Formative research on infant & young child feeding in Viet Nam

Phase 1 summary report

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2012

Alive & Thrive (A&T) is a six-year (2009–2014) initiative to improve infant and young child feeding practices by increasing rates of exclusive breastfeeding and improving complementary feeding practices. The first two years of life provide a window of opportunity to prevent child deaths and ensure healthy growth and brain development. Alive & Thrive aims to reach more than 16 million children under two years old in Bangladesh, Ethiopia and Viet Nam through various delivery models. Learnings will be shared widely to inform policies and programs throughout the world. Alive & Thrive is funded by the Bill & Melinda Gates Foundation and managed by FHI 360. Other members of the A&T consortium include BRAC, GMMB, IFPRI, Save the Children, World Vision and UC-Davis.

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Study team

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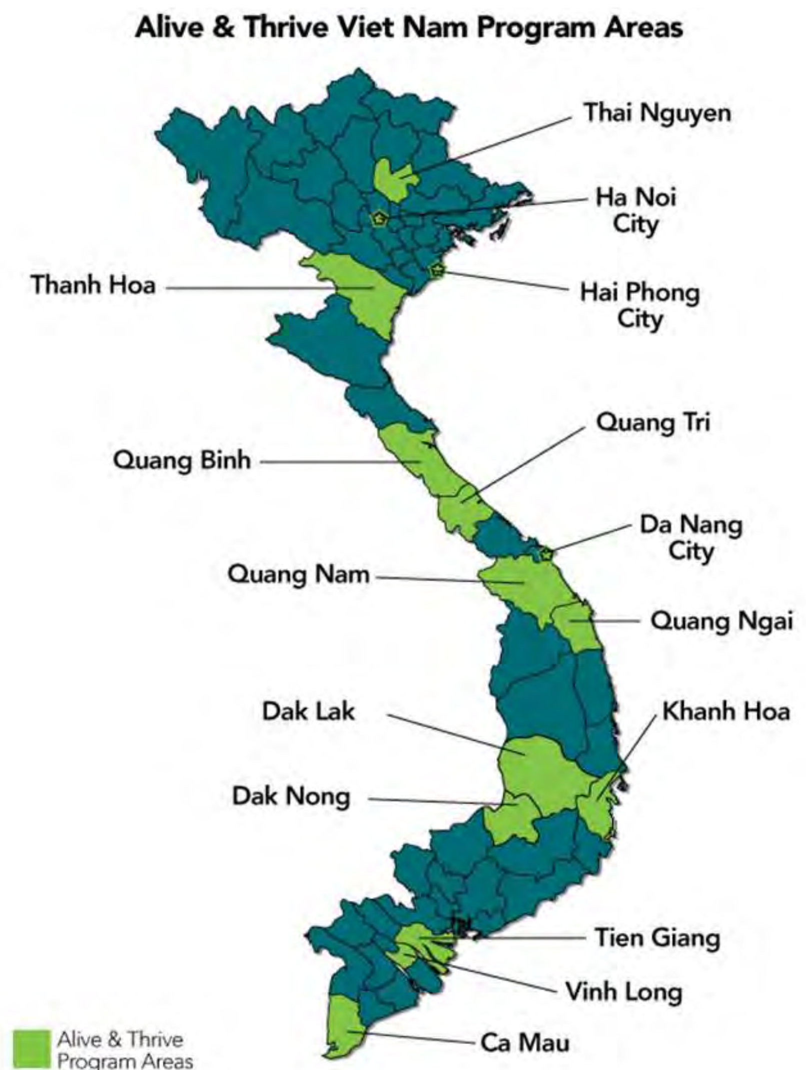
I. Background

Alive & Thrive (A&T) is a 6-year (2009–2014) initiative to improve infant and young child feeding (IYCF) practices by increasing rates of exclusive breastfeeding and improving complementary feeding practices. The time between birth and age 24 months provides a unique window of opportunity to impact the long-term health and development of children. A&T aims to reach more than 16 million children under 2 years old in Bangladesh, Ethiopia and Viet Nam, as well as to create program models that can be replicated worldwide.

In Viet Nam, A&T is working with the Ministry of Health (MoH), the National Institute of Nutrition (NIN), the Viet Nam Women's Union and provincial authorities to double the rate of exclusive breastfeeding, improve the quality and quantity of complementary foods, and reduce stunting by 2% each year. A&T aims to achieve this through:

- Policy engagement
- Implementation of the franchise model
- Fortified complementary foods and related products

While A&T aims to improve young children's nutritional status in all 63 provinces of Viet Nam, more intensive capacity building and provincial planning activities are taking place in 15 provinces (Ca Mau, Da Nang, Dak Lak, Dak Nong, Ha Noi, Hai Phong, Khanh Hoa, Thai Nguyen, Thanh Hoa, Quang Binh, Quang Nam, Quang Ngai, Quang Tri, Tien Giang, Vinh Long).



II. Formative research studies

Several studies were carried out in 2009–2010 to identify existing breastfeeding and complementary feeding practices and understand the roles of mothers, family members, health providers, policymakers and institutions. Results from these studies were then reviewed and applied to the development of A&T program strategies and activities. A&T conducted formative research in two phases. This report on Phase 1 summarizes methods and findings for the initial formative research, which comprised two main pieces of primary data collection, outlined below.

Formative research: Phase 1

A qualitative research exercise on breastfeeding and complementary feeding was carried out in 2009 by Ha Noi Medical University (HMU) in 16 communes across seven provinces/cities (Ha Noi, Dien Bien, Thanh Hoa, Quang Ngai, Kon Tum, Vinh Long, Ho Chi Minh City). Provinces were selected purposively to represent different urban and rural geographic, economic, ecological and ethnic zones in Viet Nam. Within each province, communities were selected purposively to represent coastal, plain and mountain zones. Data were collected by an HMU-recruited research team. All interviews were tape-recorded and conducted in Vietnamese. The specific objectives of this study were to:

- Identify current IYCF practices in Viet Nam
- Identify the barriers and facilitators of optimal practices
- Identify existing factors, opportunities and resources that could facilitate the improvement of practices and problems identified

The *Designing by Dialogue* guide and *ProPAN* manual were used to inform the design of this formative research. Additional input was received from a technical advisory committee composed of representatives from key stakeholder organizations such as UNICEF and NIN.

The study used both quantitative and qualitative methods to identify specific dietary problems, practices that lead to these problems and the context in which they occur. The instruments adapted from the *ProPAN* manual included both quantitative methodologies (24-hour dietary recall, market survey) and qualitative methodologies (opportunistic observations, food attributes exercise). Since *ProPAN* tools focus more on complementary feeding, A&T developed specific tools to further study breastfeeding practices. Table 1 (next page) lists the seven methodologies used in this phase of the formative research and includes the number of participants/focus groups for each.

Table 1. Components of Phase 1 formative research

Instrument	Description	Number
Semi-structured interviews (pregnant women and mothers of infants)	Eliciting information on IYCF perceptions, beliefs, opinions and practices, following a guide of closed and open-ended questions	1620
24-hour dietary recalls	Assessing type, amount and time of food consumption	640
Opportunistic observations	Observing mothers breastfeeding, preparing food, feeding and interacting with their child	160
Food attributes exercise	Showing mothers pictures of 20–30 food items to elicit beliefs about the quality and adequacy of each item for young children	160
Semi-structured interviews (fathers)	Exploring male involvement in IYCF	80
Focus group discussions (grandmothers)	Identifying the role of a key social support group in facilitating or impeding mothers' positive IYCF choices (e.g., grandmothers' view of breastmilk versus formula milk; assistance given to increase mothers' time with infants after delivery, especially in rural areas)	16 (focus groups)
In-depth interviews with health providers	Evaluating health workers' current IYCF practices	88

Quantitative data were analyzed using SPSS 16.0. Qualitative data were analyzed for content and focused on the 12 ideal practices listed below. Content was divided into four main themes: antenatal care, exclusive breastfeeding, complementary feeding and communication. A team of four experts coded the qualitative data for barriers and facilitators from the respondents and then categorized each barrier and facilitator as internal (factors from the child's mother) or external (people other than the

Table 2. Ideal practices

1. All infants are breastfed for the first time within the first hour after birth.
2. All infants are not fed with pre-lacteals.
3. All infants are fed colostrum.
4. All children are breastfed on demand, during the day and night.
5. All infants are exclusively breastfed until six months of age.
6. No child is weaned before 24 months of age.
7. All infants are fed semisolid complementary food beginning at six months of age.

8 & 9. All infants and young children meet their recommended daily energy and nutrient requirements.

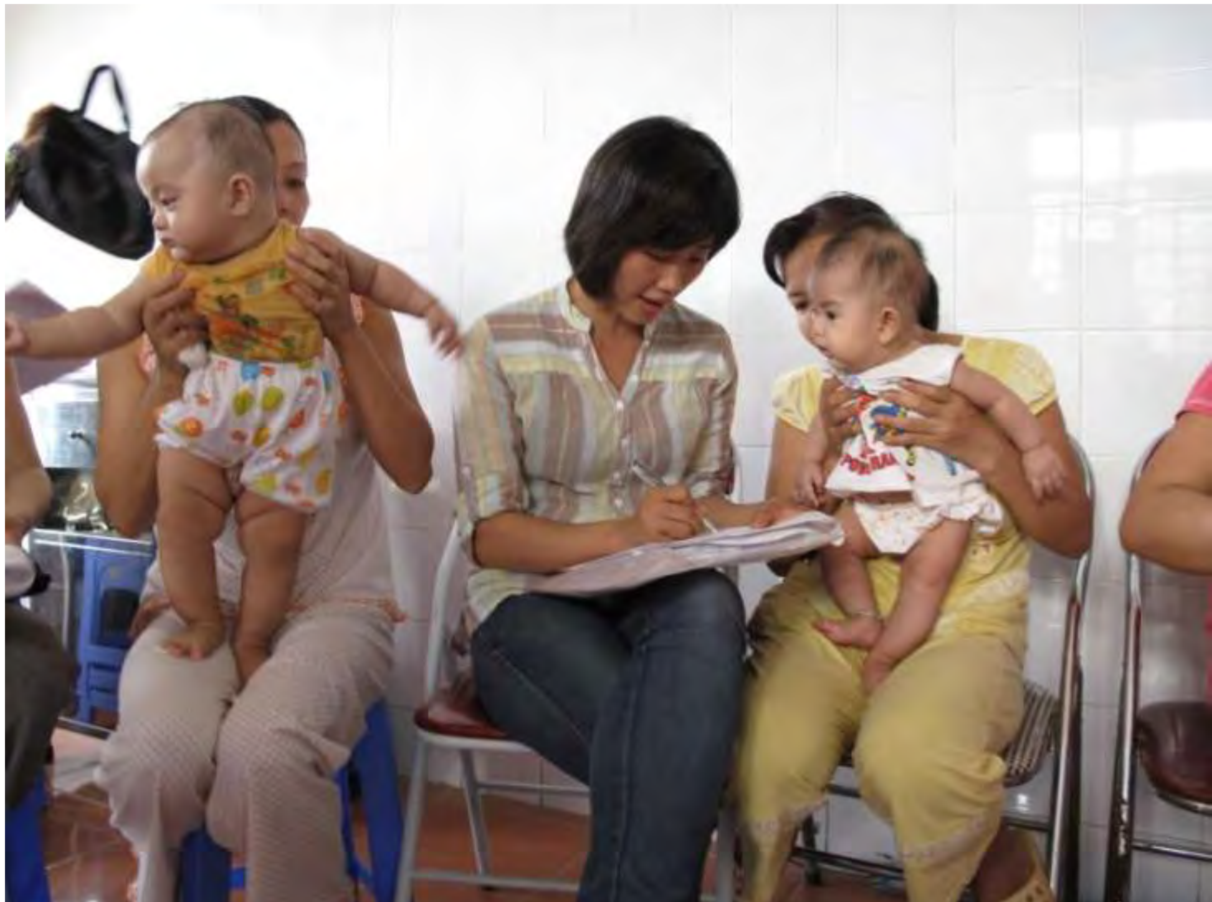
10. All infants and young children are fed the recommended number of meals daily.
11. All infants and young children are fed meat, fish or poultry daily.
12. All infants and young children are supported and motivated to eat until full during all meals.

child's mother – including family members, health providers and community members – and factors such as policy). After coding, data from each commune and province were analyzed using a matrix and then synthesized into a table of ideal/actual practices and facilitators/barriers.

National Institute of Nutrition (NIN) Surveillance 2009

NIN's annual surveillance includes the collection of anthropometric data for children under five years of age and additional data on maternal and child nutrition. As the existing surveillance tool permitted calculation of only some IYCF indicators, A&T supported NIN to add a two-page questionnaire on IYCF practices as part of the 2009 surveillance. The additional questions complemented the data gathered in the annual surveillance and enabled testing of the data collection process for World Health Organization–recommended IYCF indicators.

The additional two-page questionnaire on IYCF practices was administered with children under two years of age in 10 A&T-supported provinces (Thai Nguyen, Thanh Hoa, Quang Tri, Quang Ngai, Dak Lak, Kon Tum, Dak Nong, Gia Lai, Khanh Hoa, Vinh Long) representing the range of geographical regions in Viet Nam.



A mother being interviewed in Ha Noi

III. Key findings

Demographics

Mothers' mean age was 27 years. Most surveyed mothers (80%) were of the majority Kinh ethincity; 9% were university graduates, 44% were secondary school graduates, 15% had completed only primary school, and 5% were illiterate. Almost half (45%) worked as farmers; others included government workers, teachers, businesswomen and housewives. Almost all (99%) were currently married. The majority of husbands worked either as farmers (39%) or laborers (28%). More than half of these families shared a house with others, most commonly the husband's parents.

Pregnancy, delivery and postnatal care

More than 90% of women received antenatal care (ANC). The most common preference was for one antenatal examination per month. In practice, women averaged six ANC visits during their pregnancy; this number was significantly higher in urban areas (Ho Chi Minh City, Ha Noi), where eight to 10 visits were common. Urban women favored district hospitals and private clinics, compared to rural women who relied more on commune health centers (CHC).

Antenatal check-ups were largely free of cost at CHCs. However, for specialized services such as laboratory testing and ultrasounds at provincial hospitals or private clinics, costs ranged from 50,000 to 100,000 Vietnam dong (approximately $2.75 to $5.50 at 2009 rates). This excludes associated medication and transport costs.

In most cases both parents decided on the venue for ANC and delivery, with husbands assuming an active role and accompanying their wives during ANC visits and labor. Fathers from mountainous regions and poor communes were less likely to be present for both ANC visits and delivery due to work commitments.

Women reported that the information they received during ANC visits focused on rest, maternal nutrition (including nutritional supplements) and medical guidance such as advice on vaccinations, as well as updates on the development and health of the fetus. Little or no information was shared about breastfeeding or child nutrition. Many women reported that they were not told about the importance of initiating breastfeeding in the first hour or about proper positioning and attachment.

In rural areas, most parents chose to deliver at provincial hospitals (approximately 40%) or CHCs (approximately 30%); the remainder delivered at district hospitals (approximately 20%) or at home (approximately 10%). Home deliveries were more common in mountainous provinces (70% in Kon Tum, 35% in Dien Bien), indicating possible transportation and accessibility issues. In urban areas,

the large majority of mothers opted for private or public hospitals (80% in Ha Noi, 90% in Ho Chi Minh City), rather than CHCs or home delivery.

Nearly 30% of mothers brought breastmilk substitutes (formula milk) to hospitals and CHCs when they checked in for delivery; the rate was highest in urban Ha Noi (87%). In most cases, the reason given was a belief that mothers could not produce sufficient milk immediately after delivery.

Ideal practices

This section provides details on findings about each of the 12 ideal feeding practices.

Ideal practice 1: All infants are breastfed for the first time within the first hour after birth

Data indicated that many mothers and their babies were not reunited soon enough after birth to initiate breastfeeding in the first hour. During this period, health workers had very little or no time to counsel and support mothers on proper breastfeeding methods, such as correct positioning and attachment of the baby.

Only half (55%) of newborn babies were breastfed within an hour of birth, and 9% of babies did not begin breastfeeding until more than 24 hours after birth. The lowest rates of early initiation were recorded in large cities (33% in Ho Chi Minh City, 29% in Ha Noi). The highest rates of early initiation were recorded in disadvantaged provinces. Breastfeeding within an hour of birth was initiated by more mothers who delivered at CHCs (70%) than at hospitals or private clinics (40%).

The most frequently reported barrier to early initiation of breastfeeding is the widely accepted idea that mothers have insufficient amounts of breastmilk immediately after delivery. Another barrier is that mothers had not received sufficient counseling concerning early initiation. The high rate of mothers delivering via Cesarean section, especially in Ha Noi and Ho Chi Minh City, may also contribute to later initiation of breastfeeding, since in these cases mother and child are often separated after birth and the mother is in pain.

> "I had a Cesarean section, so I didn't have breastmilk right away. And I was in terrible pain and couldn't hold my child to breastfeed. I only started to breastfeed my baby two days later, when my breastmilk came in and I was in less pain."
>
> *– Mother in Ha Noi*

Lack of knowledge regarding how much a newborn should be fed may also contribute to the incorrect belief that mothers cannot produce sufficient amounts of milk. In most cases, while there was an understanding that babies do not drink much, there was no clear concept of how much milk is

actually required to fill a newborn's stomach and whether the amount of breastmilk produced right after delivery is enough.

The rising trend for mothers to deliver by Cesarean section, especially in urban areas, has led to longer post-birth separation for mothers and babies. Fatigue, pain and medication such as antibiotics after the procedure made it more difficult for mothers to feed their babies within the first hour.

Ideal practice 2: All infants are not fed with prelacteals

Prelacteal feeds are liquids or foods given to infants before breastfeeding is established, generally in the first day of life. Results showed that during the first three days, mothers fed newborns liquids and foods other than breastmilk, because of the widespread belief that they are not able to produce or do not have enough milk immediately after birth. The region with the highest percentage of mothers giving their infants prelacteals is Quang Ngai (94%) and the lowest is Thanh Hoa (37%). No definitive reason was found for this wide variation.

> "Mothers should start to breastfeed their babies one or two days after birth, because breastfeeding immediately after birth isn't good: The outside environment is different from the mother's womb. Formula milk should be fed to infants."
>
> *– Father in Quang Ngai*

Grandmothers were often noted as the most influential family members in encouraging use of prelacteals. Most grandmothers reported they thought it necessary to feed newborn babies with prelacteals before breastfeeding to avoid thrush and keep the baby's body "cool." The most common prelacteals reported were honey and licorice, administered by spoon or dropper, to "clean" the baby's mouth. In Dien Bien, many grandmothers said they promote the notion that feeding newborns several drops of lemon juice helps prevent babies from coughing, and that babies should be fed sweetened or boiled water to prevent hunger and dry throat. Grandmothers in two communes of Ha Noi thought infants could be fed formula milk if the mothers' breastmilk had not come in yet. According to them, formula milk is easy to buy and prepare, and it does not create "heat" in infants' bodies.

Ideal practice 3: All infants are fed colostrum

Newborns gain a nutritional and immunological boost from ingesting colostrum, the thick, yellowish form of breastmilk that mothers first secrete, beginning in late pregnancy and through the first days after birth. Colostrum contains concentrated proteins and growth factors that stimulate development of the infant's digestive system, as well as antibodies and white blood cells. Its low fat content promotes easy digestion, and its mild laxative effect helps protect against jaundice by encouraging the passing of the baby's first stool. One in three mothers was found to discard colostrum. In some

provinces, the rate was as high as 90%. Only 35% of mothers could correctly describe the importance of colostrum, including the timing of colostrum secretion and the benefits of the nutrients and antibodies it provides; this rate was highest in urban areas (Ha Noi, Ho Chi Minh City). A similar percentage of mothers knew that colostrum was good but did not know the specific benefits; this rate was highest in Thanh Hoa. Approximately 16% of mothers did not know anything about colostrum (highest rates in Kon Tum and Dien Bien), and 5% of mothers believed that colostrum was poisonous and needed to be discarded (highest rate in Quang Ngai).

"Colostrum is produced during pregnancy. Infants shouldn't be fed colostrum, because colostrum isn't good. If they are fed colostrum they won't be smart and won't develop well." *– Mother in Quang Ngai*

Nearly 40% of mothers received their knowledge of the term "colostrum" from formula milk advertising (television, radio or newspaper); 35% acquired their knowledge from health staff. Other sources of information on colostrum were family or neighbors (18%) and village health workers trained by the National Protein, Energy and Malnutrition Program or the village nurse (2%).

The influence of health workers and grandmothers is key to whether or not mothers fed their infants colostrum. Health workers said they occasionally recommended mothers to start feeding formula straight away. Some grandmothers said they believed colostrum would make the baby sick, and urged their daughters or daughters-in-law to discard colostrum before breastfeeding.

Ideal practice 4: All children are breastfed on demand, during the day and night

The rate of breastfeeding on demand was 85% across the entire sample, and most mothers had breastfed about 12 times in the last 24 hours. This frequency showed no variation across different geographic regions. However, only 59% of mothers knew how to breastfeed babies properly, feeding with one breast before moving to the next, and this knowledge was lower among pregnant women.

"The doctor said my child could still be breastfed, so I followed his advice and kept breastfeeding: The medicine I was taking wasn't affecting my breastmilk."
– Mother in Ho Chi Minh City

If babies were ill, 36% of mothers knew to breastfeed more than usual, while 30% said they would not change breastfeeding routines. When mothers were sick, 41% of infants were breastfed less than usual and 6% were not breastfed at all.

Apart from mothers, those with the most impact on whether babies were fed on demand during the day and night were fathers, grandmothers and health workers. Many respondents from each of these groups stated that mothers did not have good-quality breastmilk and produced insufficient quantities. Some family members stated it was acceptable to feed babies formula while the mother was at work.

Ideal practice 5: All infants are exclusively breastfed until six months of age

The study found that only one in two mothers clearly understood what "exclusive breastfeeding" meant (i.e., only breastmilk and nothing else). However, after the definition of exclusive breastfeeding was explained, most believed they would be able to exclusively breastfeed only up to four or five months, as that is when they would have to return to work. In the case of pregnant women, fewer mothers (one in three) knew the meaning of the term, and many had already decided to formula-feed when the baby was four months old. Most health workers knew what exclusive breastfeeding meant, but many stated that it was required only until babies reached four months of age.

"I think 'exclusively breastfeed in the first 6 months' means it's possible to feed the baby water and use honey to clean thrush." – *Mother in Ha Noi*

Giving infants water after breastfeeding was also a common practice in both urban and rural areas. Respondents claimed water was required to "clean" an infant's mouth after feeding or to quench thirst. Giving water generally began at about two months and was the main barrier to exclusive breastfeeding.

A mother in Kon Tum breastfeeding during the interview

The research revealed that only one out of 10 children in Viet Nam is exclusively breastfed up to six months of age, while four in 10 mothers breastfeed predominantly up to six months (that is. feed the baby breastmilk plus water or other liquids, but not animal milk or formula milk). By five months of age, very few children are exclusively breastfed.

Also, as many mothers believed they lacked sufficient breastmilk (in both quantity and quality) to adequately nourish their children up to six months of age, they said they often began supplementing breastmilk with formula between the third and fourth month, believing that mixing the two was the optimal way to feed their child.

For those employed in the formal sector (20–30%), the need to return to work after four months of maternity leave posed a major challenge to exclusive breastfeeding. Most of these women would exclusively breastfeed their baby until three months of age, then introduce formula by the fourth month to allow the child to "get used to" other types of milk.

Health workers reported that they also occasionally advised mothers to feed their children formula around this time, which added to the lack of support from family members in this matter, including the belief by fathers that continued breastfeeding would affect their wives' physical appearance.

Ideal practice 6: No child is weaned before 24 months of age

The data showed that 60 to 90% of mothers breastfed their babies up to 12 months of age, and most mothers stopped breastfeeding between 15 and 18 months of age. Few mothers interviewed said they would be able to continue breastfeeding their child up to 24 months of age.

> "I weaned my child at exactly 12 months, on the baby's birthday. Everybody does this." – *Mother in Vinh Long*

The main reason for early weaning was that other foods had been introduced in the baby's diet and it was thought the baby no longer required breastmilk. Mothers' return to work was also an important factor. However, research indicated that family members also influenced this decision, with grandmothers often encouraging mothers to feed only solids as they believed this would help the child to grow stronger.

Ideal practice 7:
All infants are fed semisolid complementary food beginning at six months of age

The study found that mothers were the main person in the household who prepared food for and fed their babies, and most started feeding them complementary foods early, often beginning in the fourth month. By the sixth month approximately 94% of babies were fed complementary food. In coastal communes of Thanh Hoa and Quang Ngai and mountain communes of Dien Bien and Kon Tum, children began complementary foods at three months of age.

Mothers gave several reasons for starting complementary feeding early. Some mothers said that semisolid soups helped infants stay sated for longer periods, and some said breastfeeding did not provide infants with sufficient nutrients. In addition, mothers thought that they had insufficient breastmilk. Maternity leave was also an important factor, because mothers wanted to acquaint their children with solids in time to return to work. Most mothers said their decision on when to introduce semisolid foods was influenced by other mothers, parents, other family members and advertisements for instant semisolid soups.

"My baby was fed complementary food to have a strong body, be healthy and stay full. Breastmilk wasn't enough, and he was hungry." – *Mother in Dien Bien*

A mother discussing complementary feeding for her six-month-old infant

In most cases, the first complementary foods fed to infants were instant, semisolid soup products sold under the brand names Ridielac or HIP. Very few mothers cooked semisolid soups themselves, with the exception of mothers in Dien Bien, Thanh Hoa and Ha Noi. Most mothers cooked mainly ground porridge (*cháo xay*) for their infants until seven or eight months of age. In the mountain communes of Kon Tum and Dien Bien, mothers fed infants a cheap and easy-to-prepare instant porridge which is popular in the region. Besides instant semisolid soup, pre-prepared "nutritious porridge" was commonly bought at stores in Ho Chi Minh City, Kon Tum, Vinh Long and Quang Ngai. This so-called *cháo dinh dưỡng* includes various ingredients such as meat, fish, vegetables, oil and fat.

Ideal practices 8 & 9:

All infants and young children meet their recommended daily energy and nutrient requirements

Although breastfed and non-breastfed infants met or exceeded Recommended Daily Allowances for energy and nutrient levels in urban and rural areas, both groups were highly deficient in iron. Table 3 (below) lists the age at which infants were introduced to different types of complementary food.

Table 3. Mean age at which complementary foods are introduced

Type of complementary food	Mean age it is given to children (months)
Thin semisolid soup	5.1
Juice/rice water	5.4
Thick semisolid soup	6.7
Egg	6.8
Fruit	7.1
Meat/poultry	7.2
Fish	7.2
Vegetables	7.3
Thin porridge	7.8
Thick porridge	9.8
Mushy rice	13.5

A large proportion of mothers did not feed their infants organ meats, especially iron-rich liver, because it was expensive and thought to be "poisonous" for infants. Mothers in Ho Chi Minh City said they thought it was hard for infants to digest eggs and would commonly introduce these at one year of age. Mothers in Vinh Long and Quang Ngai reported that they usually started feeding babies vegetables at an older age compared to other areas, starting from eight or nine months. Mothers in Ho Chi Minh City, Vinh Long, Kon Tum and Quang Ngai did not feed their infants fruit, including

"Organ meats contain poison, so we shouldn't feed them to children."

– Mother in Vinh Long

mangos and oranges, because they feared the fruits could make their babies ill and increase the babies' body temperature. Most mothers said they avoided feeding certain types of seafood (fish, shrimp, crab and eel), fat and certain fruits and vegetables (orange, mango, papaya, banana and *Basella alba,* a leafy green) to children suffering from diarrhea.

Ideal practice 10:
All infants and young children are fed the recommended number of meals daily

Children aged six to 24 months were generally fed an adequate number of meals each day. Twenty-four-hour recall showed that children six to eight months old ate an average of 2.4 to 2.8 meals a day, with the lowest rates in Quang Ninh and the highest in Ha Noi; this exceeds the NIN and ProPAN recommendation of two meals a day for this age group. Children nine to 11 months, meanwhile, ate an average of 2.5 to 3.0 meals a day, with the lowest rates in Kon Tum and the highest again in Ha Noi; this is slightly lower than the NIN and ProPAN recommendation of three meals a day.

Time spent preparing food averaged 20 to 45 minutes per day. Urban mothers perceived this as a barrier to ideal practice, as they claimed to have insufficient time and no one to assist them. Rural mothers reported different barriers: insufficient money for food, lack of grinders, no one to help or look after their child, lack of knowledge on proper food preparation and distance from markets. In all regions, 65% to 87% of mothers bought food for their child on a daily basis, either directly from a market or, in remote communes, from a small shop.

Ideal practice 11: All infants and young children are fed meat, fish or poultry daily

Most children in urban areas or wealthy communes were fed protein-rich foods such as meat, fish, eggs, shrimps, crab and eel in their daily complementary meals. This rate was highest in Ha Noi (78%). In poorer areas, the frequency of daily protein-rich food was significantly lower, with the lowest rate recorded in Vinh Long (8%). In all provinces, 30–40% of children aged six to 24 months received meat daily, 20–50% three to five times a week, and 10–15% percent had not yet been fed meat. Pork was the most commonly fed meat.

Among the barriers that mothers reported to daily feeding of these foods was the belief that children could not digest certain foods. Respondents also said they did not have time to prepare foods, did not know how to cook them properly and that local customs prevented them from understanding the full nutritional benefits of some foods.

> "My baby hasn't been fed beef, because she may not be able to digest it yet."
> *– Mother in Dien Bien*

Ideal practice 12:

All infants and young children are supported and motivated to eat until full during all meals

Most mothers interviewed said they tried to find creative ways to motivate children to eat, such as allowing them to play during mealtimes; letting them watch cartoons, music videos or advertisements on television; or walking around with them while feeding.

Handwashing

While hygiene is not formally an "ideal feeding practice," researchers questioned and observed mothers on hygiene practices, especially handwashing. Most mothers observed during the study did not wash their infants' hands or their own before preparing food or feeding.

Communication regarding infant and young child feeding (IYCF)

To strengthen development of a strategic behavior change communication plan, part of the research focused on people's exposure to IYCF and other health messages. The survey showed that almost all households own a television, with the lowest rates in mountain communes (72%). Radio ownership is less common, with urban radio ownership averaging 50% in Ha Noi and Ho Chi Minh City, and rural ownership lower still (25%).

When questioned about favorite television channels, all interviewees claimed to watch national channels VTV 1, 2 and 3, as well as local stations. Respondents generally reported watching all types of programming, from news, game shows and cooking shows to movies and children's programs. A number of respondents also claimed to watch the advertisements during commercial breaks. Television was most often watched at lunch and in the evening.

> "I mainly learn from other people and from TV. I don't have a lot of time, so I just learn and do what they advise on TV programs about children's feeding or hygiene." – *Father in Quang Ngai*

Mobile phone ownership is high. In general, more fathers than mothers own mobile phones, and ownership is approximately 90% among urban respondents as compared to 60% among rural respondents. Ownership of landline home phones is also high: 76% of urban households and 57% of rural households. The lowest rates were recorded in mountain communes (20%).

Ownership of computers and access to the Internet were mainly urban phenomena. Internet access was approximately 50% in urban areas, with the highest rates in Ha Noi (54%) and Ho Chi Minh City (26%). Rates were significantly lower in rural areas, at 7% computer ownership and 3% Internet

access. However, more than 90% of all respondents said they did not use the Internet, and of those who did, Google and the news site *Dân Trí* were the main sites accessed.

Although Viet Nam has a highly literate society, many respondents did not read newspapers (75%) or magazines (80%).

Approximately 12% of respondents from Ho Chi Minh City had ever used a telephone hotline to inquire about infant nutrition and other issues, and they had called only once or only when the baby had a health issue. The two numbers available were operated by formula milk companies, but respondents could not recall the name of the one that managed the hotline they had used. A very small number of respondents from rural areas had ever used a hotline, and none could remember the number they called or exactly what they had inquired.

IV. Conclusions and recommendations

It is heartening to note that 98% of mothers in Viet Nam breastfeed their babies, and that the discarding of colostrum does not present a major problem. However, the research also identified several key barriers to the ideal practices of breastfeeding immediately after birth, exclusively for the first six months and continuing until 24 months.

The first of these barriers is the misconception that mothers have insufficient milk (both in terms of quality and quantity), which, combined with a lack of information on how much milk is needed during the first few days and months, affects both initiation of breastfeeding within the first hour and exclusive breastfeeding thereafter. The misconception that mothers have insufficient milk is caused in part by a lack of understanding among health workers and mothers alike, regarding how breastmilk is produced. In particular, neonatal nutrition interventions should seek to increase the feeding of newborns with mother's breastmilk rather than formula milk, by reducing the prevalence of mothers or families bringing formula to the health facility at the time of delivery. Mothers are also unaware of the need to empty one breast before switching to the next.

A second barrier, Cesarean sections, is also associated with delays in the initiation of breastfeeding. This is because of a belief that mothers need time to recover from the procedure before they can breastfeed.

Third, water given to quench thirst or clean a child's mouth after breastfeeding is the major barrier to exclusive breastfeeding. For babies up to six months, the rate of predominant breastfeeding is significantly higher than that of exclusive breastfeeding.

Fourth, the need for many mothers (both rural and urban) to return to work is often cited as a barrier to exclusive breastfeeding. Few mothers or health workers in Viet Nam have tried or know how to express and store breastmilk, and concerns exist over the safety of feeding children with stored breastmilk.

Further barriers to ideal breastfeeding practices include inaccurate advice from family members and misinformation about breastfeeding, the quality and quantity of breastmilk, and how to achieve exclusive breastfeeding. Mothers stopped breastfeeding infants at approximately 15 to 18 months of age, because other food had been introduced into the child's diet, and mothers and caregivers believed breastmilk was no longer necessary.

In terms of complementary feeding, almost all infants receive some complementary food, of approximately the right quality, by six months of age. Diets include animal protein and leafy green vegetables. However, the research identified several major barriers to ideal complementary feeding. In many cases, mothers and caregivers introduced complementary food from as early as two to three months of age, due to misinformation about complementary feeding coupled with the perception of inadequate breastmilk supply. The consistency of complementary foods is frequently too thin; often no oil or fat is added to the meal, and processes for preparing complementary foods are not appropriate. While home-based diets for infants and young children meet most of their energy and nutrient requirements, they are highly deficient in iron. This is perhaps because organ meats are rarely given to infants, as they are perceived to be toxic and difficult to digest. Hygiene practices are poor with regard to food preparation and infant feeding.

To address these barriers, a focus is required on counseling mothers and caregivers during pregnancy on how breastmilk is produced, how much milk is needed during the first few months and the importance of not giving water to infants. It is critical that health workers be retrained to provide appropriate counseling on these issues. Mothers need support to successfully initiate breastfeeding immediately after delivery, and they must receive appropriate information and support during the first six months to enable them to breastfeed exclusively . Revising and strengthening Decree 21[1] and extending maternity leave to six months will help foster an enabling environment. Addressing the issue of correct timing (not before six months) and ensuring that foods are appropriately prepared (including oil) will improve complementary feeding practices. Promotion of good hygiene is critical. High levels of literacy and access to mass media provide an opportunity to develop a multitarget,

[1] Decree 21 on the Trade and Use of Nutrition Products for Young Children is Viet Nam's iteration of the International Code of Marketing of Breastmilk Substitutes. Decree 21 aims to protect and promote breastfeeding by restricting illegal marketing of nutrition products for young children, including breastmilk substitutes.

multilevel mass media campaign that evokes an emotional response from mothers and caregivers (in particular grandmothers), to supplement health workers' individual counseling efforts.

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Alive & Thrive franchise model

A&T Viet Nam has launched an innovative franchise system, *Mặt Trời Bé Thơ* ("Little Sun"), that provides a quality counseling package on infant and young child feeding (IYCF) for pregnant women, lactating mothers and caregivers at commune, district and provincial health facilities.

Approximately 800 social franchises are in operation across 15 provinces, providing accurate IYCF information through interpersonal counseling and group sessions from the third trimester of pregnancy through the first two years of life.

The health system is enabled to run franchises through focused capacity building for healthcare workers at all levels. One-on-one services, including e- and tele-counseling, are supported by a communication strategy that generates demand and promotes optimal IYCF practices via a mass media campaign, print materials and an interactive website (*www.mattroibetho.vn*).

franchisors

Alive & Thrive

- Advertising & promotion
- Monitoring & evaluation
- Detailing & referral system
- Client support

National Institute of Nutrition

- Training
- Support & supervision

sub-franchisors

Provincial departments of health & reproductive health centers

- Overseeing regional implementation
- Establishing franchises
- Procuring supplies
- Coordinating staff development
- Supervising and monitoring franchises

franchisees

Province

- Provincial hospitals
- Reproductive health centers
- Preventive medical centers

District

- District hospitals
- Maternity homes
- Preventive medical centers

Commune/Ward

- Commune health centers
- Private clinics

service package

for pregnant women, lactating mothers, caregivers & fathers of children 0–24 months old

- Breastfeeding promotion
- Breastfeeding support
- Breastfeeding management
- Complementary feeding promotion
- Complementary feeding management

demand creation

- Mass media
- Village health workers
- Nutrition collaborators
- Women's Union