infants from their first feed to be the most intense in Hong Kong and mainland China, and expect the product development and marketing strategies found in these two regions to epitomise the problems of the formula milk industry.

This chapter focuses on one such tactic that manufacturers often use to increase sales: product premiumisation. A common way through which manufacturers create premium products or advertise their products as such is to "fortify" them with nutrients with alleged health and developmental benefits – many of which are not required by Codex's food standards. This includes synthetic ingredients that purportedly bring formula nutritionally "closer" to human breastmilk. Other methods include replacing ingredients with non-GMO and organic alternatives and designing products purported to alleviate health issues like indigestion and allergies. Previous research by CMF revealed that many of these lack sound scientific basis and are likely to be motivated by the desire to increase sales and create a trusted brand image rather than achieving the best infant health outcomes.

This chapter homes in on product premiumisation in Hong Kong and highlight the most blatant malpractices perpetrated by few of the biggest manufacturers in the city: Mead Johnson, Danone, and Nestlé. By comparing the ingredients contained in the products across each manufacturer's product range and the way the nutritional value of each formula is presented, and analysing how they are advertised and priced, we hope to gain a better understanding of BMS manufacturers' product development and pricing strategies and evaluate whether they are taking advantage of carers' desire for the best for their children to maximise profits.

2.2 Methodology

The diversification of the types of infant formula sold has significantly intensified in recent decades. The new products that have been developed may be broadly categorised into three groups:

- the creation of formulas that target infants at various ages/stages of development;
- the addition of synthetic ingredients on top of the standard composition (as required by food standard legislations) which are alleged to have health and developmental benefits;
- the formulation of products aimed at infants and young children suffering from health issues, including both general conditions and diagnosed medical illnesses.

We focus on powdered formula milk designed for zero- to six-month-old infants (otherwise called stage one formula), as this is the period during which the WHO strongly recommends exclusive breastfeeding. We investigated how BMS manufacturers premiumise these products through "fortifying" them with premium nutrients and "medicalising" their formulas. Our research is limited to the products manufactured by Mead Johnson, Danone, Nestlé, Abbott, and FrieslandCampina and their subsidiaries, as they are the best-established manufacturers in the city. We recorded the prices of their products and the promotional content, ingredients, and nutritional value as shown on their product labels, as obtained from mainstream supermarkets and major chain stories. We visited Wellcome and PARKnSHOP (supermarkets) and Mannings and Watsons (personal care chain stores) and collected other product information from manufacturers' own websites and the in-store, online, and television advertisement of their formula products. In total, 19 products were analysed.

We compared the composition, nutritional value, and prices between the different stage one products of each manufacturer and analysed how they use promotional statements that ascribe premium status to certain products to inflate their prices. The specific claims used, their scientific underpinning and their phrasing will be scrutinised as well, in order to assess if the statements are misleading, misrepresented, vague, or otherwise exploitative of carers' concern for their children's health and development for promotional purposes and to increase sales.

2.3 Product premiumisation in Hong Kong

The most blatant instances of malpractices – indicative of the severity of BMS manufacturers' eagerness to maximise profits while disregarding infant health – are highlighted in this section, as we seek to raise consumer awareness and urge government regulators to hold them to account.

2.3.1 Mead Johnson

Mead Johnson Nutrition (Hong Kong) Limited, acquired by Reckitt Benckiser in 2017, sells four products dedicated to infants aged zero to six months in Hong Kong. This includes its globally-recognised *Enfamil A+* and three premium lines called *Enfamil Platinum*, *Enfinitas* and *Enfamil A+ Gentle Care*.

Figure 1: Mead Johnson's Enfamil A+ *is the manufacturer's flagship stage one formula. Taken at Tai Kok Tsui Mannings in November 2018.*

Table 1: Comparing Mead Johnson stage one formula products

Product	Key promotional claims			Retail price and percentage difference compared to cheapest product	
Enfamil A+	Scientifically designed to help support brain development and inspire children's learning potential	Clinically proven levels of DHA, ARA, PDX and choline	Patented prebiotics clinically shown to support gastrointestinal health and promote softer stools	299 HKD per 900g	/
Enfamil Platinum	Purity protection technologies help retain essential nutrients to support your child's holistic brain development	Contains DHA and ARA at clinically proven levels. DHA is a key building block of the brain	Proprietary blend of prebiotics (PDX + GOS) clinically shown to support gastrointestinal health and promote softer stools	350 HKD per 900g	+17.1%
Enfinitas	Unique formulation to support a developing brain and immunity. Contains a unique WPC rich in MFGM, clinically shown to improve cognitive function	Contains DHA & ARA at clinically proven levels, key building blocks of the brain and clinically shown to improve sustained attention, problem-solving skills and improve mental development	Contains lactoferrin & dietary fibres (PDX & GOS), important to support immune and gastrointestinal development and function	535 HKD per 900g	+78.9%
Enfamil A+ Gentle Care	Hydrolysed proteins which are easier to digest and absorb, which protects babies' delicate tummies	Contains DHA and ARA at clinically proven levels, which supports comprehensive brain development	Complete and balanced nutrition	450 HKD per 900g	+50.5%

The same product repackaged

According to the ingredients listed on the product labels, the composition of *Enfamil A+* and *Enfamil Platinum* are exactly the same. The differences in their nutritional content are extremely slight, with both products containing the same level of protein, lipids, and most vitamins (including vitamin A, B_1, B_2, B_6, B_9, B_{12}, C, E, and K) and very similar levels of minerals. They also contain the same levels of docosahexaenoic acid (DHA) and arachidonic acid (ARA) – at 17 milligrams and 34 milligrams per 100 kcal respectively. Both are key nutrients advertised to be at "clinically proven levels" and important for brain development.

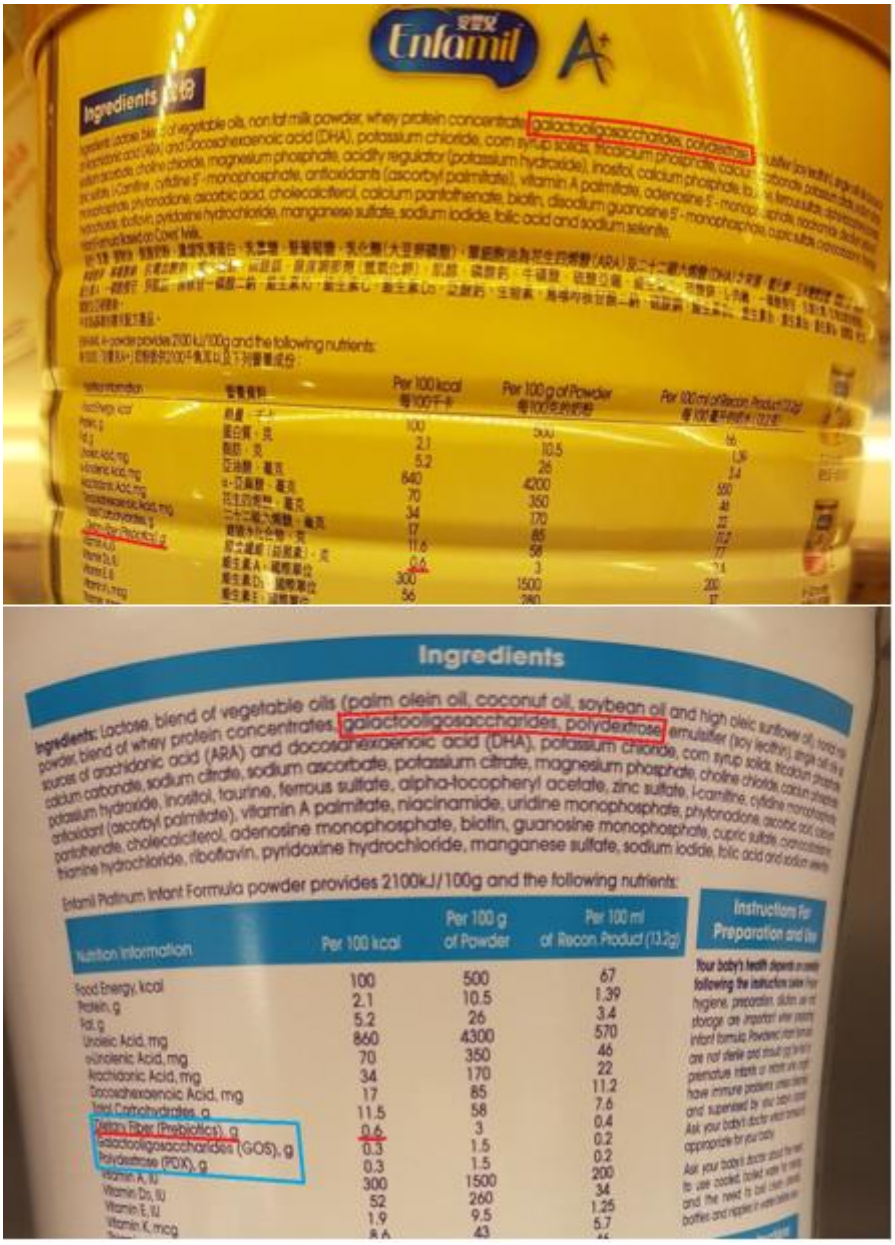


Figure 2: The labels of Enfamil A+ *(above) and* Enfamil Platinum *(below) show they are compositionally identical. The highlighted areas suggest the nutritional information provided on the labels may be presentationally misleading. Taken at Tai Kok Tsui Mannings in November 2018.*

By comparing the promotional claims stated on the product packaging, it would appear that the only thing separating the two products is the "proprietary blend of PDX + GOS" (polydextrose and galactooligosaccharide) prebiotics used in *Enfamil Platinum*. Indeed, the nutritional information of PDX and GOS are listed only on *Enfamil Platinum* (0.3 grams per 100 kcal each), which creates the impression that this prebiotic combination is unique to the premium product. However, as the highlighted areas in *figure 2* show, PDX and GOS are contained in both products, but on *Enfamil A+*'s nutritional information label, only the generic ingredient "dietary fibre prebiotics" as opposed to PDX and GOS is listed (shown to be 0.6 grams per 100 kcal).

This presentational inconsistency of the nutritional value of formula products masks the striking compositional similarity of *Enfamil Platinum* and *Enfamil A+* and may well trick unsuspecting customers into thinking that *Enfamil Platinum* is the nutritionally superior product. This calls into question both the justifiability of their products' 17.1% price difference and the ethics of Mead Johnson's labelling decisions and promotional strategies.

Premium price, problematic science

Mead Johnson also has an ultra-premium product called *Enfinitas*, which is significantly pricier than its other products and is one of the most expensive stage one formulas available in Hong Kong.

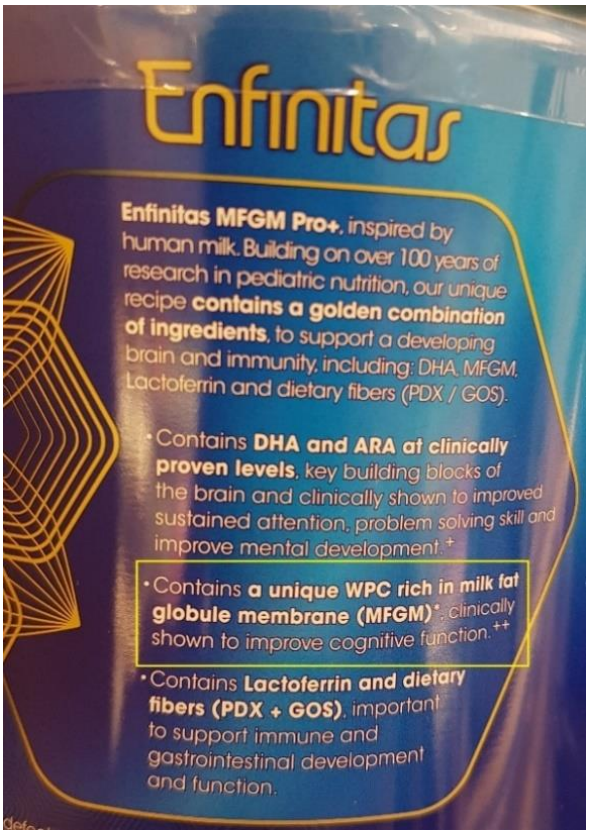


Figure 3: Enfinitas' promotional statements.
Taken at Tai Kok Tsui Mannings in November 2018.

Enfinitas boasts a unique formula containing a whey protein concentrate rich in milk fat globule membrane (MFGM) which Mead Johnson claims can improve cognitive function.

The presence of MFGM is crucial to the claim that *Enfinitas* is "inspired by human milk", as MFGM in breastmilk is a structure containing bioactive components and is part of what makes breastmilk the optimal source of nutrition for infants. Such bioactive components cannot be replicated by technology.

If the bovine MFGM Mead Johnson uses can replicate the functions MFGM in human breastmilk, it would be a breakthrough in terms of bridging the nutritional gap between formula and breastmilk.

But there is more to the claim than meets the eye. To support its promotional statement, Mead Johnson's website[19] cites a single study by Timby et al. conducted in 2014; a randomised controlled trial which demonstrated that feeding infants with a lower-energy, lower-protein formula with bovine MFGM supplements leads to them achieving higher cognitive scores at 12 months of age.[20] The experimental used in the study is deliberately designed to contain less energy and protein than the standard formula fed to infants in the control group. However, *Enfinitas* contains more energy and protein than *Enfamil A+* or *Enfamil Platinum*. This means the research findings cannot be applied to *Enfinitas* or prove its supposed functional superiority over *Enfamil A+* or *Enfamil Platinum*.

Formula	Energy content	Protein content
Timby et al.'s randomised controlled trial (2014)		
Control formula	66 kcal per 100 ml	1.27 g per 100 ml
Experimental formula	60 kcal per 100 ml	1.20 g per 100 ml
Mead Johnson's products		
Enfamil A+	66 kcal per 100 ml	1.39 g per 100 ml
Enfamil Platinum	67 kcal per 100 ml	1.39 g per 100 ml
Enfinitas	68 kcal per 100 ml	1.42 g per 100 ml

Furthermore, two other research papers co-written by Timby reviewing several trials that explored the clinical benefits of MFGM supplementation to infant diets concluded that, because of the small number of studies conducted and the heterogeneity of interventions implemented, no firm conclusions regarding the effects of MFGM supplementation on the health and development of infants can be drawn.[21,22]

The Codex *Guidelines for Use of Nutrition and Health Claims* define health claims as "any representation that states, suggests, or implies that a relationship exists between a food or a constituent of that food and health", including claims "that describes the physiological role of the nutrient in growth, development and normal functions of the body." The *Guideline* states that health claims are permitted only when they are based on "**current** relevant scientific substantiation and the level of proof must be sufficient to substantiate the claimed relationship of a nutrient to health as recognised by **generally accepted scientific review**."[23]

With the lack of up-to-date and generally accepted evidence proving the benefits of MFGM supplementation, let alone any rigorous scientific recommendation on the level and concentration of

MFGM supplements to be added to infant formula, it is irresponsible and exploitative of carers – if not in outright violation of Codex standards – for Mead Johnson to promote its ultra-premium product with a statement that lacks scientific rigour and to inflate its price by such a huge margin (78.9%).

2.3.2 Danone

Danone, a French company ranking second globally in baby food and nutrition product sales, sells infant formula under three brands in Hong Kong and has six products on the market. *Nutrilon* and *Cow & Gate* have a product each, whilst *Aptamil* has an economy product, a premium product, and two medicalised formulas, one of which is specified to be for special medical purposes.

Figure 4: Left – Danone's formula for special medical purposes; middle – the cheapest of Danone's products available in Hong Kong; right – Danone's "hypoallergenic" formula. Taken in Tai Kok Tsui Mannings in November 2018.

Table 2: Comparing Danone stage one formula products

Product	Key promotional claims			Retail price and percentage difference compared to cheapest product	
Nutrilon Pronutra+	Contains *Pronutra+*, a unique blend of ingredients including patented prebiotics scGOS:lcFOS (9:1) and vitamin A, C, and D, contributing to a healthy immune system	Contains α-Linolenic acid, ARA, DHA and iron which contribute to normal brain development		248 HKD per 900g	/
Cow & Gate	Pro Absorb formula contains probiotic *B. breve* M-16V and prebiotic scGOS:lsFOS 9:1, which promote the growth of beneficial bacteria in the gut	No added sucrose and vanilla flavour, appropriate protein level, supported by research findings of the ingredients	Originates from 40-year research on baby's gut health. Effective absorption enables babies to explore the wonders of the world	288 HKD per 900g	+16.1%
Aptamil Pronutra+	Unique blends of ingredients containing patented prebiotics scGOS:lcFOS (9:1) and vitamin A, C, and D, contributing to a healthy immune system	DHA, ALA contribute to normal brain development	Specially developed to meet the changing nutritional needs of your baby in the early years of development. In line with our International and Hong Kong standards	258 HKD per 800g	+17.0%*
Aptamil Platinum	Next generation European patented formula APTASYNBIO™, containing a special blend of GOS, FOS and *B. breve* M-16V, supports your baby's immune system	Contains DHA, ALA which contribute to brain and nerve tissue development	Based on 40 years of research inspired by breastmilk	388 HKD per 900g	+56.5%
Aptamil Platinum Prosyneo	Hypoallergenic – reduces of risk of developing allergy to cow's milk protein	Based on 40 years of research in allergy. SYNEO™ is our European patented combination of prebiotics GOS/FOS and Bifidus Breve probiotics.	The only formula that combines SYNEO™ and unique protein structure gently broken down into smaller pieces for sensitive babies	398 HKD per 900g	+60.5%
Aptamil Platinum ProExpert	Allecure™ formula contains extensively hydrolysed whey protein formula for the dietary management of cow's milk protein allergy – for special medical purpose	Patented prebiotcs combination scGOS/lcFOS is clinically proven to strengthen baby's immune system		248 HKD per 400g	125%*

*calculated in terms of HKD/g because of the weight differences between the products.

Same composition, different prices

Sharing a similar packaging design, *Aptamil Pronutra+* is 17% more expensive than *Nutrilon Pronutra+*, costing 10 HKD more but weighing 11% (100 grams) less. Nevertheless, the promotional statements on the two products are very similar. Both boast a "unique blend of selected ingredients" including patented prebiotics short chain galactooligosaccharide (scGOS) and long chain fructooligosaccharide (lcFOS) in the preferred ratio of 9:1. Danone claims this is modelled after the sugars present in natural nutrition. Both also contain α-Linolenic acid and DHA which are claimed to contribute to normal brain development. There appears to be little that separates the two products.

Figure 5: Both Nutrilon Pronutra+ *and* Aptamil Pronutra+ *are packaged in a box the shape of a cuboid. Despite belonging to different product lines, they are presentationally similar. Taken at Tai Kok Tsui Mannings in November 2018.*

The similarities between the products were made even clearer when we examined the nutritional information labels on the respective products, which showed that they have the same levels of energy, protein, lipids, and carbohydrates, as well as key nutrients such as DHA, ARA, and the 9:1 scGOS:lcFOS combination – both products contain 1.17 grams of prebiotic oligosaccharides per 100 kcal formula. Given the striking resemblance between the ingredient composition and nutritional value of the two products, there seems to be little scientific justification for the formation of two separate products. It is thus reasonable to conclude that product differentiation lacks sound scientific justification and is not motivated by providing of better and more nutritious products for infants, but is a tactic employed primarily to enable price discrimination and maximise profits.

Lack of scientific rigour in product formulation

Separated by a price difference of around 35%, *Cow & Gate* and *Aptamil Platinum* are two products that contain a "synergistic" blend of prebiotics scGOS and lcFOS with probiotic *Bifidobacterium breve* M-16V (BBM-16V). Just by comparing how much of the key ingredients are in the formulas, it would appear this price difference can only be explained by that fact that *Aptamil Platinum* contains 175 times more BBM-16V ($7x10^8$ to $4x10^6$ colony-forming units) than *Cow & Gate*.

Figure 6: Bifidobacterium breve M-16V (BBM-16V) *feature prominently on both products' promotional statements. Taken at Sheung Wan Mannings in December 2018.*

However, nowhere on *Cow & Gate* and *Aptamil Platinum*'s product information websites is there any evidence that proves the beneficial effects of BBM-16V to infants' gastrointestinal health and immune system development are dosage-related, let alone improved by increasing the dosage by such a significant margin (175 times).

The sole piece of research related to nutrient dosage cited by *Cow & Gate*'s website[24] is a 2002 study conducted by Moro et al., which investigated the effect oligosaccharide-supplemented experimental formulas have on the growth of beneficial microbiota in infant guts, which concluded that raising the oligosaccharide concentration from 4 to 8 grams per litre formula improves some aspects of gastrointestinal health.[25] The study says nothing about the health benefits of BBM-16V or whether there is a dosage range that optimises its effects.

This is important because more of a nutrient may not equal better results: for instance, too much phosphorous in formula may lead to bone loss, while too much iron can impair growth. This is why Codex prescribes a maximum or guidance upper level for most nutrients, as too much of something good can still easily overload an infant's metabolic system and cause adverse effects. Thus, the huge difference in BBM-16V content in the two products appears to reflect a lack of caution and scientific rigour in Danone's product formulation, rather than the supposedly "premium" quality of *Aptamil Platinum*.

Conflict of interests between researchers and BMS manufacturers

Despite claims that its product development is based on 40 years of research in infants' gastrointestinal health, our doubts regarding the rigour and credibility of Danone's research persist.

Figure 7: An image taken from Nutricia's webpage, in which the benefits of supplementing formula with prebiotic oligosaccharides are described.

On the webpage dedicated to explaining the benefits of its "European Patented Prebiotics Mixture scGOS:lcFOS (9:1)", Danone emphasises these are "proven by international experts with scientific evidence". However, of the 30 clinical studies and more than 55 publications worldwide that it claims to prove the said benefits, Danone references only three, all of which were conducted by researchers employed by Danone's research subsidiaries.[26] These include Numico Research BV. (Numico is short for Nutricia, Milupa, and Cow & Gate, all Danone brands) and Danone Research, Center for Specialised Nutrition, which even share the same address in the Netherlands. Searching the United States National Library of Medicine database further reveals that 3 of the top 15 research papers and clinical studies investigating the gastrointestinal benefits and infection-preventing effects of BBM-16V are in fact conducted with the involvement of Danone's researchers, who are based at either Danone Research in Utrecht or Singapore.

While BMS manufacturers might be expected to conduct scientific studies to guide the development of their recipes and bring them nutritionally closer to human breastmilk, to present the research produced by scientists working for them as the evidence supporting their nutrition and health claims amounts to a serious conflict of interest, especially given the commercially sensitive nature of the research. As previously mentioned, Codex standards stipulate that for health claims to be justifiably made about a nutrient, the claimed relationship of a nutrient to health must be substantiated by **current** relevant science and recognised by **generally accepted scientific review**.[27] Without an adequate number of independent and rigorous studies verifying Danone's self-funded research findings and corroborating its claims, Danone's ingredient-centric promotional statements on *Cow & Gate* and *Aptamil Platinum* can at best be taken with a grain of salt.

"Medicalised" formulas mislead carers

Infants are vulnerable to health problems in early life due to their undeveloped immune systems. This means carers may be easily swayed to purchase formula products that appear to alleviate or avert health conditions even if they must pay significantly higher prices for them. This creates an opportunity for formula manufacturers to "medicalise" their products by presenting them as catered to the specific health and dietary needs of infants. Danone produces two such "medicalised" products: *Prosyneo* is tailored to sensitive babies at risk of developing allergies to cow's milk protein, while *ProExpert* is designed for the dietary management of infants suffering from the allergy and is marketed as a food for special medical purposes. They are 60.5% and 125% more expensive than *Nutrilon Pronutra+*, Danone's cheapest stage one formula, respectively.

Figure 8: Left – ProExpert; upper and lower right – Prosyneo. The hydrolysis technology and its ability to prevent allergies are emphasised on both products. Taken at Tsuen Wan Mannings in December 2018.

Prosyneo and *ProExpert* both rely on the hydrolysis technology to break down protein structures. Danone claims this technology can reduce the risk of infants developing allergies or having allergic reaction to cow's milk protein and is clinically proven to enhance infants' immune system. With many infant feeding guidelines advocating the use of hydrolysed proteins, the fact that Danone advises the use of *ProExpert* under doctors' supervision only reinforces the impression of the technology's medical efficacy.

However, the effectiveness of protein hydrolysis has been called into question by medical and nutrition experts. This includes scientists at Cochrane, an independent medical research charity funded by the British, American and Australian national health services' research institutes. Three paper published on the *Cochrane Database of Systematic Reviews*, which studied of 42 randomised clinical trials comparing the use of hydrolysed formula with human breastmilk or regular cow's milk formula in total, all found no evidence to support the claim that short-term or prolonged feeding with partially hydrolysed formula is superior to exclusive breastfeeding for the prevention of allergic diseases.[28] They also found the quality of the evidence indicating the short-term use of extensively hydrolysed formulas is better than standard formulas in preventing infant cow's milk allergies to be "very low".[29] They noted that many of the trials had various methodological limitations, "including uncertainty about methods to ensure allocation concealment and blinding." [30]

A peer-reviewed article published in the British Medical Journal reviewed 52 studies and found the evidence supporting the claim that hydrolysed formula reduces the risk of allergic or autoimmune diseases to be inconclusive, inconsistent and low-quality.[31] This was the case even with compromised studies – those with inadequate methods of randomisation, poor sampling, considerable risk of selection bias, and those funded by BMS manufacturers – excluded from their review.

Caroline Jane Lodge, a research fellow at the University of Melbourne, opined that infant feeding guidelines, which support the use of hydrolysed formula when the infant is not breastfed in the hope that they might prevent allergic disease on the basis that they are unlikely to do harm, may undermine breastfeeding by altering the advice from medical personnel and carers' perceptions of the superior efficacy of breastfeeding.[32] Danone seems to have irresponsibly taken advantage of carers' desire to provide the best nutrition for their children to introduce two "medicalised" hydrolysed formulas to the market, which are not only overpriced because of the lack of sound science underpinning them but may also discourage breastfeeding and lead to a negative impact on public health.

2.3.3. Nestlé

Nestlé is the global market leader in infant food. Its aggressive and unethical marketing of formulas and consequent impact on infant health, particularly in the developing world, are well documented and led to a worldwide boycott which pressured the World Health Assembly to adopt the *International Code of Marketing of Breast-milk Substitutes* in 1981.

Nestlé sells five products in Hong Kong under the *NAN*, *illuma* and *S-26* brands. The latter two are produced by Wyeth Nutrition Hong Kong, a Nestlé-owned subsidiary.

Table 3: Comparing Nestlé stage one formula products

Product	Key promotional claims			Retail price and percentage difference compared to cheapest product	
Wyeth S-26 Gold SMA	Breakthrough Nutrilearn System™ formula with αlipids™, HM-O®, lutein, choline and DHA, support the multiple dimensions of children's development	Contains 2'-fucosyllactose, a unique oligosaccharide that help support infant intestinal health, structurally identical to the predominant HMO	Contains phospholipids, structural components of brain networks which play a role in critical develop processes, secreted by mothers during lactation	299 HKD per 900g	/
NAN PRO	Unique hydrolysis technology reduces the allergenicity of cow's milk protein to enable babies grow healthily and happily	Revolutionary breakthrough with the synthesis of human milk oligosaccharide (HM-O), previously only found in human breastmilk	Most recommended by Hong Kong health professionals	299.2 HKD per 800g	+12.6%*
Wyeth S-26 Ultima SMA	Nutrilearn System™ containing lutein, choline and DHA, important for brain and eye and may support brain development and memory function	SmartPrebio™ contains GOS and FOS, which help soften stools, support the growth of beneficial intestinal bacteria and intestinal health		345 HKD per 800g	+29.8%*
Wyeth illuma	The Human Affinity™ formula now with 2'-FL, a unique oligosaccharide structurally identical to the predominant HMO. Research shows that HMOs help support the immune system	Contains three times more beneficial sn-2 Palmitate, which mimics the structure of a natural fat, clinically shown to result in softer stools	Contains high-quality whey protein, including alpha-lactalbumin, for better tolerability as compared to standard infant formulas.	538 HKD per 900g	+79.9%
Wyeth organic illuma	Human Affinity™ Organic Formula contains milk sourced from IOFGA and EU- certified farms, where animals are freely grazed and treated according enhanced animal welfare conditions	Contains a nutrient combination for natural defence including iron, zinc, selenium, DHA, which help support immune functions	Contains oligofructose and choline	589 HKD per 900g	+96.7%

*calculated in terms of HKD/g because of the weight differences between the products.

Organic deception

Nestlé's *Wyeth Organic illuma* is the most expensive non-medicalised stage one infant formula in Hong Kong in terms of price per gram of powder. It has similar packaging to *Wyeth illuma* and boasts a "Human Affinity Organic Formula" that "protect babies' purity" and "unleashes baby's innate talent".

Figure 9: Wyeth illuma *and* Wyeth Organic illuma *have stylistically similar packaging.* Wyeth Organic illuma *is promoted as a "Human Affinity Organic Formula", as highlighted. Taken from* illuma *product information website.*

According to Nestlé's website, it is the presence of human milk oligosaccharides (HMOs), *sn-2* palmitate and α-lactalbumin that makes the original *illuma* a "Human Affinity Formula", as they are allegedly the three key nutrients found in lactating secretion. Given *Organic illuma* does not contain any of these ingredients, it appears inappropriate for *Wyeth Organic illuma*'s recipe to be advertised as a "Human Affinity Organic Formula".

A comparison of the nutritional value labels on the products further reveals that *Wyeth Organic illuma* is less nutritious than the original *illuma* (for example, it contains 50% less FOS, and does not contain lutein, taurine or nucleotides). On *illuma*'s product packaging, Nestlé claims that these nutrients support brain and visual development and memory function. It is thus difficult to understand why *Wyeth Organic illuma* commands such a high price (nearly 600 HKD for 900 grams of powdered formula) and calls into question whether the phrase "Human Affinity Organic Formula" constitutes misrepresentation and false advertisement.

SPOTLIGHT: *Broken promises*

In early 2018, Changing Markets Foundation (CMF) and Globalization Monitor (GM) published an investigation into Nestlé infant milk products and claims which revealed, amongst other issues, that the composition of certain Nestlé products contradicted the nutritional advice the company gave.[33]

It found that some of Nestlé's infant milks sold in Brazil and Hong Kong advised parents against feeding infants sucrose as it could cause severe symptoms and may lead to obesity as it encourages the preference for sweet taste in infants. However, one Nestle follow-up formula sold in South Africa contained sucrose and the company later admitted that sucrose was present in around 10% of its products. Similarly, it found that Nestlé marketed some of its infant formula sold in Hong Kong and mainland China as healthier for not having "any added vanilla flavour or flavourings for baby's good growth" while its other products contained vanilla flavouring.

As a result of these findings, senior Nestlé representatives met with CMF and GM in March 2018 and pledged to immediately remove problematic and inconsistent advice from their products, take formulas for infants under 12 months containing sucrose off the market by the end of 2018, and phase out vanilla flavourings in formulas for infants under 12 months. We sought to verify if these commitments have been fulfilled but are disappointed to find that Nestlé seems to have reneged on them.

We found that as of February 2019, Nestlé continued to market all of its *NAN PRO* formula products as not containing any "added sucrose, vanilla flavour or flavourings", ostensibly "for babies' healthy growth".

Figure 10: NAN PRO stage two marketing statement. The same statement is found on NAN PRO products of all stages.

At the same time, Nestlé's *S-26 Ultima Promil*, the stage two product in the *S-26 Ultima* line in Hong Kong, still contains vanillin, a compound providing vanilla flavouring to formula milk. Nestlé found the time and resources to upgrade the packaging of *S-26 Ultima Promil*, but still did not remove an unnecessary ingredient that could put a burden on infants' metabolism.

Figure 11: Left – sticker introducing the new S-26 Ultima Promil packaging.
Right – S-26 Ultima Promil's ingredients label shows it contains vanilla flavouring.
Taken at Tsuen Wan Watsons in February 2019.

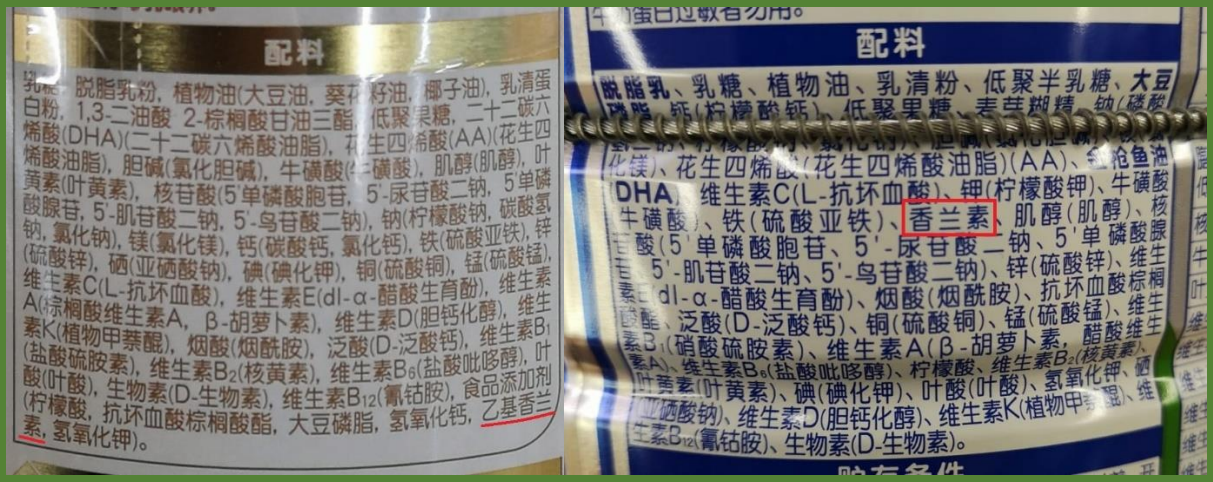


Figure 12: Left – ingredients list of the version of Wyeth illuma *sold in mainland China.*
Right – ingredients list of the version of Wyeth S-26 Gold 2 *sold in mainland China.*
Taken at Shenzhen Ren Ren Le in March 2019.

Two stage two Nestlé products sold in mainland China also contain vanilla flavouring: *Wyeth illuma* contains ethyl vanillin, while *Wyeth S-26 Gold* contains vanillin.

It is evident that despite acknowledging our concerns, Nestlé has not corrected its negligent practices and continues to tailor its nutritional advice to product-specific marketing purposes, rather than design its formula products to deliver the best health outcomes possible. This is irresponsible and we urge Nestlé to address these issues immediately.

How close is "ever closer to lactating secretion"?

As the wording in *illuma*'s trademark "Human Affinity Formula" suggests, Nestlé is eager to present itself as an innovator bridging the nutritional gap between BMS and human breastmilk. On the *illuma* product information website, Nestlé declares it is "dedicated to unveil [sic] the mystery of human milk…replicating as nature intended with revolutionary technologies." In one of the Mannings stores that we visited, we also found a stand that promoted *illuma* formulas as "ever closer to lactating secretion". It is worth noting that Article 5.3 of the WHO Code prohibits "point-of-sale advertising […] to induce sales directly to the consumer at the retail level" through promotional devices including special displays.

Figure 13: A special display shelf in Sheung Wan Mannings. It markets illuma *as "ever closer to lactating secretion" and the "only formula to integrate HMO and* sn-*2". The use of a special display is prohibited by the WHO. Taken at Sheung Wan Mannings in November 2018.*

On *illuma*'s packaging, Nestlé emphasises that HMOs can support infants' immune system; Nestlé also states on its product information website that HMOs in breastmilk may decrease the risk of respiratory and gastrointestinal infections. These claims may be misleading: Nestlé states with a tiny font that the synthesised HMO used in *illuma*, while "structurally identical to the predominant HMO in breastmilk", does not come from human milk. However, Nestlé also claimed that *illuma* is close to breastmilk and "exclusively integrates" key ingredients found in lactating secretion, while emphasising HMOs can block the adherence of pathogens and nurture beneficial bacteria in the intestines. Unsuspecting consumers may be misguided to attribute the benefits of HMOs in breastmilk to the synthesised HMO used in *illuma* or mistakenly believe that their nutritional value and health functions are comparable.

The comparison of formula with breastmilk and suggestion that formula can functionally catch up to breastmilk is prohibited by the WHO, for it poses a huge threat to the promotion of breastfeeding:

> The *Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children*, adopted in 2016 by the World Health Assembly, expressly states that the material used to promote foods for infants and young children "should not include any image, text or other representation that is likely to undermine or discourage breastfeeding, that makes a comparison to breast-milk, or that suggests that the product is nearly equivalent or superior to breast-milk", and must contain accurate, details, full, and honest information on their labelling.

Promotional claims that insinuate infant formula can mimic the nutritional profile of human breastmilk can easily sway Hong Kong carers, as exclusive and regular breastfeeding is a high-cost activity for many of them. Due to the cultural stigma around breastfeeding, long working hours, lack of breastfeeding-friendly spaces, and inadequate policies supporting breastfeeding, mothers may find it difficult to find the time and energy to breastfeed their children. They may thus give up breastfeeding if they perceive the nutritional gap between formula and breastmilk to be sufficiently narrow and pay any price they can afford to give their children what appears to be the best nutrition available.

Nestlé's promotional statements clearly violates the Code; this may well undermine the proliferation of breastfeeding and create public health negative consequences if Nestlé's claim that *illuma* is "ever closer to lactating secretion" does not hold water, which appears to be the case.

In a 2018 research paper published in the Public Library of Science's peer-reviewed journal, researchers pointed out that the mechanism by which HMOs are thought to contribute to immune system development is through the modulation of human dendritic cell (a type of white blood cell) differentiation and maturation.[34] They tested this hypothesis by investigating the effect of the HMOs 6'-sialyllactose (6'-SL) and 2'-FL (the HMO used in *NAN PRO*, *Wyeth illuma*, and *Wyeth S-26 Gold*) as

well as GOS (a prebiotic used in many infant formula products) on dendritic cell differentiation and maturation, and found that none of these oligosaccharides have any direct immunomodulatory effects. This directly contradicts Nestlé's claim that its Human Affinity Formula can "unleash self-immunity".

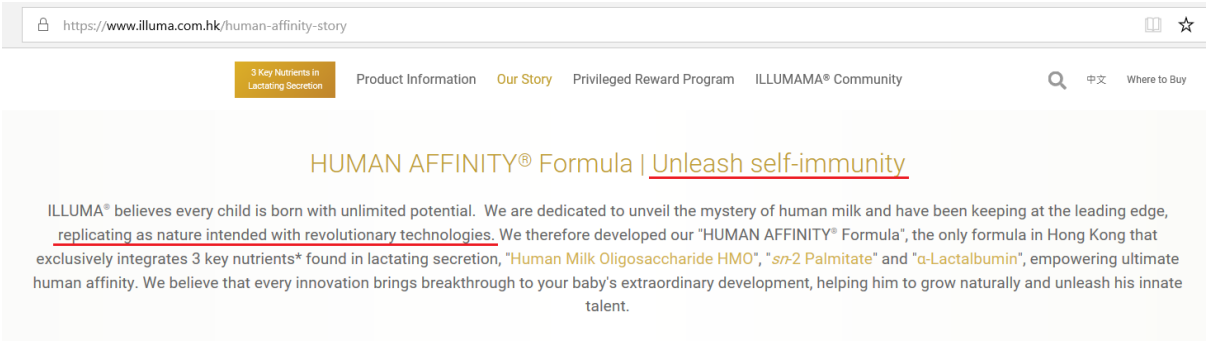


Figure 14: Problematic promotional statements. Screengrab from illuma*'s product information website in February 2019.*

Another study conducted as recently as September 2018 with a research team comprising scientists from Nestlé nutrition and health science research centres,[35] as well as the research institutes of many other BMS manufacturers, was only able to conclude that 2'-FL supplementation in formula is safe, and conservatively suggested that "more prospective, randomised trials in infants comparing formula without and with HMOs are still needed to evaluate the clinical effects of this supplementation."[36] Nestlé thus seems to have alarmingly ignored the research findings of its own scientists and prematurely introduced HMO-supplemented products to the market, whose benefits are not yet generally accepted by the scientific community.

Furthermore, the European Food Safety Authority has long argued that BMS manufacturers' efforts to imitate the substances present in human milk is too simplistic an approach, as the functions of those substances do not necessarily carry over to formulas.[37] This is particularly true for the use of HMOs in formula, as HMOs are not one ingredient but in fact a group of structurally complex, unconjugated glycans found in human breastmilk. So far, more than 150 different HMO structures have been identified, and the functions of each of these are determined by their unique structure.[38] While we know the immunological contributions of HMOs as a whole group, it is unclear whether including only one synthesised type of HMO in formula can achieve the same benefits, but Nestlé seems to have conveniently overlooked this when it proclaimed itself to be "replicating as nature intended with revolutionary technologies". Such irresponsible and misleading marketing not only grossly violates consumer interests but also poses a threat to public health, for Nestlé is portraying the nutritional gap between its formula products and human breastmilk to be much closer than it is, which could discourage breastfeeding as a result.

2.4 Conclusion

The foregoing analysis highlighted the worst instances of infant formula product premiumisation in Hong Kong, a popular strategy employed by BMS manufacturers to heighten their appeal to carers and increase their sales and profits. We identified three major, recurring problems in the creation of supposedly premium formula products:

1. Repackaging the same recipe under different product lines and/or brands

We singled out Mead Johnson's *Enfamil A+* and *Enfamil Platinum* and Danone's *Nutrilon Pronutra+* and *Aptamil Pronutra+* in this report, but we suspect the practice is much more common. Essentially, BMS manufacturers use very similar recipes (in terms of ingredients, composition, nutritional value, and inclusion of key nutrients) in different formula products, but present one of them as "premium" through a combination of product design and more elaborate and detailed promotional claims to justify charging a higher price.

2. Justifying nutrition/health claims with research that lack scientific rigour and impartiality

Making favourable claims about the health and developmental benefits of the supposedly key nutrients contained in formula (such as prebiotics, α-lipids, and HMOs) is central to the marketing strategy of many BMS makers, as they close the ***perceived*** nutritional gap between formula and breastmilk. In the case of Nestlé, the phrases "ever closer to lactating secretion" and "replicating as nature intended" were used to this end.

There are often issues in the way BMS manufacturers reference scientific research to support these claims; for instance, Mead Johnson distorted the findings from Timby et al.'s study to justify its claim that the MGFM in *Enfinitas* can improve cognitive function. The promotional claims on several other products (such as Nestlé's *illuma*) are also justified by misrepresenting research findings as unambiguously positive results, when the authors themselves made conservative conclusions and reserved predictions about the efficacy of an ingredient.

Conflict of interest is also a widespread and serious problem, with BMS manufacturers often citing studies conducted by scientists and researchers their subsidiaries employ as evidence that corroborates their promotional statements.

3. “Medicalising” formula without demonstrable proof of its efficacy

Creating “gentler” formula products for “sensitive” babies at risk of developing allergies is a widely used way to lure carers into buying more expensive products out of concern for their babies’ health.

This is problematic not least because it makes the formulas that are deemed gentle and the babies that are deemed sensitive arbitrary, but also because the efficacy of the predominant technology used to make hypoallergenic formulas – protein hydrolysis – has not been conclusively demonstrated. Several reviews also called attention to the dubious quality and rigour of the studies that suggest that hydrolysed protein can prevent cow’s milk allergies. Thus, BMS manufacturers are effectively misleading carers into buying much pricier formula products that have questionable benefits.

The prevalence of these problems calls into serious question whether the premiumisation of infant formula products as currently practiced by BMS manufacturers are responsible and ethical, given that they already occupy an advantageous position vis-à-vis carers, who are likely to be willing to pay any price they can afford to give their children the best foods and nutrients available.

3. Unscrupulous marketing and Code violations

3.1 Overview and methodology

The methods BMS manufacturers use to establish themselves in the infant food and nutrition market and maximise their revenues have been reported to go far beyond differentiating their formulas and charging inflated prices for supposedly premium products. In this chapter, we shed light on the extensiveness and severity of these inappropriate marketing practices with respect to the *International Code of Marketing of Breast-milk Substitutes* adopted by the WHO in 1981, and subsequent resolutions and guidelines published by the World Health Assembly. We document the most pervasive and worrying instances of unethical and irresponsible marketing that undermine optimal breastfeeding and mislead carers about the qualities and benefits of formula milk, highlighting the Code violations that these practices constitute with a focus on Hong Kong and mainland China.

To this end, we reviewed the relevant literature to identify the types of malpractices that are common in the said regions. In Hong Kong, they are the cross-promotion of infant formula through promoting similarly designed products and advertisements that focus on the brand rather than individual products, as well as the promotion of industry interests under the guise of innocent-sounding nutrition and health organisations established by BMS manufacturers. In mainland China, BMS manufacturers are known to exercise huge influence in the healthcare system, with research firm Beijing Shennong Kexin Agribusiness Consulting counting hospitals as one of the four primary channels for sales of infant formula (alongside supermarkets, baby product stores, and the Internet).[39] For example, they have been found to promote infant formula directly to mothers in maternity wards through distributing promotional pamphlets, giving out discount coupons and free samples, holding prenatal and infant care classes, and even bribing healthcare professionals to obtain parents' personal information to carry out direct-to-parent marketing.

We sought to verify these reports and deepen our understanding of such practices by visiting shops where formula products are sold and promoted, analysing television and online commercials, and interviewing parents who have experienced the aggressive marketing of infant formula first-hand. We hope these findings will point out the areas where regulations and their enforcement have been inadequate and inform the recommendations we make in the final chapter of this report.

3.2 The WHO Code

The adoption of the *International Code of Marketing of Breast-milk Substitutes* in 1981 was a result of the sustained pressure from a global campaign and the high-profile boycott against Nestlé. The Code recognises the central role of breastfeeding in attaining and maintaining infant health and that breastfeeding is an "unequalled way of providing ideal food for the healthy growth and development of infants".[40] On that basis, the WHO stipulates that BMS must not be marketed or distributed in ways that may interfere with the protection and promotion of breastfeeding, as these can lead to infant malnutrition, morbidity, and contribute to major public health problems.

The Code states that there should be no advertising or other forms of promotion to the general public of products within its scope.[41] This applies to all BMS, defined as any food marketed or otherwise presented as a partial or total replacement for breastmilk, which not only includes infant formula, but also formula for toddlers (i.e. "follow-on" and "growing-up" formula, targeted at children aged 6-12 and 12-36 months respectively). The commitment to regulating both BMS and complementary foods for children up to three years of age is reaffirmed in the WHO *Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children*, a resolution adopted by the World Health Assembly in 2017.[42] This stems from concern that the promotion of products with similar designs to infant formula products may undermine optimal breastfeeding practices in the most crucial period of an infant's development. It states that such "brand crossovers can mislead and confuse caregivers about the nutrition- and health-related qualities of commercial complementary foods, and age-appropriate and safe use of these products," and thus recommends the avoidance of promoting BMS "indirectly via the promotion of foods for infants and young children."[43]

The WHO also takes a firm stance on maintaining the impartiality of health workers and healthcare systems and bans BMS manufacturers from creating possible conflicts of interest in these facilities. Amongst other things, formula companies are not allowed to provide free or discounted foods for infants and young children through health workers, give gifts or coupons to parents, caregivers and families, host events and campaigns in health facilities, provide education to parents and other caregivers on infant and young child feeding in health facilities, or provide any incentives to healthcare staff. These practices exploit health workers' perceived credibility and "loyalty to their mission or to the parties they are supposed to serve" to advance the commercial interests of BMS manufacturers at the expense of optimal infant and young child nutrition, and thus must be guarded against.[44]

3.3 Bending the rules

While the WHO's commitment to safeguarding optimal infant feeding practices from commercial pressures and improving infant health is clear, it does not have the power to implement the Code and subsequent resolutions within nation-states. It is up to the countries themselves to incorporate the Code into their laws and enforce them, but – as we will see in this chapter and the next – the lax way this has been implemented in Hong Kong and mainland China creates opportunities for BMS manufacturers to further penetrate the infant food market and influence carers in ways that violate the Code without repercussion. In the following sections, we investigate precisely how formula makers have taken advantage of the lenient regulatory regimes in Hong Kong and China, hoping these will prompt policymakers and relevant authorities to act accordingly.

3.3.1 Cross-promotion and the idealisation of formula feeding

The WHO explicitly states that the packaging design and materials (including but not limited to: colour schemes, brands, slogans, mascots, and labelling) used for the promotion of complementary foods and growing-up formula products must be different from those used for BMS, particularly infant formula, to prevent the promotion of the former from spilling over to the latter.[45] However, this stipulation is routinely violated.

BMS manufacturers are often careful to avoid directly promoting infant formula products, as it blatantly contradicts WHO recommendations. This can be seen from the fact that on webpages dedicated to providing information regarding the nutritional value and qualities of formula products, only the details concerning formula products targeted at children aged at least 12 months are provided.

Figure 15: Screengrab from Danone's Aptamil *website, taken in December 2018.*

Product information pages, which include promotional statements and claims regarding the formula's nutritional value, is only available for stage three and four products.

In supermarkets and personal care stores, on-shelf promotional statements, discounts, tie-in sales and special displays are only used for products of stage two or above.[46] Similarly, in television and online commercials, only stage three and four products (for children above three years old) and their brand/manufacturer's name are explicitly mentioned and shown on tape. But when it is products above stage two that are being advertised, BMS manufacturers seldom hold back with the promotional messages and images they use: some of the materials used insinuate that formula feeding can inspire children to become smarter, more independent, or otherwise enable them to be more capable and have a brighter future, while some others romanticise the parent-child relationship of a child who is implied to be bottle-fed. Here, we document the instances that typify the tactics used by BMS manufacturers to insidiously promote their infant formula products.

The mechanics of cross-promotion

We take Nestlé's practices to illustrate this. Its *illuma* product line has a strong presence in personal care stores in Hong Kong, as evidenced by the prominent in-store special displays and the discounts offered by Wyeth Nutrition in conjunction with such stores as Mannings and Watsons.

Figure 16: A special display shelf dedicated to promoting Nestlé's Organic illuma *found in Admiralty Mannings, taken in November 2018. Bottom left – A screengrab from Nestlé's* Organic illuma *product information webpage.*

As shown above, a special shelf is used to promote Nestlé's *Organic illuma*, a strategy used frequently by Nestlé to market its priciest product line. Although only stage two and three *Organic illuma* products are displayed, they are hardly the only two products promoted, given that stage one, two, and three *Organic illuma* products practically share a packaging design. Furthermore, the special shelf prominently displays *Organic illuma*'s promotional slogans "organic affinity; unleash baby's innate talent" and "Human Affinity Organic Formula", as well as a brochure that explains the nutritional value of *Organic illuma*. It is thus clear that this special display promotes the *illuma* brand as a whole, and with such little differentiation between the packaging design and labelling between different product lines, it is inevitable that infant formula products will be indirectly promoted.

Article 5.3 of the *International Code of Marketing of Breast-milk Substitutes* states "there should be no point-of-sale advertising, giving of samples, or any other promotion device to induce sales directly to the consumer at the retail level, *such as special displays, discount coupons, premiums, special sales, loss-leaders and tie-in sales*, for products within the scope of this Code."

Likewise, Nestlé only directly promotes formula products for children older than six months in mainland China. Below is an example of how Nestlé markets its *NAN PRO* in supermarkets:

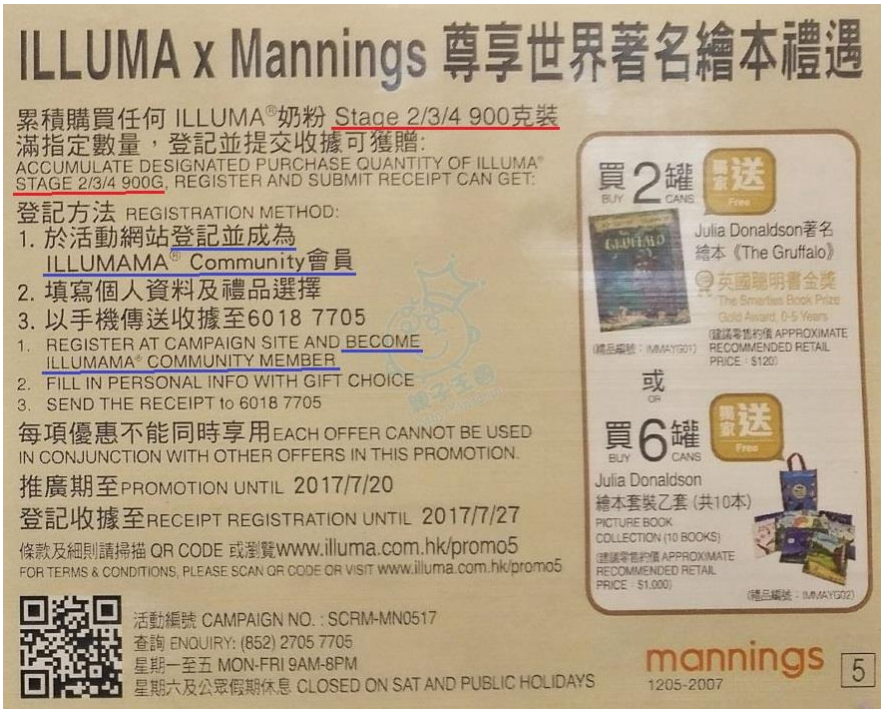
Figure 17: On-shelf advertisement for Nestlé's stage 3 NAN PRO *formula. Taken at Shenzhen Ren Ren Le Supermarket in January 2019.*

Although only stage three *NAN PRO* is explicitly mentioned on the advertisement, the promotional claims refer to the addition of probiotics and the use of protein hydrolysis technology in the formulation of the product, which is present in every *NAN PRO* product. The benefits of probiotics and hydrolysed protein for children's gastrointestinal and immune health are also mentioned on the formula tins of all stages, meaning it is unrealistic to expect that the promotional effects of the advert can be contained to stage three *NAN PRO*.

Nestlé employs a similar promotional strategy in its street advertisements in Hong Kong:

Figure 18: Left – A bus stop billboard promoting Nestlé's stage four NAN PRO*, taken in January 2019.*
Right – Stage one NAN PRO *in store; presented in the same way as its stage four counterpart is on the billboard, taken at Tai Kok Tsui Mannings in November 2018.*

While only the stage four *NAN PRO* product is shown on the advertisement, the promotional statements emphasise that the formula combines human milk oligosaccharides with allergy prevention qualities and claim that it is the most recommended allergy-preventing formula by healthcare professionals. Given that the entire *NAN PRO* product line has the same design and colour scheme, and that stage one and four *NAN PRO* products are advertised for the same qualities, it is likely that the infant stage product is indirectly promoted through Nestlé's ubiquitous bus stop and MTR billboards.



illuma 尊貴獎賞

由 2018 年 10 月 5 日至 2019 年 2 月 28 日，於指定屈臣氏購買任何 ILLUMA® 或 ILLUMA® Organic 900 克裝奶粉（初生嬰兒奶粉除外）滿指定數量，憑有效電腦單一機印收據以手機短訊傳送至 5511 0957^，有機會獲贈以下禮品：

Figure 19: Above – Nestlé offers children's picture books for mothers who purchase several stage 2, 3, and 4 illuma *formula products if they register to become* illumama Community *members. Image taken from mothers' forum* Baby Kingdom. *Below –* illuma *buyers can enter draws to win cash coupons and other prizes.*

Nestlé also promotes *illuma* – its premium product line – through offering numerous benefits and the chance to enter draws to win expensive prizes, including gift cards, coupons at other businesses, baby products and other homewares. While these offers are only applicable to formula products that target children older than six months, they nevertheless allow BMS manufacturers to maintain a prominent presence in shops and mothers' communities, through which they can reach parents early in their pregnancy and popularise their brands.

The children we dream of raising

Using images and messages that depict smart, creative, independent children and loving and nurturing parent-child relationship plays cleverly into what many parents want their children to be and how they want their relationship with their children to evolve. This has become a common way BMS manufacturers plot their commercials to sway parents into appreciating and using formula products. Here, we pick out two commercials that exemplify this practice and explain how they constitute the idealisation and humanisation of formula feeding, which violate the Code and threaten optimal breastfeeding practices.

Danone's promotional video for its *Aptamil* series, broadcast in Hong Kong and displayed on *Aptamil*'s Hong Kong-based YouTube channel, tells the story of a child raised by a mother who insists on letting her confront difficulties herself, who grows up to become successful and independent.[47] A recurring theme in the story is that, different from other children, she rarely relied on her mother throughout her upbringing.

Figure 20: Screenshots from Danone's commercial. The daughter's independence is a theme in the advertisement.

She credits her achievements to her mother for "seeing one step ahead": for not deciding for her and letting her pursue her dreams. The video concludes with a salute to mothers who chose to see one step ahead, and a message stating that *Aptamil Platinum* is guided by science that is one step ahead. The commercial thus builds subtle connections between the *Aptamil* brand, a "letting-go" style of parenting and the child's future success, stoking parents' sentiments and utilising their desire for the best for their children to promote its products.

A commercial that more conspicuously links children's achievements to formula feeding is the advertisement for Nestlé's *S-26 Ultima*, broadcast in mainland China.[48] It features a child drinking stage three *S-26 Ultima* who draws detailed comics and published his own book at the age of the six. The voiceover at the end of the commercial hammers home the message of "excellent nutrition, extraordinary learning" (营养出色 学出非凡).

Figure 21: Screenshot from Nestlé's commercial. The S-26-fed child is shown launching his own comic book.

The WHO specifies that the messages used to promote foods for infants and young children should not "include any image, text or other representation that is likely to undermine or discourage breastfeeding."[49] It also prohibits the advertising and other forms of promotion of BMS falling under the Code, specifically the use of texts and images that may humanise the use of infant formula on the labelling of formula containers.[50]

We have singled out these two commercials in the spirit of the WHO's determination to root out marketing practices that idealise and sentimentalise formula feeding, so as to raise the attention of regulators and public health policymakers towards the negative consequences these commercials may have on carers' infant feeding decisions and their efforts to promote breastfeeding.

3.3.2 Nutrition organisations or lobbying fronts?

One method BMS manufacturers use to advance industry interests and push back regulations that restrict their product development and promotional activities is through the establishment of neutral- and innocent-sounding infant nutrition and health organisations. The Hong Kong Infant and Young Child Nutrition Association (HKIYCNA), co-founded by Abbott, Danone, FrieslandCampina, Mead Johnson, Nestlé and Wyeth, is one such organisation.

Hong Kong Infant and Young Child Nutrition Association 香港嬰幼兒營養聯會

Despite publicly professing its support for exclusive breastfeeding for the first six months of life and intention to improve the nutritional well-being of infants and young children in Hong Kong, HKIYCNA representatives misleadingly insinuated on prime-time television that the differences in nutritional value between formula milk and breastmilk are minimal and questioned the government's intention to regulate foods for young children older than six months.

The HKIYCNA's television appearance on 8th March 2017[51] followed the Hong Kong government's announcement of its plan to implement the voluntary *Hong Kong Code of Marketing of Formula Milk and Related Products, and Food Products for Infants & Young Children* in early 2017, which recommends against the promotion of BMS aimed at infants and young children up to the age of three.[52] Dr Lee Ka-Yan, a paediatrician representing the HKIYCNA, said on infotainment programme *Scoop* that infants do not become immune to morbidities and illnesses even if they are breastfed and have obtained antibodies from breastmilk. He further explained that so long as formula-fed babies are vaccinated, there is no need for parents to worry about their health, while suggesting that formula products may be nutritionally comparable to breastmilk.

HKIYCNA's spokesperson Ms Carmen Poon also appeared on the programme, where she argued the scope of the *Hong Kong Code* is too broad and strict. She later published a blog post, stating the government's decision to raise breastfeeding rates through the introduction of the *Code* is tantamount to stigmatising and guilt-tripping mothers who feed their children with formula.[53]

Figure 22: Ms Carmen Poon opposed the Hong Kong Code on prime-time television programme Scoop.

This blatant attempt to derail the implementation of the Code and influence public opinion through misleading statements has not resulted in any sanctions against the HKIYCNA or individual formula makers, and to this day, compliance with *Hong Kong Code* remains voluntary.

3.3.3 Salvaging healthcare systems from commercial influences

The scale of BMS manufacturers' influence in healthcare facilities and amongst health professionals in mainland China is well-documented, with formula makers aggressively marketing their infant formula products through hospital workers, hoping to induce dependence on their products early in the children's lives.

In 2012, Globalization Monitor carried out an investigation into infant formula companies' promotional tactics in mainland China and discovered alarming violations of the *Chinese Rules Governing the Administration of Marketing of Breast-milk Substitutes* as well as the WHO Code by major foreign formula makers such as Abbott, FrieslandCampina and Danone.[54] This included the distribution of product brochures and discount coupons concealed inside pamphlets that inform parents about infant care and dietary habits. A Reuters exposé in 2013 uncovered more worrying promotional practices, ranging from doctors giving pregnant mothers formula discount cards during prenatal check-ups, formula company representatives running prenatal classes in hospitals to establish a relationship with expecting parents, doctors offering new parents free formula samples, and even formula companies bribing maternity wards for access to their patients' personal information, so that they can be directly contacted for marketing purposes.[55]

Years after these events and following moves by Beijing to tighten advertising rules for infant-formula, we sought to assess whether the situation has improved by interviewing mothers based in Shenzhen. We chose this area as it is one of the most materially well-off regions in the country where carers are more likely to be able to afford imported formula products. This would allow us to understand the current promotional practices within a region that is likely to be identified by foreign BMS manufacturers as a key market.

We spoke with Yang Si, who is pregnant with her second child and was accompanied by her ten-year-old daughter. She confirmed our conjecture that the Shenzhen formula market is saturated with imported products. "Only very working-class people or those from villages still buy domestically-produced infant formula," she explained, "because of the safety concerns, anyone who is well-off enough to afford imported formula would do so. Therefore, Shenzhen mothers either breastfeed or buy the big foreign brands like Abbott, Friso and Wyeth."

When Yang spoke of safety concerns, she was referring to the melamine contamination scandal in 2008, when batches of formula products manufactured by twenty-two domestic brands were found to be adulterated with the industrial chemical, which had been added to formula products to give the appearance of higher protein content than they truly contained. The contaminated products caused the death of six infants and kidney problems and other long-term illnesses in at least three hundred

thousand infants and young children. Even though Nestlé was implicated in the scandal – traces of melamine were found in Nestlé's milk products manufactured in Heilongjiang, China first by the Hong Kong and then the Taiwanese governments[56] – the impression that foreign manufactures make safer products has already become entrenched in the minds of Chinese parents.

Figure 23: Factory workers pile up empty tins after the melamine-contaminated Sanlu milk powder was poured into bags for destruction at a cement plant in Shijiazhuang city. Photo via AP Images, 14th Oct 2008.

Foreign BMS makers have quickly taken advantage of the situation by instructing compromised doctors to recommend their products directly to mothers and organise activities inside hospitals around nutrition, which were perceived by consumers to be "more scientific and persuasive".[57] When quizzed on whether she has experienced such tactics in hospitals, Yang revealed that formula products were forcefully promoted to her in the past. "My doctor at Nanshan hospital would give me a tin of Abbott formula for free when I had my prenatal check-ups," she recalled, "and you frequently see salespeople from formula companies in maternity wards talking to mothers."

"But that was ten years ago, when I was pregnant with her," she added while pointing to her daughter. She suspects it is now illegal to promote formula products in hospitals, although she still hears about them through television commercials. "I remember a Wyeth commercial featuring a really adorable kid that was very smart. It was a very exaggerated advertisement," she mused.

This echoes the experiences of Miss Yu, another mother that we spoke with. Yu had given birth to her second child in the University of Hong Kong-Shenzhen Hospital – the university's teaching hospital – a few months ago and told us that things have improved a lot from when she had her first child six years ago. "Now the [prenatal] classes are run by doctors, not formula company representatives, and they

emphasise how important it is for us to breastfeed our children. Doctors don't push formula on us anymore; on the contrary, the doctors and even the PA system in the maternity wards talk about the benefits of breastfeeding and urge mothers to breastfeed their children up to two years old! I actually found that a bit overwhelming," Yu reminisced.

"I hear from my friends that the doctors and nurses don't give mothers formula anymore, but they do let family members bring them into the wards if it is necessary, if the mothers can't produce enough milk," she said, "but it was stricter in the hospital I went to." She explained that in the University of Hong Kong-Shenzhen Hospital, in order to eliminate the presence of proprietary formula products, neither hospital workers nor patients and their families are allowed to bring them into the wards. In case a mother cannot produce enough breastmilk – a situation she found herself in – the nurses would provide ready-to-feed formula for the children in need. "It is difficult to expect mothers to breastfeed until their children are two. My baby is six months old and I already don't have enough milk for them! But I think it is a positive sign that the authorities are trying to promote breastfeeding, because it is the best way to feed our children," she concluded.

We acknowledge that our interviews were not a systematic study of the changes of the influence foreign BMS manufacturers have in mainland China's healthcare systems over time. Nonetheless, our findings suggest potentially positive developments in the government's efforts to better protect optimal breastfeeding practices from the encroachment of formula makers who have had a history of prioritising profit-making over infants' health. Eleven years on from the melamine scandal, we believe the hospitals in Shenzhen may offer a model of how to prevent health workers and health facilities from being compromised by commercial interests, while fulfilling the needs of infants and mothers in their care. It remains to be seen how widely these practices are adopted throughout the country, and whether standards will be maintained at a high level over time, but the Shenzhen experience suggests we can look forward to future improvements.

3.4 Conclusion

The WHO's stance on how breastmilk substitutes, particularly infant formula, should be marketed is firm and clear. The messages used to promote BMS must be accurate, detailed and contain full and honest information. Inappropriate promotion is prohibited: these include health, nutrition and structural claims that are not well-supported by science, that makes a comparison to breast-milk, that suggests that the product is nearly equivalent or superior to breast-milk or otherwise misrepresents its qualities to the effect of undermining and discouraging breastfeeding. This is to facilitate optimal breastfeeding practices and improve infant and young child health around the world.

Nevertheless, it remains common for BMS manufacturers to stretch the rules to promote their commercials interests, especially in parts of the world where the baby formula market has great growth potential. In Hong Kong and mainland China, two of the highest-growth formula markets in the world, we found the cross-promotion of infant formula to be very common. This is conducted by aggressively advertising older-stage formula and other complementary foods for young children that have similar packaging designs and similar alleged nutritional properties and benefits to infant stage formula products. Special display shelves, tie-in promotions and prize draws are also commonly employed by BMS makers to market their brands and promote their formula products.

We also found many television and online formula product commercials that appear to problematically sentimentalise and humanise bottle feeding. These commercials often depict a child, implied to be formula-fed, as smart, creative, and independent problem solvers, as well as portray parents insisting on raising their children in a way that emphasises independence. Beyond the liberal use of concepts such as intelligence, the focus on parenting decisions and idealised parent-child relationships depicted in these commercials can have far-reaching effects on the psychology of parents. Such commercials are forbidden by the WHO through the Code and its *Guidance on ending the inappropriate promotion of foods for infants and young children*. Nonetheless, this is rarely complied with, and commercials that idealise formula feeding remain a key battle ground for pushing back commercial interests that threaten optimal breastfeeding.

Other ways BMS manufacturers have attempted to advance industry interests have been through establishing lobbying fronts disguised as nutrition associations concerned with infant health and through infiltrating healthcare systems.[58] The Hong Kong Infant and Young Child Nutrition Association has so far gotten away with suggesting that there is little difference between formula and breastmilk and criticising the *Hong Kong Code* on prime-time television, which remains a non-legally binding measure. On a better note, the Shenzhen government seems to have upped its efforts to better protect optimal breastfeeding practices from the influence of BMS makers by forbidding the promotion of formula products in hospitals and other healthcare facilities. While it remains to be seen if these improvements will continue, they are nonetheless welcomed, and could be taken as examples that other Chinese cities can model their policies on.

4. Product development and promotion under new rules

4.1 Overview and methodology

In this chapter, we turn our attention to the powdered formula milk market in mainland China. Despite signs that the Chinese government is taking steps to address the invasive promotional tactics some international formula makers practise in hospitals, the country is still far from a haven for breastfeeding. The reverberations of the 2008 melamine contamination crisis that killed six infants and sickened a further three hundred thousand are still felt today, with mothers preferring imported to domestic formula products as the former are perceived to be safer and of better quality.

Since the scandal, the Chinese government has taken numerous steps to improve industry oversight, hoping to better protect its population's health and restore consumer confidence in locally-manufactured formula products. These efforts culminated in the implementation of the new infant and young children formula registration regime, which mandates BMS manufacturers to obtain registration for their formula products from the Chinese Food and Drug Administration (CFDA) before they can be sold in the country. This new measure comes under China's *Food Safety Law* and took effect in 2018, though the transition period for the full adoption of the framework is still underway, meaning it is only partially in force. While most of the terms in the new measure relate to food safety, good manufacturing practices, and quality control, it also imposes a quota of formula recipes that each enterprise can register and stipulates rules on the claims that can be used on product labels.

Here, we analyse the development of infant and young children formula products within the context of the new regulations, moving from explaining the nuances of the law to assessing whether BMS manufacturers have responded to the policy change and moderated the extent of their product differentiation accordingly. To this end, we recorded the formula products available in mainstream supermarkets and amassed the registrations that the CFDA announced to the media. We also examined the promotional claims used by BMS manufacturers for irregularities. We hope to evaluate the effectiveness of the new regulatory regime and identify loopholes that BMS manufacturers may exploit.

4.2 The new registration regime

The initiative to implement a new system that keeps track of every batch of every formula product approved by the CFDA for retail began in 2016 and took effect on 1st January 2018. Its core objective is to improve food safety and quality control of formula products, as clarified by the general principles and registration requirements in the *Administrative Measures on Product Formula Registration of Infant Formula Milk Powder*,[59] the legal document that provides the framework for the implementation of the system.

The registration system applies to both domestic and overseas BMS manufacturers. They are required to submit several documents for every recipe they register, including a research and development report, proof of their ability to produce according to the requirements of good manufacturing practices, proof of the safety standards of the raw materials they use, product testing reports and proof of their ability to implement a critical point control system and carry out batch-by-batch inspection of all outgoing products. Registrations need to be renewed every four years. The *Administrative Measures* also gives the CFDA the power to conduct on-site inspection, which emphasises the governments' commitment to maintaining high safety and product quality standards.

Articles 9 and 10 stand out from the rest of articles in the *Administrative Measures*, as they are primarily concerned with regulating the extent to which BMS manufacturers can differentiate their recipes and how their production can be distributed amongst their businesses and brands.

> Article 9: *If an enterprise registers two or more recipes designated for the same age group, the recipes must be scientifically proven to be significantly different. In principle, every enterprise shall register no more than nine formula recipes under three product series, each of which includes infant formula (stage one, zero to six months), older infant formula (stage two, six to twelve months), and young children formula (stage three, twelve to thirty-six months).*

Commentators have suggested that the strict safety and product quality requirements imposed by the regulations will eliminate many lesser-known imported formula products and dubious local brands that put their labels on generic and potentially unsafe powder from the market.[60] It is possible that Article 9 is designed to prevent big BMS manufacturers from taking advantage of the sizable gap in the market this would create simply by repackaging existing formulas and selling them as new products. With the introduction of the nine-product formula quota, this article provides a tangible

measure to appraise whether the new regulation can effectively limit the extent of product differentiation.

> Article 10: *A wholly-owned subsidiary that has obtained its own CFDA formula registration and production license for infant and young children formula can use the registered formula of another wholly-owned subsidiary of the same group company. The group company shall inform the CFDA in writing before organising production.*

By allowing wholly-owned affiliates of the same group company to produce the recipes registered by other affiliates, provided the affiliate manufacturing the product already has at least one recipe registered with the CFDA, Article 10 appears to favour big formula manufacturers which have and/or can afford to establish multiple subsidiaries to make their production more flexible.

Articles 30 to 34 add to the framework by delineating the rules that govern the claims used on product labels. Articles 32 and 34 are particularly relevant: the former states that BMS makers must provide precise information about the source of their raw materials and avoid vague phrases like “imported milk source”, “sourced from overseas pasture” and “ecological pasture”, while the latter prohibits BMS manufacturers from:

- claiming that their products can treat or prevent illnesses, or perform other health functions;
- stating or implying that their products are beneficial to intellectual development, strengthening the immune system, or protecting gastrointestinal health;
- using terms such as “does not contain” or “additive free” to emphasis the absence of ingredients that should not be included according to existing food safety standards;
- making false, exaggerated or absolutised claims, or claims that violate scientific principles.

These are to protect carers from misleading and misrepresentative formula product promotion, as well as prohibit claims that are not consistent with the content of the formula product registration.

Exemptions and transition periods

It should be emphasised that the registration system is coming into force incrementally and not yet applies to every product that are currently on the market.

An official announcement by the CFDA in 2016 clarifies that only formula products manufactured on or after 1st January 2018 must obtain a formula registration before they can be sold in mainland China.

Formula products manufactured domestically or imported before that date are exempt; in other words, they can be sold without a registration until their expiry dates.[61]

The government originally intended to apply the 2018 registration deadline to all products, whether they are produced domestically or imported, but the transitional period for formula products entering mainland China through online channels have been extended twice since 2016. In a State Council of the People's Republic of China (State Council) Meeting in September 2017, Premier Li Keqiang announced that existing regulations governing cross-border e-commerce will remain in force until the end of 2018,[62] meaning that small purchases imported into China through e-commerce would be regulated as "personal items" and are not subjected to the registration requirements under the *Administrative Measures*.[63] The exemption was further extended to the end of 2019 in a State Council Meeting in November 2018, in which the Premier also announced an increase of the single and annual transaction limit from ¥2000 to ¥2500 and ¥20000 to ¥26000 respectively, and that the scope of the current policies regulating cross-border e-commerce will be expanded from 15 to 22 cities.[64]

Foods for special medical purposes are similarly exempt from the new registration regime until the end of 2019.[65] This means, at the time of writing, many formula products on sale remain outside of the scope of the *Administrative Measures*. Therefore, we have limited our research to the parts of the regulations that are already in force, evaluating its effectiveness with respect to the "formula quota" and the rules on promotional claims, which are more concrete and better-defined than the goals of improving food safety and the quality of formula products.

Future research should focus on how well formula products that are imported to mainland China through cross-border e-commerce comply with the regulations (after the transitional period has elapsed) and assess the effect of the regulation on food safety and public health when more data become available.

4.3 A toothless quota system?

One of the worries surrounding the quota system is the ambiguity as to how it is applied, as the *Administrative Measures* does not clarify whether the nine-product quota applies to whole business groups or their subsidiaries and subordinate brands. If it applies to individual entities, then big formula manufacturers can easily avoid shrinking their product portfolio and may be able to broaden their market presence by creating subsidiaries to register formula recipes.

We sought to see if this is the case by analysing the CFDA registration catalogue, which records the name of every product registered, its registration number, the enterprise that made the registration and its expiry date. It has been reported that by early 2018, one thousand formula recipes had already been registered with the CFDA by 96 domestic and 38 foreign manufacturers.[66] From the material the CFDA published on its official website, parts of the catalogue released to state media and an online repository of the details of the registrations,[67] we analysed more than 200 registrations, which revealed that BMS manufacturers, as group companies, can successfully circumvent the nine-product quota and maintain their existing brands by registering their recipes with subsidiaries and joint ventures. This method is very popular amongst domestic manufacturers and is exemplified by Yili (伊利), a state-owned dairy company and one of the few BMS makers that can rival foreign heavyweights in the Chinese formula milk market.

Yili recorded 20% growth in sales in the first half of 2018, which rose to ¥3 billion (about 442 million USD) in July. With infant and young children formula by far its largest business segment, it appears that the fact that Yili was able to register as many as thirty products under ten product series by various “incarnations” of Yili Dairy Industry Co. Ltd. played no small part in the company’s performance.

Table 1: Yili formula products registered with the CFDA

Enterprise Name	Product Name	Registration Number
Yili has registered four product series under its flagship *Yili* brand under three subsidiaries: Inner Mongolia Jinhai Yili Dairy Co., Ltd (6 products), Dorbod Yili Dairy Industry Co., Ltd. (3 products) and Tianjin Yili Dairy Industry Co., Ltd. (3 products).		
Gold	*Funengxing*	*Peineng*	*BES-KIDO*
			
Despite belonging to different product series, the four stage one products (shown above) share their selling points: they all contain “composite probiotics”, dietary fibres, lutein, taurine, DHA and choline.		
Inner Mongolia Jinhai Yili Dairy Co., Ltd.	*Yili Gold* (伊利金装) Infant Formula	YP20170032
Inner Mongolia Jinhai Yili Dairy Co., Ltd.	*Yili Gold* Older Infants Formula	YP20170033
Inner Mongolia Jinhai Yili Dairy Co., Ltd.	*Yili Gold* Young Children Formula	YP20170034
Dorbod Yili Dairy Industry Co., Ltd.	*Yili Funengxing* (伊利赋能星) Infant Formula	YP20170035
Dorbod Yili Dairy Industry Co., Ltd.	*Yili Funengxing* Older Infants Formula	YP20170036
Dorbod Yili Dairy Industry Co., Ltd.	*Yili Funengxing* Young Children Formula	YP20170037
Tianjin Yili Dairy Industry Co., Ltd.	*Yili Peineng* (伊利沛能) Infant Formula	YP20170081
Tianjin Yili Dairy Industry Co., Ltd.	*Yili Peineng* Older Infants Formula	YP20170082
Tianjin Yili Dairy Industry Co., Ltd.	Yili Peineng Young Children Formula	YP20170083
Inner Mongolia Jinhai Yili Dairy Co., Ltd.	*BES-KIDO* (伊利倍冠) Infant Formula	YP20170101
Inner Mongolia Jinhai Yili Dairy Co., Ltd.	*BES-KIDO* Older Infants Formula	YP20170102
Inner Mongolia Jinhai Yili Dairy Co., Ltd.	*BES-KIDO* Young Children Formula	YP20170103

<table>
<tr><th>Enterprise Name</th><th>Product Name</th><th>Registration Number</th></tr>
<tr><td colspan="3">Yili registered another four product lines under its premium PRO-KIDO brand with three subsidiaries:
Tianjin Yili Dairy Industry Co., Ltd. (6 products), Inner Mongolia Jinhai Yili Dairy Co., Ltd (3 products), and the Yili Group-owned Oceania Dairy Limited (3 products).</td></tr>
<tr><td>PRO-KIDO Gentle</td><td>PRO-KIDO I-PROTECH</td><td>PRO-KIDO</td><td>PRO-KIDO Ruihu</td></tr>
<tr><td>  </td><td>  </td><td>  </td><td>  </td></tr>
<tr><td colspan="3">The four PRO-KIDO product lines are advertised as “closer to the nutritional needs of Chinese infants”. Like the four Yili product lines, they share many ingredients, which are claimed to be beneficial for infants’ gastrointestinal health and brain development:
1. A patented protein combination of α-lactalbumin and β-casein
2. A patented bifidobacteria combination of HN019 and Bb-12
3. A dietary fibre combination of GOS and FOS
4. DHA and choline
These products are only one ingredient removed from each other: in addition to the ingredients in the basic product line PRO-KIDO, both Gentle and Ruihu contain OPO structural glyceride, while I-PROTECH contains nucleotides. The only feature that seems to separate Ruihu from Gentle is that it is made in and imported from New Zealand.</td></tr>
<tr><td>Tianjin Yili Dairy Industry Co., Ltd.</td><td>PRO-KIDO Gentle (金领冠菁护) Infant Formula</td><td>YP20170084</td></tr>
<tr><td>Tianjin Yili Dairy Industry Co., Ltd.</td><td>PRO-KIDO Gentle Older Infants Formula</td><td>YP20170085</td></tr>
<tr><td>Tianjin Yili Dairy Industry Co., Ltd.</td><td>PRO-KIDO Gentle Young Children Formula</td><td>YP20170086</td></tr>
<tr><td>Tianjin Yili Dairy Industry Co., Ltd.</td><td>PRO-KIDO I-PROTECH (金领冠珍护) Infant Formula</td><td>YP20170119</td></tr>
<tr><td>Tianjin Yili Dairy Industry Co., Ltd.</td><td>PRO-KIDO I-PROTECH Older Infants Formula</td><td>YP20170120</td></tr>
<tr><td>Tianjin Yili Dairy Industry Co., Ltd.</td><td>PRO-KIDO I-PROTECH Young Children Formula</td><td>YP20170121</td></tr>
<tr><td>Inner Mongolia Jinhai Yili Dairy Co., Ltd.</td><td>PRO-KIDO (金领冠基础) Infant Formula</td><td>YP20170122</td></tr>
<tr><td>Inner Mongolia Jinhai Yili Dairy Co., Ltd.</td><td>PRO-KIDO Older Infants Formula</td><td>YP20170123</td></tr>
</table>

Enterprise Name	Product Name	Registration Number
Inner Mongolia Jinhai Yili Dairy Co., Ltd.	*PRO-KIDO* Young Children Formula	YP20170124
Oceania Dairy Limited (Yili owned, New Zealand based and registered)	*PRO-KIDO Ruihu* (金领冠睿护) Infant Formula	YP20175196
Oceania Dairy Limited	*PRO-KIDO Ruihu* Older Infants Formula	YP20175197
Oceania Dairy Limited	*PRO-KIDO Ruihu* Young Children Formula	YP20175198
Pure-Nutra  	Yili also registered the *Pure-Nutra* product series under the Yili Group-owned Oceania Dairy Limited (3 products). It is promoted for its balanced nutritional profile and its status as an import from New Zealand. Its key ingredients are DHA, lutein, dietary fibres and nucleotides. It is claimed to be commensurate with the "grow in exploration" parenting theory that originated from New Zealand.	
Oceania Dairy Limited	*Pure-Nutra* (培然) Infant Formula	YP20170168
Oceania Dairy Limited	*Pure-Nutra* Older Infants Formula	YP20170169
Oceania Dairy Limited	*Pure-Nutra* Young Children Formula	YP20170170
Tofer Comfortable Formula  	Finally, Yili registered the *Tofer Comfortable Formula* product series under Dorbod Yili Dairy Industry Co., Ltd. (3 products). This brings the number of recipes registered by the Dorbod subsidiary to 6, the Oceania subsidiary to 6, the Inner Mongolia subsidiary to 9, and the Tianjin subsidiary to 9. It is advertised as a "comfortable formula" that soothes infants' stomach and intestines, makes them cry less and prevents the risk of developing allergies. Its key ingredients are a patented bifidobacteria combination that allegedly protects the intestines and hydrolysed proteins.	
Dorbod Yili Dairy Industry Co., Ltd.	*Tofer Comfortable Formula* (托菲尔) stage 1	YP20170500
Dorbod Yili Dairy Industry Co., Ltd.	*Tofer Comfortable Formula* stage 2	YP20170501
Dorbod Yili Dairy Industry Co., Ltd.	*Tofer Comfortable Formula* stage 3	YP20170502

Three of the four subsidiaries that registered Yili-branded products are wholly-owned by Inner Mongolia Yili Industrial Group Co., Ltd, a company worth more than ¥145 billion. It also owns 89.4% of the remaining subsidiary, Dorbod; the remaining shares are owned by the Dorbod County Finance Bureau. This is testament to the extent of product diversification that remains possible for the main players in the formula milk industry despite the nine-recipe quota.

The official interpretation of the *Administrative Measures* explains that while the development of new recipes is welcomed, since formula products should be modelled on breastmilk, there should not be too many recipes, and the creation of more than one recipe for the same age group is only justifiable if they are significantly different, as demonstrated by science.[68] The practice of using several subsidiaries to register formula recipes undercuts this policy, as it allows established brands to continue to flood the shelves with similar products. For example, although little separates the four product lines under Yili's *PRO-KIDO* brand, since they are registered by three separate subsidiaries, they need not follow the clause in Article 9 that states "products manufactured for the same age group should be significantly different", as it only applies to individual entities.

The circumvention of the quota through registering formula products with subsidiaries is not an exceptional practice: Ausnutria, a Changsha-based private dairy company that manufacturers formula in its own facilities in the Netherlands, registered twenty-six formula products. Similarly, Beingmate and Mengniu-owned Yashili have both been able to register more than nine formula products with the CFDA.

The policy is expected to remove more than a thousand products and free up space in the market worth ¥15 to 20 billion.[69] Because of the ease with which companies can avoid having their product portfolio affected by the quota, the registration system has been described as a veiled "shot in the arm" for domestic BMS manufacturers whose reputation is still bruised by the melamine scandal, as they can create subsidiaries and joint ventures based in China more easily than their overseas counterparts.[70] But domestic dairy companies are not the only ones taking advantage of this loophole. From parts of the CFDA registration catalogue that we were able to obtain, Nestlé has also registered more than nine formula products.

Table 2: Nestlé formula products registered with the CFDA

Enterprise Name	Product Name	Registration Number
Nestlé registered six products under its flagship *NAN* brand with two subsidiaries. *NAN H.A.* is the "hypoallergenic" version of *NAN*, with hydrolysed proteins. *Preterm birth NAN* is a product for special medical needs.		
NAN	*NAN H.A.*	*Preterm birth NAN*
		
Twins Nestlé Co., Ltd.	*NAN* (能恩) Older Infants Formula	YP20170025
Twins Nestlé Co., Ltd.	*NAN* Young Children Formula	YP20170026
Twins Nestlé Co., Ltd.	*NAN* Infant Formula	YP20170125
Nestlé Deutschland A.G.	*NAN H.A.* (超启能恩) Older Infants Formula	YP20175049
Nestlé Deutschland A.G.	*NAN H.A.* Young Children Formula	YP20175050
Nestlé Nederland B.V.	*Preterm birth NAN* (早瑞能恩) Infant Formula	TY20185006
	Twins Nestlé Co., Ltd. is a Nestlé joint venture with Shuangcheng State-Owned Assets Management Co., Ltd., which has six products registered with the CFDA. The *Lactogen Luv* is a repackaged version of the old *Lactogen Gold*. It contains prebiotics scGOS and lcFOS in the "golden ratio" of 9:1, DHA, ARA and dietary fibres. It is claimed to be beneficial to intestinal function and lowers the rate of stomach discomfort.	
Twins Nestlé Co., Ltd.	*Lactogen Luv* (力多精摯寶) Infant Formula	YP20170078
Twins Nestlé Co., Ltd.	*Lactogen Luv* Older Infants Formula	YP20170079
Twins Nestlé Co., Ltd.	*Lactogen Luv* Yong Children Formula	YP20170080

Enterprise Name		Product Name	Registration Number
Wyeth S-26 Gold	*Wyeth S-26 SMA Ultima*	The Wyeth business in mainland China is owned by Nestlé. *S-26* is one of Wyeth's main brands. *SMA Ultima* is the premium *S-26* product. It is 26.7% more expensive than *Gold* (¥268/800g to ¥238/900g). Both are advertised as containing nucleotides, which are claimed to benefit the development of neural networks. *SMA Ultima* contains a GOS/FOS combination. *Gold* contains only FOS.	
			
In our visit to *Ren Ren Le*, we found there are at least two more product series under the *S-26* brand: *Nutrisure Gold* and *SMA LF Gold*. The former is a recipe said to be designed for picky-eating children. It claims to supplement their diet by providing vitamins B_9 (folic acid), C, D, E, calcium, iron, zinc; however, these ingredients are found in the regular *S-26* product (*Gold*) as well. The latter is a lactose-free recipe for lactose intolerant children. We have not been able to verify if they are registered with the CFDA.			
Shanghai Wyeth Nutritional Co., Ltd.		*Wyeth S-26 Gold* (惠氏爱儿乐) Infant Formula	YP20170042
Shanghai Wyeth Nutritional Co., Ltd.		*Wyeth S-26 Gold* Older Infants Formula	YP20170043
Shanghai Wyeth Nutritional Co., Ltd.		*Wyeth S-26 Gold* Young Children Formula	YP20170044
Nestlé Suisse S.A.		*Wyeth S-26 SMA Ultima* (惠氏铂臻) Infant Formula	YP20175084
Nestlé Suisse S.A.		*Wyeth S-26 SMA Ultima* Older Infants Formula	YP20185049
Nestlé Suisse S.A.		*Wyeth S-26 SMA Ultima* Young Children Formula	YP20185050
		*BabyNes* is Nestlé's premium powdered formula product that comes in single-use capsules. Nestlé also sells a machine that is claimed to mix the powder with water and cool it in under a minute.	
It is marketed for its precision, hygiene and convenience, but has been criticised as a "product for the rich" and "environmentally wasteful".[71] Patti Rundall, policy director of Baby Milk Action, questioned how it was possible for the machine to mix and cool the solution in under a minute.[72]			
Nestlé Suisse S.A.		*Wyeth BabyNes* (惠氏贝睿思) Infant Formula	YP20175186

Enterprise Name	Product Name	Registration Number
illuma is Wyeth's premium and most expensive product, easily costing ¥200 per tin more than other formula products, including Nestlé's own. For example, *NAN* costs ¥225/900g, whilst *illuma* costs ¥488/900g, a 116% (¥263) difference.		
Wyeth illuma		*Wyeth Organic illuma*
		
Wyeth Nutritionals Ireland Ltd. (Parent organisation – Nestlé)	*Wyeth illuma* (惠氏启赋) Infant Formula	YP20175010
Wyeth Nutritionals Ireland Ltd.	*Wyeth illuma* Older Infants Formula	YP20175011
Wyeth Nutritionals Ireland Ltd.	*Wyeth illuma* Young Children Formula	YP20175012
Wyeth Nutritionals Ireland Ltd.	*Wyeth Organic illuma* (惠氏启赋蕴萃) Infant Formula	YP20175057
Wyeth Nutritionals Ireland Ltd.	*Wyeth Organic illuma* Older Infants Formula	YP20175058
Wyeth Nutritionals Ireland Ltd.	*Wyeth Organic illuma* Young Children Formula	YP20175059

Nestlé through its multiple subsidiaries is similarly able to get around the quota, having registered at least twenty-two products. The company seems to have been cutting it fine with *illuma Atwo*, a formula using milk rich in A2 proteins to rival the New Zealander a2 Milk Company's products. Its first batch was manufactured in November 2017 and became available for sale in March 2018, barely escaping the need to register the recipe.[73] Some netizens took to social media to express their concerns about the fact that *illuma Atwo* does not have a registration number on its packaging:

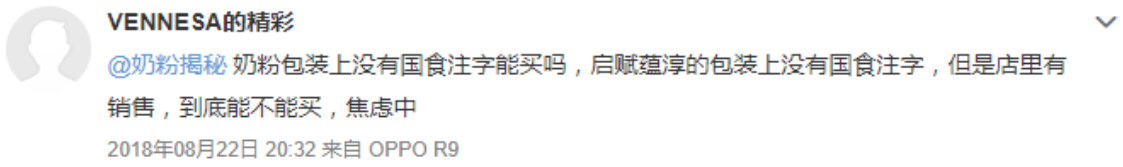


Figure 24: A screengrab from social media site Sina Weibo (新浪微博) *under the thread "@uncovering milk powder secrets", taken in January 2019. User* VENNESA 的精彩 *wrote: "is it okay to buy formula milk without a CFDA registration number? There is no registration number on* illuma Atwo*, but it is sold in the shop. Can I buy it? I am worried."*

Figure 25: A screengrab from microblogging site Baidu Tieba (百度贴吧) *in the "*Wyeth illuma*" forum, taken in January 2019. User* 全悟道 2014 *wrote: "is* illuma Atwo *formula better than the classic* illuma*? There is no CFDA registration number on* illuma Atwo*'s packaging."*

While it is unclear whether these products were manufactured after 1st January 2018, the status of *illuma Atwo* with respect to the CFDA registration regime should nonetheless be followed-up come the end of 2019, when the shelf life (around 720 days) of the initial batch of *illuma Atwo* elapses.

The foregoing analysis reveals how big BMS manufacturers can easily maintain their product portfolio and consolidate their market share despite the quota by making use of subsidiaries and joint ventures. It also shows they can register several similar formula products with the CFDA, thus nullifying the intended impact of the stipulation in Article 9 that recipes registered by the same enterprise for the same age groups must be significantly different. Better-defined regulations and more concerted enforcement actions from the relevant authorities will be needed to effectively counter the extensive product differentiation in the infant formula industry.

4.4 Are product labelling rules missing their target?

The rules governing the use of promotional claims are flawed in that they only narrowly apply to product labels. The rules are in fact highly specific about which claims cannot be used and have a clear focus on protecting consumers from being misled by vague, exaggerated and false functional claims. In terms of how targeted the provisions regarding product labelling are, the *Administrative Measures* is arguably superior even to the WHO Code. However, it must be said that product labels are hardly the only source from which carers obtain information about formula products. More often than not, carers learn about formula products from product information websites, television commercials and social media websites, but these remain outside of the CFDA's jurisdiction. BMS manufacturers are thus still allowed to continue to use in other advertising channels the functional and health claims that would have be prohibited had they been displayed on product labels.

The rules did successfully prompt BMS manufacturers to redesign their product packaging to remove problematic promotional statements, with Yili's *PRO-KIDO I-PROTECH* an illustrative example:

Figure 26: A comparison of the PRO-KIDO I-PROTECH (金领冠珍护) *old and new packaging.*

1. The new packaging no longer uses the statement “100% imported milk source”. The *Administrative Measures* prohibits such vague claims and mandates BMS makers to state the precise region or country they source their raw materials from if they are to make statements related to source.
2. The product name registered with the CFDA is now displayed on the top of the label to avoid confusion. Previously, only the brand name *PRO-KIDO* was displayed as such; Yili has four products under that brand.
3. Information about the ages that the product is designed and suitable for is now displayed in larger and clearer font.
4. The old packaging uses the phrase “maternal love protection system” to describe the product. It also emphasises the “premium” ingredients it contains, such as OPO structural glyceride and “α+β patented combination”; the alleged benefits of these ingredients are detailed elsewhere on the old packaging. On the new packaging, these functional and humanising claims about the formula product are removed.
5. The registration number of the product is displayed clearly on the new packaging design.

But they did not stop Yili from promoting the *PRO-KIDO* products on its website as befitting of Chinese babies’ nutritional needs and healthy for baby’s intestines.[74] It also claims the Yili-branded products have three key developmental benefits.

Figure 27: Yili advertises its formula as conducive to developing good absorption, strong bodies, and quick thinking.

In fact, Yili liberally uses such promotional claims for its products online. For example, Yili claims its *Tofer* product line is a “comfortable formula” that soothes infants’ intestines and makes them cry less

with its bifidobacteria probiotic combination and prevents the risk of developing allergies through hydrolysed proteins.

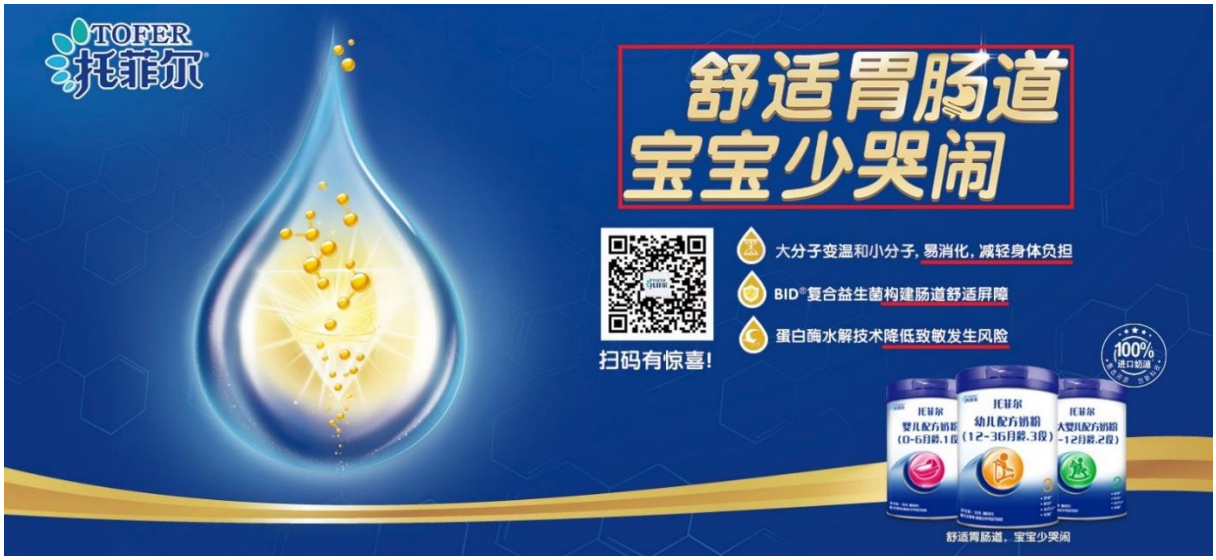


Figure 28: Screengrab from Yili's Tofer *product information website. The promotional claims are highlighted.*

Similarly, Nestlé makes a detailed comparison between the *illuma* "Human Affinity Formula" with other formula products' nutritional profile on its product information website to justify its claims that *illuma* is close to or as good as breastmilk in performing certain functions.

Figure 29: Screengrabs from Nestlé's illuma *product information website, taken in January 2019. Functional and health claims are liberally used.*

These claims include:

1. Facilitates the absorption of key ingredients, such as lipids and calcium.
2. Reduces the formation of calcium soaps in stools, thus making stools softer and increases comfort for babies' stomach.
3. Reduces night-time crying as much as "golden feeding". (It should be noted that breastmilk is often called "liquid gold", because of its status as the optimal source of nutrition for infants.)
4. Promotes the growth of lactobacillus (a type of viable intestinal bacteria), which keeps babies' stomachs comfortable.
5. Supports the development of stronger and healthier bones as much as "golden feeding".

Nestlé also reaches out to parents through social media websites where it can promote its products with minimal oversight.

Figure 30: Screengrab from Sina Weibo, taken in January 2019. Wyeth illuma's account "惠氏启赋奶粉" published an article explaining the nutritional content and alleged benefits of illuma Atwo.

It is encouraging that the CFDA is creating new rules to rein in the inappropriate marketing of breastmilk substitutes. Limiting the use of functional and health claims and exaggerated and unscientific statements in the promotion of infant formula will contribute significantly to the protection of optimal breastfeeding practices. But if these regulations do not extend to the other platforms that BMS manufacturers currently utilise to market their products to carers, it is likely that the CFDA's efforts will be undermined and rendered ineffective.

4.5 Conclusion

The implementation of the new formula milk registration regime may signify the Chinese government's determination to put the 2008 melamine contamination behind and tighten up the infant formula milk industry, but the measures still leave much to be desired. Under the new laws, BMS manufacturers must demonstrate their research and development capacities, ability to produce according to the requirements of good manufacturing practices, and ability to carry out batch-by-batch inspection of their products. They must also limit the number of products they manufacture to nine, distributed across a maximum of three product series and three age groups, and refrain from using health, functional and other misleading claims to advertise their products.

While the effects of the new regulation on food safety and public health are yet to be seen, given that it only came into force on 1st January 2018 and will not be fully implemented until the end of 2019, it has already become clear that the formula quota is not an effective way to stop product differentiation. Taking advantage of the ambiguity in the law, BMS manufacturers can retain or even expand their product portfolio by registering their products with their subsidiaries and joint ventures. This is likely to favour established domestic brands as well as heavyweight international formula makers whilst driving regional manufacturers out of the market, as the investment capacity of the big players means they can maintain a foothold in the industry, while smaller ones are marginalised by the heightened food safety requirements. Indeed, domestic dairy giant Yili has managed to accumulate at least thirty products, distributed across four brands and ten product lines, while Nestlé registered twenty-two products with the CFDA via six subsidiaries. The regulation is also doing little to stop BMS makers from developing many nutritionally similar formulas products.

The implementation of the newest provisions on promotional claims have been partially successful. It has prompted BMS manufacturers to revamp their packaging and remove problematic promotional statements and designs that may confuse consumers. Nonetheless, other channels that BMS makers may use to communicate with carers and parents about the alleged qualities and benefits of their products, notably through advertisements, remain outside of the scope of the regulation. Regulations on inappropriate promotion need to be more comprehensive and responsive to the ways BMS makers reach out to parents if they are to successfully protect optimal breastfeeding practices.

The next and final chapter will shed some light on how governments, relevant authorities and policymakers can more effectively implement the Code and safeguard optimal breastfeeding practices.

5. Conclusion

5.1 Recounting our key findings

This report provides an overarching situation analysis of the current promotional practices of breastmilk substitutes in Hong Kong and mainland China, two of the biggest and highest-growth formula milk product markets in the world. It featured a detailed analysis of how major formula companies in Hong Kong differentiate their products, the science behind their choice of ingredients and promotional claims, and the ethical issues arising from misrepresenting certain products as "premium" and charging parents and carers – who are likely to be willing to pay any cost for the best for their children – extortionate prices for these products. It also documented the worst of BMS manufacturer's marketing practices, as found in television commercials, in-store promotion, and other channels, highlighting the Code violations they constitute. Finally, it evaluated the new formula registration regime implemented by the Chinese Food and Drug Administration for its effectiveness in curtailing excessive and improper product differentiation and the use of inappropriate promotional claims.

Our research revealed several important findings. Regarding product premiumisation, we found that it is common for formula companies to:

- repackage the same or very similar recipes under different brands;
- distort scientific research to support their promotional claims;
- reference scientific studies that lack scientific rigour and impartiality to justify their health and nutrition claims, including studies conducted by researchers they employ;
- create "medicalised" formulas that supposedly alleviates or avert cow's milk protein allergy, through the use of hydrolysed proteins whose efficacy have not been proven;
- make exaggerated claims about the benefits of the nutrients used in their products or suggest their products are nutritionally and/or functionally comparable to breastmilk.

BMS manufacturers liberally use these strategies to portray some of their products as "premium" to justifying charging much higher prices. This not only exploits carers' concern for their children's healthy development, but may also undermine breastfeeding, as these claims misrepresent the true nutritional gap between formula and breastmilk.

Regarding inappropriate marketing practices, we found that BMS manufacturers frequently stretch the rules detailed in the *International Code of Marketing of Breast-milk Substitutes*, adopted by the WHO in 1981. These practices include:

- the cross-promotion of infant formula through advertising older-stage formula and other complementary foods for young children that have similar packaging designs and similar alleged nutritional properties and benefits;
- television and online commercials that sentimentalise and humanise bottle-feeding;
- the use of lobbying fronts, disguised as innocently-sounding nutrition associations, to advance industry interests.

Our evaluation of the formula registration regime, implemented in 2018 in mainland China, revealed that its nine-product quota leaves much to be desired. Designed to limit the extent of formula product differentiation, the quota can be easily circumvented as it does not apply to whole group companies but individual entities like subsidiaries. This ends up favouring industry heavyweights, who have the investment capacity to establish subsidiaries and joint ventures to register formula recipes, thus allowing them to retain and expand their product portfolio, thus consolidating their market presence. On the other hand, the stipulations on the use of promotional claims narrowly focuses on product labels, thus leaving misleading, unscientific and exaggerated promotional claims used on product information websites, television and online commercials, and social media channels unregulated.

Because of constraints in time and resources, our research is necessarily limited. We prioritised analysing the business practices of several major BMS manufacturers in Hong Kong and mainland China and the regulatory frameworks in those regions, whilst appreciating that this gives us only a partial understanding of the infant formula industry. We welcome efforts from other NGOs and groups interested in promoting breastfeeding and scrutinising transnational companies' business practices to help better our understanding of the threats that optimal breastfeeding practices are facing around the world.

Future research into product development practices should analyse a broader scope of brands and products, which not only helps us capture more instances of existing malpractices, but also anticipate new strategies that formula companies may utilise for the promotion of their products. It is also imperative to follow up on our research on the effectiveness of the formula registration regime in mainland China as it fully comes into force. Points of interest include analysing the changes in market presence of domestic formula makers vis-à-vis foreign heavyweights as a result of the new policy, assessing the effectiveness of the policy in regulating cross-border e-commerce, and evaluating the effects of the registration regime on food safety and public health.

5.2 Recommendations for regulators

The Hong Kong and mainland Chinese formula milk markets have been a haven for BMS manufacturers in recent decades. This is not the result of a simple lack of laws, but that the laws have not been responsive enough to how BMS makers' product development and promotional practices have evolved. For example, the existing laws governing the nutritional content and composition of formula products in both regions are modelled on the Codex standards, drafted with a focus on ensuring the safety and nutritional value of infant foods. While safety and nutrition are vital, using these as the only criteria determining which ingredients can be used in formula products inadvertently gives BMS manufacturers free rein to include safe but unnecessary ingredients in their products. The fact that this has become a dominant strategy for formula makers to develop "premium" and pricier products, potentially at the cost of undermining breastfeeding, remains unaccounted for in existing regulations.

The regulations regarding inappropriate promotion of formula products have been similarly limited. Compliance with the *Hong Kong Code of Marketing and Quality of Formula Milk and Related Products, and Food Products for Infants & Young Children* remains voluntary even after a conscious effort from the HKIYCNA, a lobbying front founded by formula companies, to push back regulation on the industry and downplay the importance of breastfeeding on prime-time television. In mainland China, the enforcement of the WHO Code is complicated by its division across several government bodies, including the National Health and Family Planning Commission, the State Administration for Industry and Commerce, the State Administration of Radio, Film and Television, and the General Administration of Press and Publication. The *Administrative Measures*, which provides stipulations regarding the use of promotional claims, gives the CFDA a mandate to regulate the use of these claims only on product labels but not on advertisements.

It is thus clear that existing regulatory frameworks for the formula milk industry in Hong Kong and mainland China need considerable improvements. These improvements are only possible with a thorough understanding of current product development and marketing practices and sufficient political support. Here, we outline several steps that regulators can take to build the necessary institutional capacity for the effective regulation of the formula milk industry.

1. Establish or designate a lead agency

Having a single agency with specific goals and responsibilities and a clear mandate is essential to the effective implementation of any regulatory framework. This agency, likely to be a unit within the ministry of health, should act as the focal point within the government for protecting optimal breastfeeding practices and ending the inappropriate promotion of formula products. It should be

responsible for (and have the mandate to) educate the public, build support for the regulations, mobilising other ministries to support its regulatory efforts, and monitor their implementation.

2. Identify designated products and analyse how they are promoted

The said agency needs to decide which products fall under their purview and gain an understanding of the specifics of the practices commonly used to promote those products. We recommend drawing on the studies published by NGOs, research institutions, and interest groups; in this sense, the situation analysis provided by this report represents a useful and detailed reference for regulators to determine which products should be regulated and identify problematic promotional practices.

Per the widespread instances of cross-promotion of infant formula products through advertising older-stage formula and other complementary foods for young children that are similarly designed and have similar alleged benefits that we found, we suggest that all foods marketed for consumption by children under 36 months of age should be regulated, particularly formula products. This is in line with WHO's Code and guidance.[75]

Amongst the problematic promotional practices that we identified, we believe the way BMS manufacturers "premiumise" their products with ingredients whose benefits are scientifically questionable and misleading promotional claims warrants additional attention from regulators.

3. Formulate and amend existing laws accordingly

Based on its understanding of the prevalent promotional strategies, the agency needs to identify the flaws in existing regulations that need to be corrected or supplemented with new laws.

Our research suggests that to successfully eliminate inappropriate promotion, regulators need to be much stricter with the ingredients/nutrients that can be added to formula products to avoid dubious product premiumisation and misleading promotion. A registration system that imposes rigorous standards on the evidence needed to prove an ingredient is beneficial to infant health and development is welcomed, as it allows the agency to better regulate the use of health and nutrition claims. In principle, only claims that have been independently verified and corroborated by generally accepted scientific review should be allowed. It is worth noting that World Health Assembly Resolution 58.32 urges WHO Member States to "ensure that nutrition and health claims are not permitted for breast-milk substitutes."[76]

We also believe there needs to be much stronger oversight on the cross-promotion of infant formula through television and online commercials, which often humanise and sentimentalise bottle feeding.

Regulators should continue their efforts in tackling promotional activities in healthcare facilities, such as the provision of free formula samples, discounts, and other incentives for carers, and the corruption of health workers. They should also anticipate new ways that BMS manufacturers reach out to parents and carers directly, such as through online forums and social media channels.

The agency must be able to enforce the regulations and impose meaningful sanctions on those that violate them. This requires the agency to be given the mandate to, for example, remove problematic products from shelves, take down problematic advertisements, impose sizeable penalties (greater than any direct financial benefit the offender realises from the violation and at least equal to the cost of enforcement), suspend or revoke production or retail licenses and product registrations.

4. Garner awareness and political support

The agency should first and foremost seek to collaborate with organisations and interest groups already working on protecting breastfeeding from undue commercial influences. This not only streamlines the work that the agency needs to do, but also helps the agency gain legitimacy for its regulatory efforts. For this legitimacy to be genuine, these organisations must be meaningfully involved in the policymaking and implementation processes.

The agency should explore the possibility of organising public education campaigns on the importance of breastfeeding to infant health and nutrition and explain to the public why it is taking steps to regulate the formula milk industry.

The agency should anticipate and be prepared to counter opposition from industry stakeholders, as well as politicians and members of the public who perceive the use of infant and young child food products as a matter of “freedom” and “choice”, or who are philosophically disposed towards a “minimal” government. It is important to demonstrate that these regulations are not arbitrary interventions in the market or attempts at rent-seeking on the part of certain government agencies, but that they serve to safeguard public health and protect the interests of consumers. The agency must be careful not to be biased against certain stakeholders – as the CFDA’s new registration regime may be said to do – in designing a regulatory framework for the industry.

5.3 Recommendation for BMS manufacturers

While there is a clear need for regulators to rectify their passive approach to regulating the formula milk industry, manufacturers have just as big a duty to address the prevalent issues in their product development and promotional strategies. They should proactively fulfil their social responsibility and engage with civil society actors that point out problems in their business practices, rather than doing the bare minimum as required by the law.

BMS manufacturers must stop:

- developing or premiumising products using ingredients whose benefits are yet to be proven by rigorous, impartial and generally-accepted scientific research;
- repackaging the same recipes to fill up shelves with highly similar products;
- using nutrition and health claims that are vague, exaggerated, misrepresentative of scientific findings or otherwise misleading;
- comparing their products to breastmilk;
- presenting studies conducted by their own researchers as reliable evidence of the qualities and benefits of their products;
- promoting their products by idealising and sentimentalising formula feeding in commercials;
- cross-promoting infant formula by marketing older-age formula and other complementary foods with similar packaging designs and alleged benefits;
- lobbying against measures to protect breastfeeding.

Instead, they should:

- fully comply with the Codex food standards, the WHO Code, World Health Assembly resolutions and relevant national and regional legislations;
- follow through on their commitments;
    - we particularly demand Nestlé fulfil its promise to remove contradictory statements from *NAN PRO*'s product packaging and phase out vanilla flavouring use in its stage two *Wyeth S-26* products sold in Hong Kong and mainland China, and *Wyeth illuma* sold in mainland China.

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Appendix

We gave the companies that we investigated in this research the chance to read and respond to our findings and allegations. Their comments and our subsequent responses are recorded in full below.

HEALTH · HYGIENE · HOME

Response to Globalization Monitor's report of "An exposé of formula milk companies' product development strategies and promotional practices in Hong Kong and mainland China" March 2019

Globalization Monitor, a non-profit and non-governmental organisation based in Hong Kong, produced a report on product development and promotion by formula milk companies in Hong Kong and Mainland China. The report was provided to RB by Globalization Monitor on 5 March 2019 and we responded on 12 March 2019 in accordance with our commitment to engage with all stakeholders on reports of alleged non-compliances. This response aims to address the specific questions raised in the report concerning Mead Johnson Nutrition (MJN) products marketed in Hong Kong and Mainland China. MJN was acquired by RB on 15 June 2017.

The Globalization Monitor report (Report) contained a number of general comments towards the BMS industry and/or different infant formula manufacturers in both Mainland China and Hong Kong. The references specific to RB related to two MJN products marketed in Hong Kong. We therefore have focussed our response specifically on these two areas and have not commented on the more generic or non-specific industry wide observations.

As a responsible company, RB is committed to marketing Breast-milk Substitutes (BMS) products ethically. We also commit to being transparent in our marketing practices, engaging in constructive dialogue and working to improve our own practices, and those of the industry.

It is worth noting that RB fully supports the recommendation of the WHO Code of 1981 for exclusive breastfeeding during the first six months and the introduction of safe, age appropriate, nutritious complementary foods thereafter. We advocate for continued breastfeeding up to two years of age and beyond.

In February 2018, RB introduced its Infant and Child Nutrition Pledge (the Pledge), which outlines our overarching commitments towards not only providing the highest quality infant and nutritional products, but to also market these responsibly and ethically. The Pledge is applicable globally and is publicly available on RB.com.

HEALTH · HYGIENE · HOME

In April 2018, RB introduced its Policy and Procedures on the marketing of BMS ("BMS Marketing Policy"), an important milestone and a firm illustration of our commitment to acknowledging the importance of the principles of the WHO Code of 1981 and subsequent relevant WHA resolutions.

The BMS Marketing Policy builds upon our longstanding commitment to market our BMS portfolio of products both responsibly and ethically – to support a mother's decision to continue to breastfeed her infant for as long as she chooses. The Policy addresses a number of articles related to the marketing of BMS, and also includes specific provisions around labelling practices. This Policy is also publicly available on RB.com.

We take all allegations of non-compliance very seriously and have committed to follow up all reports of alleged non-compliance, irrespective of who has reported or how the report is submitted. Additionally, we also commit to issuing a formal response to the complainant organisation, including corrective actions, as appropriate. Rest assured that we make substantial effort to ensure that the policy and practices we have adopted globally are implemented with the same rigour and attention in all our markets.

We have carefully considered the observations appearing in the Report, and recognise the opportunity the Report presents, as one of many external viewpoints on RB's BMS marketing activities.

Observation 1: Infant Formula products with similar nutritional and product composition, yet pricing differentials: (reference table 1 on page 8):

Reference is specifically made in the Report to product composition differences/similarities between Enfamil A+ and Enfamil Platinum products and the pricing of these products. RB differentiates its product portfolio based on nutritional composition with the introduction of key ingredients or supplements where they are proven scientifically to enhance the nutritional profile.

While Enfamil A+ is available in both Mainland China and Hong Kong, Enfamil Platinum products are only marketed in Hong Kong. Enfamil Platinum reflects an upgraded formulation versus Enfamil A+ due to the different nutritional profile of a key ingredient, a unique Whey Protein Concentrate.

The Whey Protein Concentrate used in Enfamil Platinum contains Milk Fat Globule Membrane (MFGM), which provides added nutritional benefits compared to Enfamil A+. Whilst the two

products may appear similar compositionally, they have different formulations and nutrition profiles and provide different benefits.

Our product prices reflect many different factors including R&D costs, ingredient sourcing costs, manufacturing and operational costs, among others. The improvement of nutritional profile of ingredients used in a particular product, as well as innovation driven formulation upgrade, is an important factor in pricing.

As a science-based company, we continually look to improve the nutritional profile of ingredients used in our formula products to support optimal health outcomes for infants and young children.

It is important to reinforce that RB complies with all national labelling requirements, including those in Hong Kong and Mainland China. Since Enfamil A+ and Enfamil Platinum are distinctly different products, they therefore have different packaging, different label presentations and different pricing.

Observation 2: The validity of Timby's study in relation to MFGM supplementation [table page 11]:

We firmly believe that the addition of MFGM in infant formula provides a number of immune, gut health, and cognitive benefits. The reported immune and cognitive outcomes are consistent with pre-clinical and clinical literature (Gurnida et al, 2012; Newburg et al, 1998; Timby et al, 2014; Timby et al, 2015b; Zavaleta et al, 2011). It is important to point out that the MFGM source supplemented into MJN infant formulas has been shown in multiple clinical trials to be safe and to confer significant benefits to infants (Billeaud et al, 2014; Timby et al, 2015b; Zavaleta et al, 2011). In addition, MFGM enriched ingredients and dairy ingredients containing components of MFGM (buttermilk) have been shown to have similar benefits, further confirming the rigor of the science around MFGM.

Further studies are warranted and as part of our continual commitments to scientific research, we are conducting and will shortly complete additional clinical studies on the benefits of MFGM, in both infants and children, as well as a host of mechanism of action studies in preclinical models.

We are aware of other studies on MFGM or components of MFGM that are currently underway or will shortly be published by other researchers. This wide interest in MFGM is a result of the promising and exciting results published to date and strong belief in the benefits as might be expected since it is an essential component in breast milk. We will be transparent in sharing our

ongoing scientific research, and will provide further updates on our MFGM research as and when available.

We are committed to continually improving our products through science-based innovation and bringing products with the highest quality and nutritional standards to our most vulnerable consumers.

We are grateful to Globalization Monitor for raising the two observations. We welcome all external views and input as we seek to continually improve our marketing practices and those of the industry. We are committed to continued transparency and engagement through constructive dialogue with all informed stakeholders.

RB is unequivocal in its commitment to ethical marketing and to continuing to improve our BMS marketing practices wherever we operate. We firmly believe our relevant product development and marketing practices comply with all applicable local laws and regulations. We will continue to invest in research and development to deliver the highest quality innovative nutrition products to consumers and to leverage our strong science heritage.

Re: Reckitt Benckiser's response to Globalization Monitor's exposé of formula milk companies' product development strategies and promotional practices in Hong Kong and mainland China

We welcome RB's willingness to have an open dialogue with GM regarding the product development and promotional practices of Mead Johnson Nutrition in Hong Kong. We note that RB claims to be a responsible company "committed to marketing Breast-milk Substitutes (BMS) products ethically" and "being transparent in our marketing practices". We hope to see these commitments genuinely reflected in RB and Mead Johnson's business practices and that appropriate corrective actions regarding the issues our report and this message raise will be taken promptly.

We raised two issues in our initial correspondence with RB:

Firstly, we asked RB to explain the reasons behind developing *Enfamil A+* and *Enfamil Platinum* and for charging a higher price for the latter (+17.1%), when they are nearly identical compositionally and nutritionally.

RB explained that "*Enfamil Platinum* reflects an upgraded formulation versus *Enfamil A+* due to the different nutritional profile of a key ingredient, a unique Whey Protein Concentrate."

We must point out that this supposed upgrade is not reflected on the labelling of the said products, as "whey protein concentrate" is listed on both products' ingredients list (see p.9). We reiterate that the two products contain the same ingredients at nearly identical levels. On the other hand, RB had tried to create the impression that *Enfamil Platinum* is a premium product compared to *Enfamil A+* by highlighting the inclusion of GOS and PDX only in the former, even though both products contain the nutrients (see p.10). That fact that this is misleading for consumers has not been addressed by RB.

If it is the case that *Enfamil Platinum* contains a "unique whey protein concentrate", then it becomes unclear what makes *Enfinitas* superior to *Enfamil Platinum*, given that containing "a unique whey protein concentrate rich in MFGM" is a central promotional focus of *Enfinitas* (see p.10). This only reinforces our initial conclusion that Mead Johnson's product development decisions are driven by the desire to differentiate their products and achieve price discrimination and thus higher revenues.

Secondly, we questioned the validity of a study by Timby et al. (2014), cited by Mead Johnson to support its use of MFGM in its formula products.

RB did not address the fact that two systematic reviews co-written by Timby in 2016 and 2017, which are more recent than all of the literature cited by RB in its response to our report, concluded that "because of the small number of studies conducted and the heterogeneity of interventions

implemented, no firm conclusions regarding the effects of MFGM supplementation on the health and development of infants can be drawn" (see p.11).

RB cited several studies which it claimed prove the benefits of adding MFGM into formula products. This does not seem to always be the case upon closer inspection. In Gurnida et al. (2012), researchers conceded that "it is difficult to attribute the observed cognitive development benefits in the present study to increases in gangliosides (a component of milk fat membrane lipids) alone", and that their findings needed "further investigation and confirmation in larger studies." Newburg et al. (1998) studied the role of *human* lactadherin in protection against certain infections. It must be noted that the efficacy of an ingredient found in human breastmilk may not be easily replicated by synthesised substances in formula products because human breastmilk contains bioactive components. Billeaud et al. (2014) concluded that MFGM supplementation is safe but did not investigate its supposed benefits. Zavaleta et al. (2011) compared the "diarrhoea, anaemia, and micronutrient status" in infants receiving complementary food with MFGM as its protein source and infants receiving complementary food with skimmed milk as its protein source. Since all Mead Johnson's infant formula products in Hong Kong use whey and not skimmed milk as a protein source, this study is not useful in demonstrating the supposed nutritional superiority of *Enfinitas*.

We reiterate that the current general scientific consensus is that MFGM supplementation in formula milk is safe, but there is not enough evidence proving its benefits, or for a general recommendation on which MFGM fraction to use and at what concentration as formula supplement for a given outcome.

If, as RB claims, there are upcoming clinical studies on the "might be expected" benefits of MFGM, then it is clearly premature for MFGM to be introduced into formula products now. We believe a responsible formula manufacturer should always ensure the benefits of the optional ingredients that it uses are already generally accepted by the scientific community.

We urge RB and Mead Johnson to address these issues promptly and appropriately.

致全球化監察的回復函：

感謝全球化監察給予我們此次機會，分享達能對於貴組織報告的觀點。

鑑於母乳餵哺對於全球健康的至關重要性，我們歡迎藉此機會與所有利益相關方就這一問題展開建設性的探討。達能支持世界衛生組織所提出的全球公共衛生建議，呼籲把純母乳餵哺作為6個月齡以內新生兒的唯一餵哺方式，在6個月齡開始引入安全且恰當的輔食，同時持續進行母乳餵哺至2歲或以上。我們已在名為《達能生命早期1000天健康與營養承諾》的立場文件中清晰地陳述了我們對母乳餵哺的支持承諾。事實上，達能是第一家，也是目前唯一一家自願推行全球性政策的企業，禁止在任何市場（包括中國內地及香港）針對0至6個月以內嬰兒配方奶粉進行廣告和推銷活動，即使此類活動為當地法律所允許。

此外，對於在富時社會責任指數 (FTSE4Good) 母乳代用品標準中, 歸類為較高風險的國家，達能自願將政策擴展至12個月齡，這都可能高於當地法規要求。 在這些較高風險的國家，達能還禁止推廣供6個月以下嬰兒使用的輔食和飲料。 我們遵守當地法規，如它比我們的政策更嚴格。科學是達能營養和健康承諾的核心所在，以支持嬰幼兒的健康成長與發展。我們的科學專識基於對母乳成分長達四十餘年的深入研究，而這也成為了達能嬰幼兒配方奶粉的研發基礎。在研究過程中，我們與來自全球各地的專家展開合作，並在操作上遵循嚴格的公開透明標準。

以下為達能對貴組織報告中所提出問題的回復。

諾優能Pronutra+和愛他美Pronutra+在成分和營養方面幾近相同，達能仍將其作為兩款不同的產品推出，且為後者設置更高的零售價格。這一做法有何正當理據？

所有當地法規指引都對嬰兒配方奶粉的成分有嚴謹要求。我們嚴格遵守這些法規，以確保所有嬰兒, 無論他們使用哪種品牌, 都能獲得優質營養。

儘管達能所有的嬰兒配方奶粉均可滿足法規要求，但隨著科技的進步，我們也致力於將最新科研成果應用於此類產品中。愛他美和諾優能均在研發上包含了最新科學發現並體現了達能在營養、免疫及腸胃健康領域的研究進展。

達能產品的定價受到多種因素的影響，其中包括嬰幼兒營養產品最為核心的深度研發工作、產品原料的品質以及製造工藝和包裝材料等。相同地，一個國家或地區的環境和商業考慮也會對定價產生影響。

在達能的產品網站上，你們會公佈自有研究團隊所開展的研究項目，並以此來佐證達能產品的配方優勢。考慮到此類研究的商業敏感性，這一做法難道不是明顯的利益衝突嗎？為何達能無法提供獨立研究項目來支撐你們的推廣聲稱？

我們遵循嚴格的、公開透明的標準從事科研工作。鑑於此，我們一直對外公佈達能在相關研究項目中的參與程度。

無論結果如何，達能進行的所有科學研究，無論是自主開展的或是攜手合作夥伴共同開展的，均會在獨立的同行評審期刊上發表，以確保其獨立性和可信度。

我們的全球科研門戶網站 (http://www.nutriciaresearch.com) 提供支持達能嬰兒配方奶粉產品的同行評審文章的詳細參考列表

有大量證據表明，水解蛋白在預防過敏方面並非像達能所述的那樣有效。為何達能依然選擇無視此類證據研發兩款以水解蛋白為核心的產品？

我們歡迎就達能嬰兒配方奶粉背後的廣泛科學證據進行開放式的對話。

報告中提及的產品包含的蛋白水解程度各有不同——其中一種包含部分水解蛋白，適合非母乳餵哺、存在高度過敏風險的嬰兒；另一種包含深度水解蛋白，適合非母乳餵哺的、確認對牛奶蛋白輕度至中度過敏的嬰兒。在沒有條件進行母乳餵哺的情況下，國際指引推薦過敏高危嬰兒（基於家族過敏史的）選用部分水解牛奶蛋白配方。

已有多個臨床試驗對此進行了研究，結果顯示，相比完整蛋白配方，部分水解蛋白嬰兒配方奶粉可幫助降低高危嬰兒出現特應性皮炎/濕疹的風險。諸多權威科學機構（如 歐洲和北美的兒科胃腸病學、肝病學和營養協會(ESGPHAN / NASGPHAN)、歐洲過敏及臨床免疫學會(EAACI)、美國兒科學會(AAP)及美國國家過敏與感染性疾病研究院(NIAID)[12345]）均推薦因家族過敏史而帶有額外過敏風險的嬰兒選用部分水解蛋白嬰兒配方奶粉。

管理食物過敏的主要推薦方法是避免過敏原。對於那些被診斷出對牛奶蛋白過敏的嬰兒 ——並且如果他們無法獲得母乳餵哺——國際指引推薦使用深度水解牛奶蛋白配方來控制與過敏原的觸發因素，從而盡最大可能減少過敏反應。達能認同專業醫護人員在評估每個兒童狀況並就過敏預防或牛奶蛋白過敏管理制定相應營養解決方案中所扮演的關鍵作用。

世界衛生組織守則同時禁止嬰兒配方奶粉產品的交叉推廣以及美化餵食此類產品的行為。為何達能在愛他美品牌的電視廣告中美化父母與接受配方奶粉嬰兒之間的關係？

我們不以任何方式美化達能產品的使用，或暗示此類產品優於或等同於母乳。相反，我們致力於與消費者開展基於事實的溝通，助力父母為孩子做出明智的營養選擇：有關產品的營養成分、沖調和使用方法的信息我們都做到事實和科學準確，為廣大母親自主選擇餵哺方式提供最好的支持，從而避免對女性進行母乳餵哺產生負面影響。

我們支持世界衛生組織所提出的全球公共衛生建議，呼籲把純母乳餵哺作為6個月齡以內新生兒的唯一餵哺方式，在6個月齡開始引入安全且恰當的輔食，同時持續進行母乳餵哺至2歲或以上。無法進行母乳餵哺的嬰兒應盡可能獲得營養最為全面的替代方案。

1 Muraro, A., et al., EAACI food allergy and anaphylaxis guidelines. Primary prevention of food allergy. Allergy, 2014. 69(5): p. 590-601.
2 Vandenplas, Y., et al., Should partial hydrolysates be used as starter infant formula? A working group consensus. Journal of Pediatric Gastroenterology and Nutrition, 2016. 62(1): p. 22-35.
3 Vandenplas, Y., et al., Hydrolyzed formulas for allergy prevention. J Pediatr Gastroenterol Nutr, 2014. 58(5): p. 549-52.
4 Greer, F.R., et al., Effects of early nutritional interventions on the development of atopic disease in infants and children: the role of maternal dietary restriction, breastfeeding, timing of introduction of complementary foods, and hydrolyzed formulas. Pediatrics, 2008. 121(1): p. 183-91.
5 Boyce, J.A., et al., Guidelines for the Diagnosis and Management of Food Allergy in the United States: Summary of the NIAID-Sponsored Expert Panel Report. J Allergy Clin Immunol, 2010. 126(6): p. 1105-18.

Re: Danone's response to Globalization Monitor's exposé of formula milk companies' product development strategies and promotional practices in Hong Kong and mainland China"

We welcome Danone's willingness to have a constructive dialogue with GM regarding its product development and promotional practices in Hong Kong. We note that Danone claims to be compliant with the public health recommendations made by the World Health Organization and dedicated to supporting breastfeeding in the first 1,000 days of infants' lives. We also note that Danone proclaims science to be at the heart of the company's commitment to infants and young children's nutrition and health. We hope to see these commitments genuinely reflected in Danone's business practices and that appropriate corrective actions regarding the issues our report and this message raise will be taken promptly.

We raised four issues in our initial correspondence with Danone:

Firstly, we asked Danone to explain the reasons behind developing *Nutrilon Pronutra+* and *Aptamil Pronutra+* and for charging a higher price for the latter (+17.0%), when they are nearly identical compositionally and nutritionally.

Danone was evasive in its reply, merely stating that it followed the relevant laws and standards governing the ingredients used in infant formula products, and that *Nutrilon Pronutra+* and *Aptamil Pronutra+*'s recipes "reflect Danone's research progress in the fields of nutrition, immunity and gastrointestinal health."

Our allegation was not that Danone breached the standards which require certain ingredients to be included in infant formula products, but that it made little sense to create two products that have near-identical compositions and nutritional profiles (see p.14). We concluded that Danone was essentially repackaging the same product, and that this was a likely price discrimination tactic employed to maximise profit.

Danone tried to explain away the prices difference between *Nutrilon Pronutra+* and *Aptamil Pronutra+* with research costs, the quality of raw materials, manufacturing techniques and packaging. We emphasise that a price difference is premised on the fact that Danone produced two products, for which Danone failed to provide proper justification. We reiterate that *Nutrilon Pronutra+* and *Aptamil Pronutra+* both contain the same patented prebiotics combination of scGOS and lcFOS, which suggests that the price difference cannot be explained by research costs (see p.14). *Nutrilon Pronutra+* and *Aptamil Pronutra+* also have very similar packaging (see p.14). Finally, we note that Danone admits that commercial considerations affect their pricing strategies.

Secondly, we pointed out potentially significant conflict of interests in Danone's product development, evident from the fact that Danone presents research and clinical studies conducted by their own employees as independent evidence corroborating the claims it uses to promote its formula products.

Danone's response failed to address the core problem that presenting studies it conducted as independent evidence supporting their promotional claims misleads consumers and carers. In our report, we pointed out that Danone claimed there are more than 55 publications worldwide that prove their claim that scGOS:lcFOS (9:1) benefits baby health, but cited only three studies on its website, all conducted by researchers employed by Danone's various research institutions (see p.16).

We acknowledge that, as Danone claimed, the studies it conducted are published on independent and peer-reviewed journals; however, we disagree that peer review committees and scientific panels always guarantee the quality and impartiality of published studies. We emphasise that industry funding in research means that the businesses paying to support the studies have a strong and inherent vested financial and commercial interest in the outcome of the research. Such worries are not unfounded or mere guesswork but supported by studies on the relationship between the presence of industry funding in biomedical, nutrition and health research and its quality, as well as studies on the relationship between the presence of industry funding and research outcomes.

Ioannidas and Trepanowski (2018) report that "industry funding of nutrition research predicts scientific findings favourable to sponsors' interests with odds ratios greater than 3," meaning it is three times more likely for industry-sponsored research (compared to non-industry-funded research) to produce conclusions in favour of sponsor's products. Lesser et al. (2007) found that the correlation between funding source and conclusion to be statistically significant, and that the proportion of intervention studies with unfavourable conclusions was 0% for all industry funding versus 37% for no industry funding. The reach of the formula milk industry does not stop there. Van Tulleken (2018) observed industry influence in the development of cow's milk allergy diagnosis guidelines that are vague and inaccurate, causing the overdiagnosis of such allergy by nearly 500% between 2006 and 2016, thus creating a huge market for formula makers to introduce "medicalised", hypoallergenic formulas into the market.

These studies demonstrate that industry-funded research is likely to be biased. Given that the Codex Alimentarius Commission stipulates that health claims can only be used if the relationship of the nutrient in question to health is currently recognised by generally accepted scientific review, we are well within reason to doubt both the proclaimed credibility of Danone's research and the company's promotional strategies.

Thirdly, we questioned Danone's use of hydrolysed protein in its formula products and decision to promote those products as helpful for the prevention of allergies, despite abundant evidence to the contrary.

We find it ironic that Danone claimed to want to have an open dialogue regarding the scientific evidence behind its formula products, given that it failed to address the findings in the systematic reviews and meta-analyses we cited in the report. These studies concluded that the evidence supporting the claim that hydrolysed formula reduces the risk of allergic or autoimmune diseases are inconclusive, inconsistent, of low-quality, and rife with methodological issues (see p.18).

Instead of directly and constructively engaging with the studies we provided, Danone cited five other studies which it claimed to "recommend infants who are at risk of developing cow's milk protein allergy as their families have a history of allergies to use formula with partially hydrolysed protein." We looked at these studies and discovered that Danone had distorted their findings to defend it's the way it developed its products' recipes.

Muraro et al. (2014) found that hypoallergenic formula can prevent food allergy in high-risk infants for the first four months of their lives. According to this finding, it makes little sense to develop "medicalised", hypoallergenic formulas for infants beyond four months old; however, Danone's *Aptamil Prosyneo* and *Aptamil ProExpert* have three and two stages respectively, going up to three-year-old children. Vandenplas et al. (2016) explicitly wrote in their systematic review that "only limited data could be found on the efficacy and safety of pHF (partially hydrolysed formula) in healthy term infants," and that "with respect to long-term outcomes, particularly referring to immune, metabolic and hormonal effects, data are, however, non-existent." They were only able to conclude that hydrolysed proteins are safe and suggested that long-term follow-up efficacy studies are required before a recommendation of this type of formula can be made. Vandenplas et al. (2014) found that only one of eight studies supporting the use of partially hydrolysed protein in formula milk were qualified for publication, which is indicative of the poor quality of the research conducted on the subject. Greer et al. (2008) found the evidence that "the onset of atopic disease may be delayed or prevented by the use of hydrolysed formulas compared with formula made with intact cow milk protein" was modest, and if these benefits exist, they are confined to the first six months of infants' lives. Boyce et al. (2010) is a guideline for the diagnosis and management of food allergy, which does not provide proof of the efficacy of hydrolysed formula itself. Also, as previously stated, allergy diagnosis guidelines have not been immune to industry influence and interests either, meaning that the provisions in such guidelines should be taken with a pinch of salt.

Finally, we argued that Danone is cross-promoting its infant formula products through a commercial that idealises formula feeding.

Danone denied that its commercial idealised feeding children with its formula products, or that it insinuated that its products are superior or equivalent to breastmilk.

We note that the *International Code of Marketing of Breast-milk Substitutes* states that "informational and educational materials, whether written, audio, or visual, dealing with the feeding of infants and intended to reach pregnant women and mothers of infants and young children […] should not use any pictures or text which may idealize the use of breast-milk substitutes."

This statement does not specify what exactly constitutes the idealisation of the use of BMS, and it is precisely this ambiguity that allows Danone to deny any wrongdoing even though its *Aptamil* commercial palpably "connects the *Aptamil* brand, a 'letting-go' style of parenting and the child's future success, stoking parents' sentiments and utilising their desire for the best for their children to promote its products" (see p.34). We believe this vagueness and ambiguity is something that the WHO and policymakers need to address in order to effectively rein in the inappropriate promotion of BMS.

We urge Danone to address these issues promptly and appropriately.

NESTLÉ S.A.

Mr Nickolas Tang
Project Officer
Globalization Monitor

Vevey, March 12, 2019

Dear Mr Tang

We acknowledge the receipt of your email dated March 5, 2019 and thank you for giving us an opportunity to review and respond to the draft report ***'Exposé of formula milk companies' product development strategies and promotional practices in Hong Kong and Mainland China'*** that your organization prepared.

We share your concerns about the current rates of breastfeeding and nutrition status of children and agree that current breastfeeding rates in Hong Kong and China are not sufficient.

We believe breastmilk is the best nutritional choice for an infant and that breastfeeding plays a fundamental role in a baby's growth and development during the first 1000 days. In 2015, Nestlé adopted its Maternity Protection Policy, which offers new mothers up to six months maternity leave and access to 425 breastfeeding rooms across our work facilities worldwide. In China in particular, we have collaborated with public and private organisations in opening 3297 breastfeeding rooms.

This is an important expression of our global commitment to support breastfeeding, which we also protect by implementing a leading policy to market breastmilk substitutes (BMS) responsibly. As such, we have put in place a number of compliance measures and mechanisms. We encourage anyone with concerns regarding our practices to share them with us. We are determined to respond systematically.

Status of our commitments to CMF

Engaging with concerned stakeholders is of major importance for us. As an outcome to the *Busting the myth of science-based formula* report in January 2018, we engaged with Changing Markets Foundation (CMF) and during a meeting that was held in London in March 2018, we committed on the following:

- **Sucrose in our products**: We do not use sucrose in any of our starter formula products (for babies aged between 0-6 months), and we have voluntarily eliminated sucrose from all other follow-on formula products (for babies aged between 6-12 months). As of today, we are pleased to confirm that we have completely phased out sucrose from our infant formula for babies aged between 6-12 months.
- **Vanillin in our products**: We would like to emphasize again that our starter formulas (for babies aged between 0-6 months) do not contain vanillin. Although vanillin is an approved ingredient as per Codex standards, we have committed to remove it from our follow-up formulas (for babies aged between 6 to 12 months). As communicated in our email of 18 June 2018 to Changing Markets Foundation, we will communicate timelines as soon as we have a technical solution.
- **Communication on vanillin**: We are committed to removing the vanillin claims from the labels on our products and we intend to adhere to this commitment. The change of label has not been completed yet because of the labels that were already in the value chain or printed. This process can take time before the products with the old labels are fully phased out of the system. We have taken into account your feedback and requested our team in Honk Kong to accelerate this process. No newly printed labels will contain such claims any more.

How research guides development of our products

We strongly believe breastmilk is the ideal nutrition for babies. We support and promote the World Health Organization's (WHO) recommendation of six months exclusive breastfeeding, followed by the introduction of adequate nutritious complementary foods along with sustained breastfeeding up to two years of age and beyond. For infants who cannot be fed on breastmilk as recommended, infant formula is the only suitable BMS recognised as appropriate by the WHO.

Our founder Henri Nestlé developed the first Farine Lactee as a nutrition for non-breastfeed babies who were highly exposed to malnutrition 150 years ago. Since then, we work meticulously and collaborate with experts in academia and universities to bring the latest nutrition science and innovative ingredients for infants and toddlers.

We do not use any statements on our infant formula products or in our other communications that idealize our products or imply that they are superior to or equivalent to breastmilk. Modern infant formulas are compositionally closer to human milk than unmodified cow's milk, and it is clear for us that they cannot achieve the perfection of breastmilk. As such, we communicate that our products are "inspired by breastmilk" or that they contain components comparable with components of breastmilk, where these are scientifically proven as such. This does not breach the WHO Code or WHA Resolutions.

The continuous improvements to our recipes, whether it is a new technology, added optional ingredients or packaging innovations carry different profiles, characteristics (and indeed costs). We validate all new ingredients added to our products with clinical studies. Communicating different product attributes and options helps health care providers and consumers in making informed choices.

The introduction of Human Milk Oligosaccharides in our products was a real scientific breakthrough that was achieved after 30 years of extensive research. Indeed, we are proud to highlight such breakthrough to health care providers as we know it is backed by peer-reviewed clinical trials conducted together with leading independent institutions and is duly patented.

Investigation on WHO Code breach allegations

The WHO Code and subsequent WHA resolutions are recommendations for member states to translate into local legislation, regulations or other suitable measures based on their national context, aligned with local health development objectives. We apply WHO recommendations and WHA resolutions as implemented by governments.

Due to the status of Hong Kong, we follow the applicable laws and regulations implemented by Hong Kong authorities. The Hong Kong Food Health Bureau and Department of Health implemented in June 2017 a voluntary Code of Marketing of Formula Milk and Related Products, and Food Products for Infants & Young Children and we apply that Code in Hong Kong as it is stricter than our own policy.

In Mainland China, the government has decided in 2018 to discard the Administrative Measures implementing the WHO Code. According to our compliance principles in higher-risk countries, we apply our Nestlé Policy and Procedures, as they are stricter than the existing regulatory framework in China. That means we apply the marketing restrictions on starter (for babies aged between 0 to 6 months) and follow-on (for babies aged between 6 to 12 months) formulas which are aligned with the FTSE4Good criteria.
Based on the above, two of the reported allegations in Section 3.2 (The WHO Code) are confirmed:

Page	Product	Instance of non-compliance	Corrective action
30	Iluma	Use of special display promoting Stage 3 and 4 products to indirectly promote stage 1 and 2.	After the introduction of the Hong Kong Code, the local teams removed from the market all promotional materials intended for products below the age of 3. It could happen that some of the stores were missed. Thanks for bringing this to our attention, we will instruct our teams on the ground to do another round and ensure all non-compliant material are removed.
32	NAN	Shelf talkers below stage 1 products were designed to be next to Stage 3 and 4 products. This is not aligned with our Policy and Procedures as the shelf talkers should only mention "Breastmilk is Best" to appear below Stage 1 product.	We instructed our teams on the ground to follow up with the store and address this issue as soon as possible.

The rest of the allegations were not considered as non-compliant as they refer to products outside the scope of national law and our policy.

Page	Product	Allegation	Nestlé response
22	Illuma	Picture of special displays to promote Illluma products at Sheung Wan Mannings.	The pictures show Iluma Stage 4 products, which are allowed to be promoted on special displays as per the HK Code.
31	NAN	'Nestlé only directly promotes formula products for children older than six months in mainland China'.	The picture shows shelf talkers related to the promotion of NAN Stage 3 designed for babies above 12 months, which are outside of the scope of restrictions. We do not directly promote formula products for children between 6 and 12 months.
33	Illuma	Promotional offers on Stage 3 and 4 products	This is a loyalty program partnering with the retail chain group. Not all gifts are targeted to children but to parents, for educating and nurturing children. The HK Code (art 5.2) specifies that promotional activities be allowed on pre-packaged food for infants and young children (Stage 3 and 4).

Product registration process: abiding by the CFDA regulation

In Section 4.3 – 'A toothless quota system?' Nestlé is alleged to circumvent the CFDA regulation on the registration and launch of new products, for having registered more recipes than the defined quotas. We regularly communicate with the state agency and we closely follow and meet all requirements set by the Chinese Authorities. Not more than 9 recipes processed in the same factory (and not the group) can be registered in the Chinese market and this is the rule that we apply. In addition, please note that no quota limitations are defined for Infant Formula for Specific and Medical Purpose.

As initially stated, we appreciate your offer to review the report and to comment it before it is published. We hope that our comments have clarified the issues raised that we market our breastmilk substitutes in a responsible way in Hong Kong and China.

Should you wish to engage further on these issues, we are ready to have a dialogue as we have always found this to be the most constructive way to move forward. We remain at your disposal to define a date and a suitable format where we could further interact.

Yours sincerely,

Pindelwa Mda
Global Deputy Head of Public Affairs
NESTLE S.A.

Re: Nestlé's response to Globalization Monitor's exposé of formula milk companies' product development strategies and promotional practices in Hong Kong and mainland China"

We welcome Nestlé's eagerness to engage with GM regarding the concerns we raised regarding its the product development and promotional practices in Hong Kong and mainland China. We note that Nestlé claims to be committed to supporting breastfeeding by implementing a leading policy to market BMS responsibly. Our report suggests that this commitment is yet to be adequately reflected in Nestlé's business practices; therefore, we hope to see prompt improvements and appropriate corrective actions regarding the issues raised by our report and this message.

We raised three issues in our initial correspondence with Nestlé:

Firstly, we demanded an explanation from Nestlé for not duly fulfilling the commitments it made to CMF (see p.21). Specifically, Nestlé promised to phase out sucrose from its formula products for infants aged between six to twelve months, to remove the nutritional advice it gave on the packaging of *NAN PRO* regarding the use of vanilla flavouring, and to phase out vanilla flavourings in formula products for infants under 12 months old.

One year on from the meeting between Nestlé and CMF in March 2018, during which the three commitments were made, Nestlé has only fulfilled one: phasing out sucrose from their products. While we appreciate this positive change in Nestlé's recipes, we nevertheless find it unsatisfactory that this change would not have been made were it not for pressure from external stakeholders. We also take this as a testament to the necessity of our corporate monitoring efforts.

We are very disappointed that Nestlé has yet to fulfil the two other promises it made to CMF a year ago. Nestlé committed to remove vanilla from its follow-up formulas (*S-26 Ultima Promil*) but has not even presented a timeline for this to be implemented, despite promising CMF a timeline in June 2018. Curiously, during the past year, Nestlé found the time and resources to update the packaging of *S-26 Ultima Promil* but had not taken the trouble to remove vanillin flavouring from its composition. We thus question Nestlé's priorities. We reiterate that vanilla flavouring is unnecessary and could burden infants and young children's underdeveloped metabolism. We have been told that there will be a timeline "as soon as [Nestlé] have a technical solution". We are not satisfied with this vague excuse and demand both an explanation for why Nestlé has failed to fulfil this commitment and a concrete timeline for the requisite improvements in its recipes to be implemented.

We are also disappointed that Nestlé failed to remove the statement on the label of its *NAN PRO* products, which claimed that its recipe does not contain vanilla or vanilla flavourings for babies' healthy growth. We reiterate that this nutrition advice contradicts the recipe of *S-26 Ultima Promil*.

We are astonished that Nestlé claimed it failed to change the labels because some of these "were already in the value chain or printed." We believe a self-proclaimed leader in the responsible marketing of BMS should prioritise sending as clear and accurate a message to consumers as possible. Given that Nestlé updated the packaging of *S-26 Ultima Promil* without changing its composition in the past, we fail to see what is stopping Nestlé from updating *NAN PRO*'s label immediately.

Secondly, we questioned Nestlé's use of terms such as "human affinity" and "replicating nature" to promote its *illuma* products, despite scientific evidence suggesting the 2'FL (the human milk oligosaccharide used in *illuma*) has no direct immunomodulatory effects.

Nestlé denied that the statements it used to communicate the characteristics of *illuma* imply that it is superior or equivalent to breastmilk. The *Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children*, adopted in 2016 by the World Health Assembly, states that the material used to promote foods for infants and young children "should not include any image, text or other representation that is likely to undermine or discourage breastfeeding, that makes a comparison to breast-milk, or that suggests that the product is nearly equivalent or superior to breast-milk (author's emphasis)" (see p.24). This means Nestlé need not have implied its products are superior or equivalent to breastmilk: merely comparing their products to breastmilk and suggesting their nutritional profile are "ever closer to breastmilk" would constitute a violation of WHO standards.

Nestlé defended its use of the phrase "inspired by breastmilk"; we clarify that it is phrases like "human affinity" and "replicating nature" with which we took issue in our report. Nestlé explained that it promoted its formula products as "closer to breastmilk" because "modern infant formulas are compositionally closer to human milk than unmodified cow's milk." That much is true, but it is not clear at all in *illuma*'s promotional material that Nestlé was comparing *illuma* to unmodified cow's milk. Rather, by liberally using "closer to breastmilk" along with other phrases such as "replicating nature/replicating as nature intended" and "human affinity", Nestlé is misleading carers and consumers into thinking the efficacy of *illuma* in terms of providing vital nutrients to infants and safeguarding their health is comparable to breastmilk. This blatantly goes against Nestlé's claim that it is "[helping] health care providers and consumers in making informed choices".

Nestlé also failed to directly engage with the studies we referenced in the report (see pp.23-24). The PLoS study debunked the common understanding in the health community that human milk oligosaccharides (HMOs) can contribute to immune development and protection against disease through the modulation of human dendritic cell differentiation and maturation by pointing out HMOs have no direct immunomodulatory effects. The other study, conducted by many Nestlé-employed researchers, conservatively suggested that "more prospective, randomised trials in infants comparing

formula without and with HMOs are still needed to evaluate the clinical effects of this supplementation." We stand by our initial conclusion that Nestlé's irresponsible marketing not only grossly violates consumer interests but also poses a threat to public health, as Nestlé is portraying the nutritional gap between its formula products and human breastmilk to be much closer than it is, which could discourage breastfeeding consequently.

Lastly, we pointed out that many promotional tactics Nestlé employs constitute the cross-promotion of infant formula, which is prohibited by the Code, as well as legislation in Hong Kong and mainland China.

We welcome Nestlé's admission that it has inappropriately used a special display to indirectly promote its stage one and two formula products (see p.30), and that it used a shelf talker that directly promoted a stage one formula product (see p.32). We demand a timeline from Nestlé for the corrective action to be taken and to be informed after the changes have been made.

We would like to point out that, contrary to what Nestlé claimed in its response to our report, its loyalty programme not only makes promotional offers for the purchase of stage three and four products, but also for stage two products (see p.33). Article 5.2 of the Hong Kong Code, which Nestlé cited, states that pre-packaged food for infants and young children may be promoted ***provided that the promotional practice does not promote formula milk or formula milk related products***. Since regardless of its stage, *illuma* is a formula milk product, Nestlé's promotional practice violates the Hong Kong Code.

We urge Nestlé to address these issues promptly and appropriately.

There are two other issues we would like to point out in this message. Firstly, Nestlé revealed that it applies the "voluntary *Code of Marketing of Formula Milk and Related Products, and Food Products for Infants & Young Children* […] in Hong Kong as it is stricter than our own policy." We believe a self-proclaimed leader in the responsible marketing of BMS should hold itself to the highest standards; therefore, we urge Nestlé to adopt the strictest possible set of standards and apply them universally.

Secondly, Nestlé explained that it "[meets] all requirements set by the Chinese Authorities" regarding CFDA's formula registration system. We clarify that our research was intended to show how ambiguity in the CFDA regulation allows BMS manufacturers to use subsidiaries and joint ventures to register more than nine products under their brand/group company. This renders it an ineffective means to reduce the widespread phenomenon in which BMS makers produce many similar formulas and introduce them to the market as distinct products to flood the shelves. Nestlé's response confirms our suspicion.

全球化監察
GM
Globalization Monitor