

Enhancing Breastfeeding: Global and National Policies and Programs

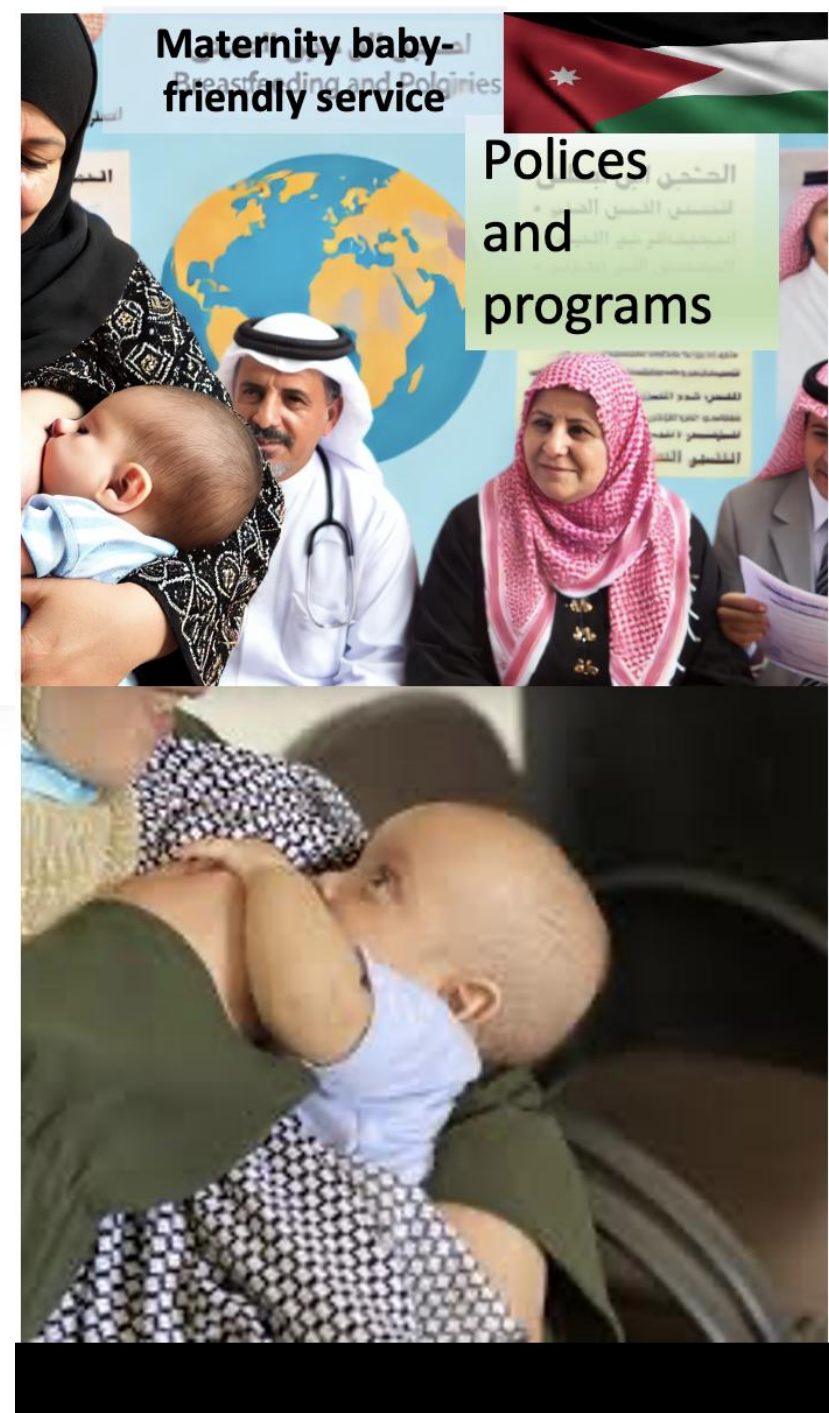
Eman Badran

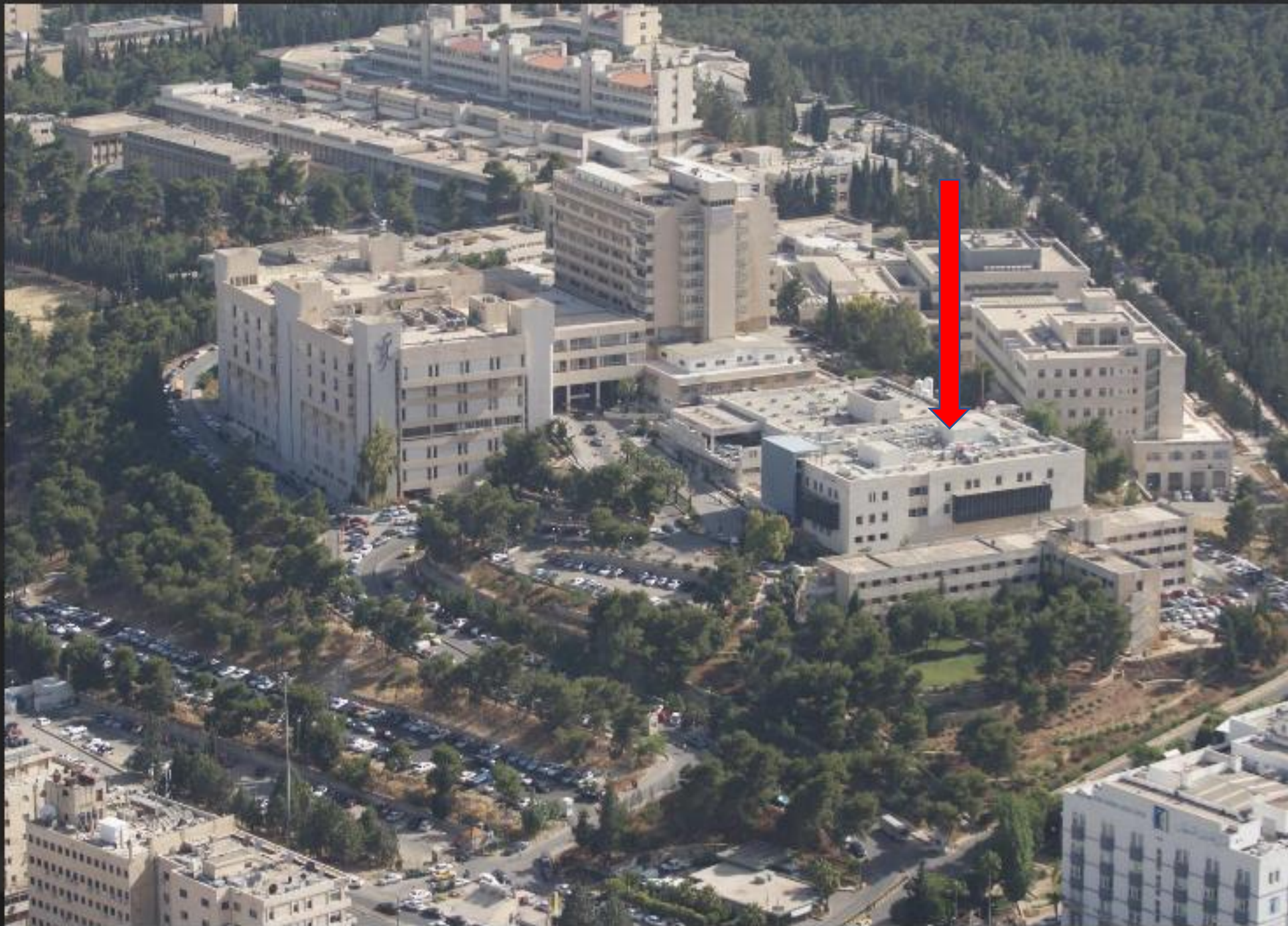
Professor of Pediatrics

Director of neonatal –perinatal Division

Director of the Neonatal-Perinatal fellowship
program .

University of Jordan





Acrcdited Neonatal Felowship program



Support Nutrition 30 Bed NICU

BFH (Accredited three times) Pending 4th (last week of October 2025)



Breast feeding Counselors

12 certified trained Breastfeeding counselor At JUH



Objectives

Infant and Young Child Feeding Situation in Jordan

Why? What influence caregiver's infant feeding practices?

Relevant National breastfeeding policies and programs

Health facility practices: Implementing the Baby-Friendly Hospital Initiative (BFHI)

Why breastfeeding is important

Normal growth and nutritional needs of breastfeeding infants
- Components of Breast Milk

Section 1

Infant and Young Child Feeding Situation in Jordan

Breast feeding trend In Jordan

Percentages of surviving children breast-fed at various ages in Jordan **1976-1980**

BREAST-FEEDING PATTERNS AND DETERMINANTS IN JORDAN

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September 7, 1984

- National sample of women
- Surveyed by the government of Jordan WFP
- Collect data only for last 2 birth)
- Sample **3212** child
 - Born 4 years preceding the interview.
 - 1976-1980)

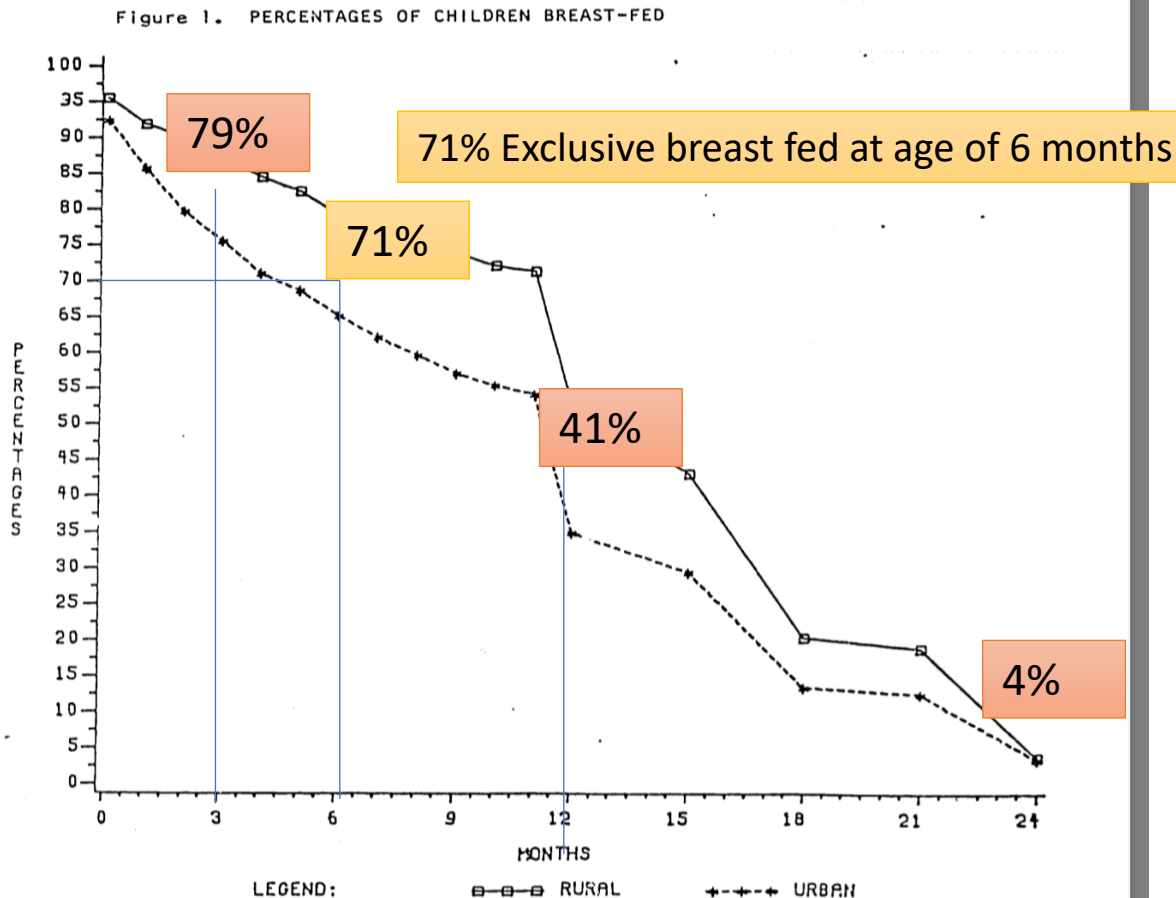
Place of residence

There was significant difference in the percentage of children even breast-fed in urban and rural areas after first months (

Akin JS, Bilsborrow RE, Guilkey DK, Popkin BM.
Breast-feeding patterns and determinants in Jordan
1984

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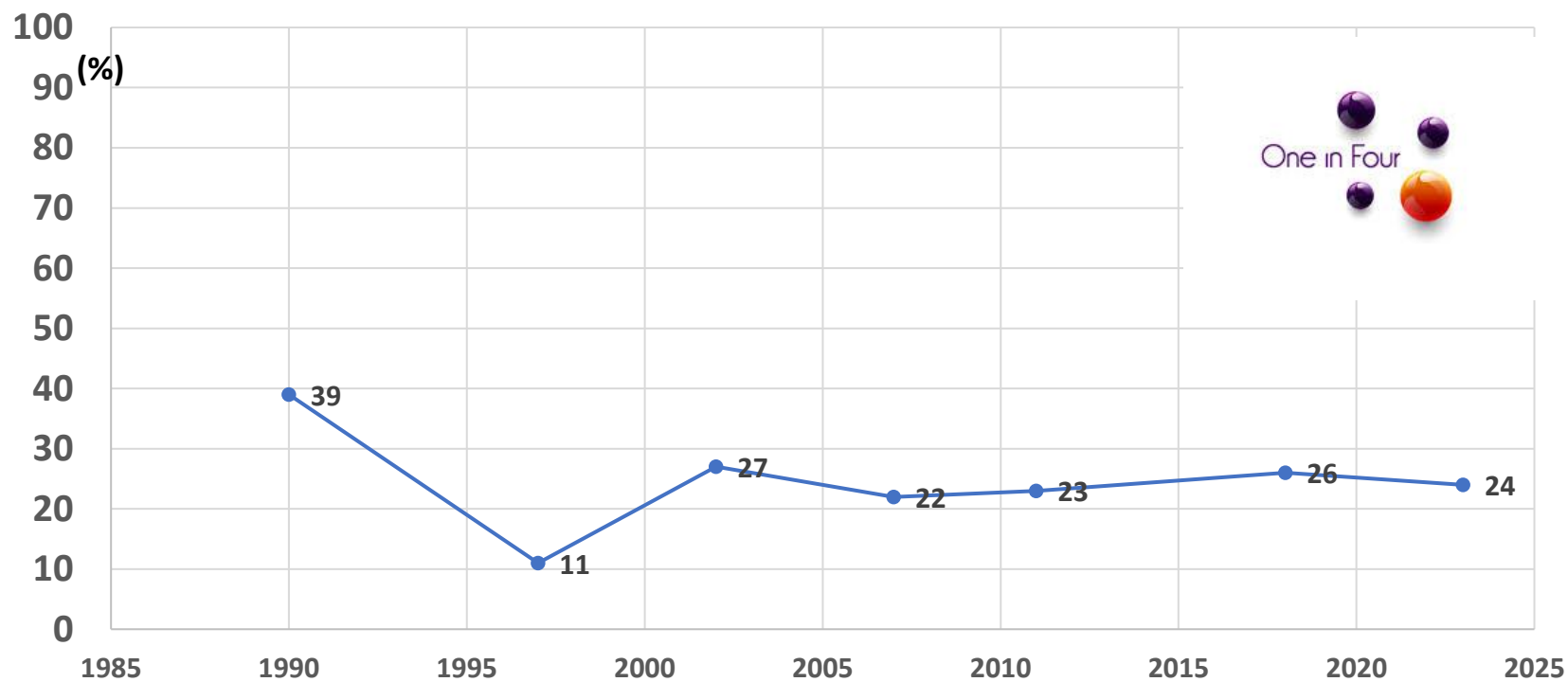
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Exclusive Breastfeeding

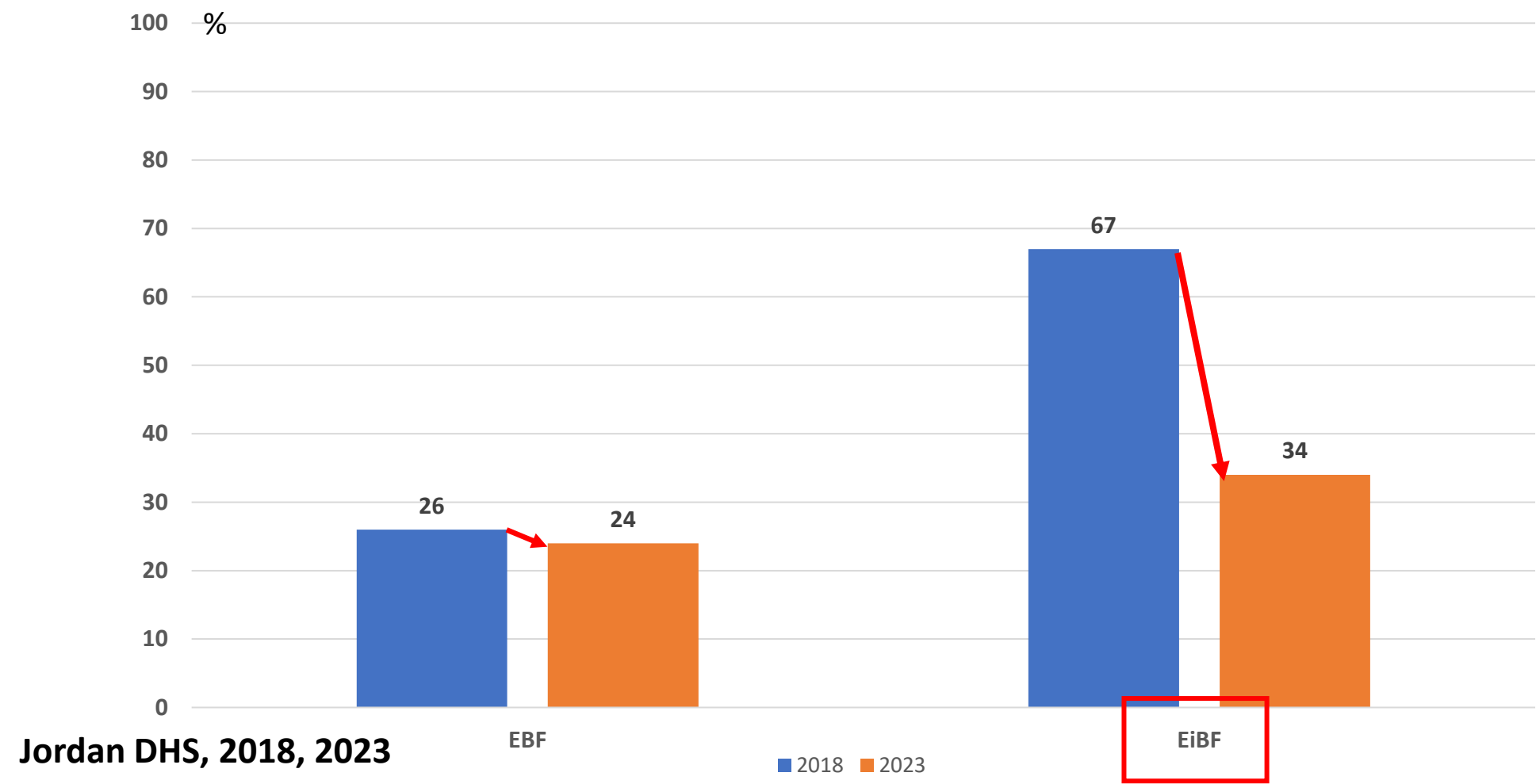
- National prevalence **24%**.

EBF(%) 1990 to 2023



Jordan DHS, 2023

Breastfeeding practices in Jordan (2023 vs.2018)



EiBF: Early Initiation of Breastfeeding, EBF: Exclusive Breastfeeding

Why? What influence caregiver's infant feeding practices?

Breastfeeding Islamic Practices

According to the Qur'an. (Islam's
holy book)

ISLAM RELIGION VIEW OF BREASTFEEDING



Muslims see breastfeeding as
the God (Allah) **given right of the child**
according to the rules of Shariah
(Islamic Law).



وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَدَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ
أَرَادَ أَنْ يُتِمَّ الرَّضَاعَةَ وَعَلَى الْمَوْلُودِ لَهُ رِزْقُهُنَّ وَكِسْوَتُهُنَّ
بِالْمَعْرُوفِ لَا تُكَلَّفُ نَفْسٌ إِلَّا وُسْعَهَا لَا تُضَارَّ وَالِدَةٌ بِوَلَدِهَا وَلَا

﴿وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَادَهُنَّ حَوْلَيْنِ كَامِلَيْنِ
لِمَنْ أَرَادَ أَنْ يُتِمَّ الرَّضَاعَةَ﴾

وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَدَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَنْ يُنْمِيَ الرِّضَاعَةَ وَعَلَى الْمَوْلُودِ لَهُ رِزْقُهُنَّ وَكِسْوَتُهُنَّ بِالْمَعْرُوفِ لَا تُكَلَّفُ نَفْسٌ إِلَّا وُسْعَهَا لَا تُضَارَّ وَالِدَةٌ بِوَلَدِهَا وَلَا

Breastfeeding Islamic Practices

- **WET NURSING AND ADOPTION**

Wet nursing is known practice in Islam

Mother and the father can mutually agree to let a wet nurse feed the child.

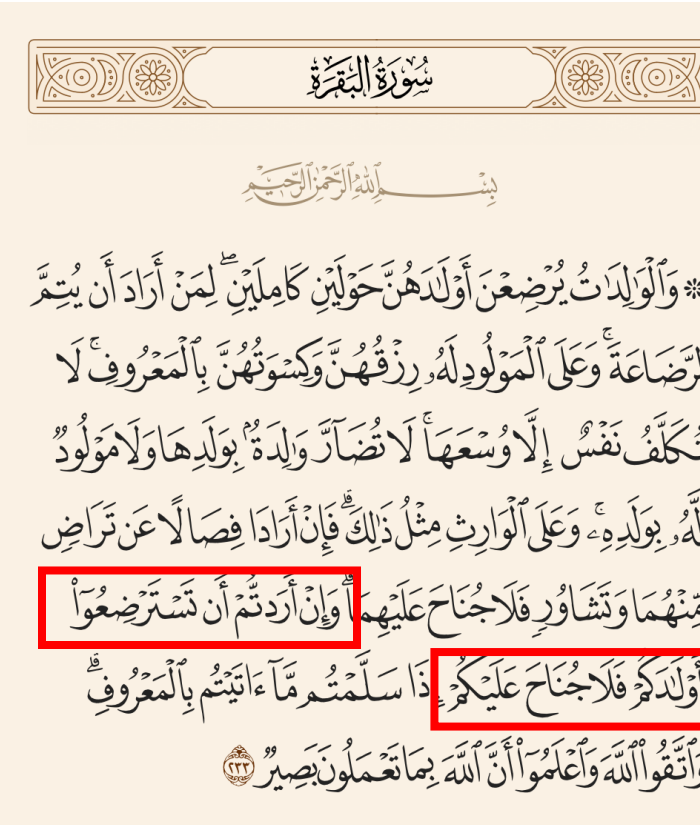
milk-siblings

Children who have been regularly breastfed (three to five or more times) by the same woman are considered milk-siblings”

“they are prohibited from marrying each other



This demonstrate
feeding the baby
substitutes) as m



Breastfeeding Islamic Practices

THE ISLAMIC FATHER'S ROLE

The give support (father) to provides moral support and encouragement

calls on sponsor (fathers) to support the child's nursing by providing food and clothing for the child's mother for two years,

HE (father) must find an alternative milk source and pay the compensation in kindness (لتعويض بالمعروف) if the baby's mother does not breastfeed.

تعويض عادل،

يتم بروح من الاحترام والإنصاف

ويتماشى مع العرف الاجتماعي والظروف القائمة.

سُورَةُ الْبَقَرَةِ

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

* وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَدَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَنْ يُتِمَّ
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لَهُ بِوَلَدِئِهِ وَعَلَى الْوَارِثِ مِثْلُ ذَلِكَ فَإِنْ أَرَادَا فِصَالًا عَنْ تَرَاضٍ
مِنْهُمَا وَتَشَاوُرٍ فَلَا جُنَاحَ عَلَيْهِمَا وَإِنْ أَرَدْتُمْ أَنْ تَسْتَرْضِعُوا
أَوْلَادَكُمْ فَلَا جُنَاحَ عَلَيْكُمْ إِذَا سَلَّمْتُمْ مَا آتَيْتُمْ بِالْمَعْرُوفِ
وَاتَّقُوا اللَّهَ وَاعْمَلُوا أَنْ اللَّهَ بِمَا تَعْمَلُونَ بَصِيرٌ ﴿٢٣٣﴾



- **DO BREASTFEEDING MOTHERS NEED TO FAST DURING RAMADAN**
- Those with sound excuses are exempt from fasting

Why? What influence caregiver's infant feeding practices?

1- Knowledge, Attitude, and Practice of mothers towered Breastfeeding

1. Knowledge, Attitude, and Practice of Breastfeeding Among Working Mothers in South Jordan

A 2017 cross sectional survey conducted among 344 working mothers in South Jordan(.

Knowledge, Attitude :

working mothers **have satisfactory knowledge of and positive attitudes toward breastfeeding**

Practice :

For 30% of respondents, work-related factors were the cause of premature cessation

1.Altamimi E, Al Nsour R, Al Dalaen D, Almajali N. Knowledge, Attitude, and Practice of Breastfeeding Among Working Mothers in South Jordan. Workplace health & safety. 2017;65(5):210-218.

2. Traditional practices related to breastfeeding and infant care

A qualitative study of mothers and grandmothers in Amman, Zarqa, Salt, and Karak,

**Colostrum is insufficient
to meet newborn's
needs**

**Avoided breastfeeding
in the first 2 days**

**Honey and fenugreek at
first feed**

**Milk insufficiency
or
“milk expiry or
impurity”**

Anise and water

**Herbal remedies
Traditional massage
Foods**

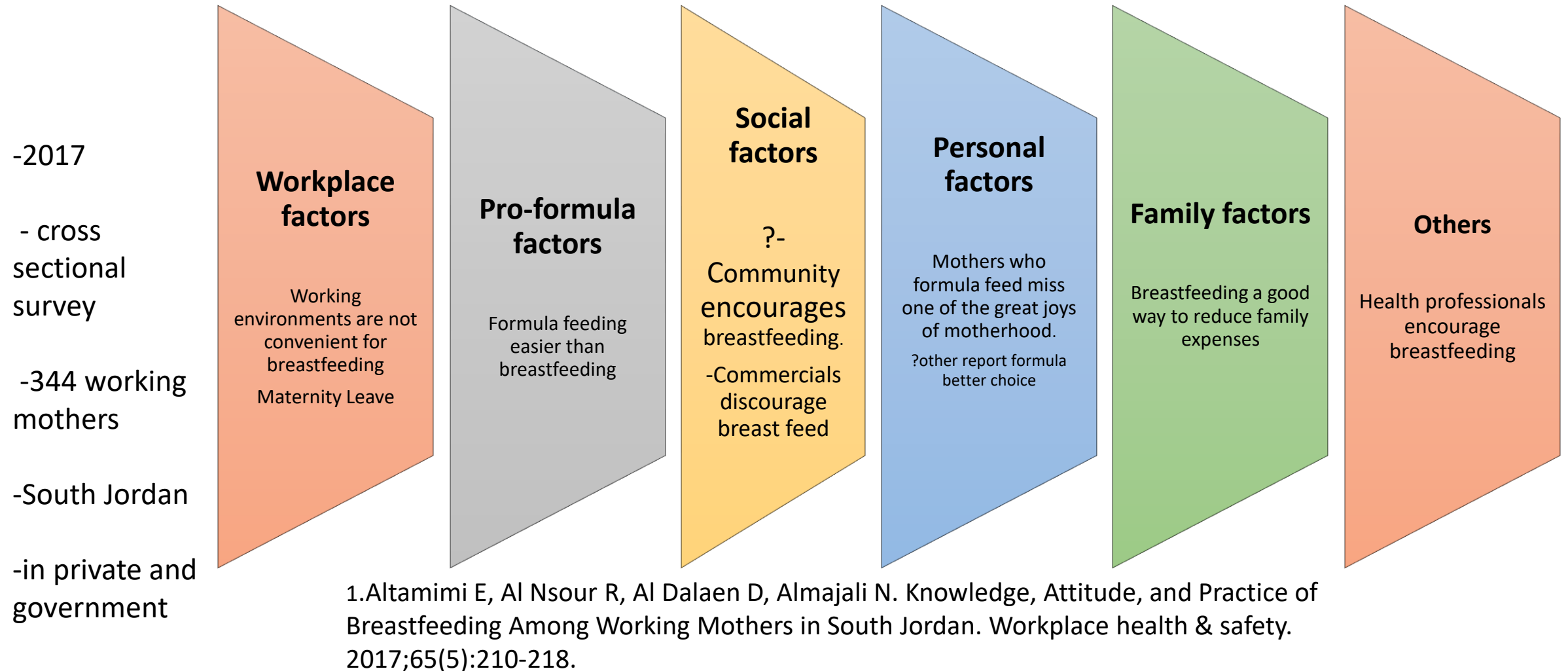
2. Arabiat DH, Whitehead L, Al Jabery MA, Darawad M, Geraghty S, Halasa S. Newborn Care Practices of Mothers in Arab Societies: Implication for Infant Welfare.

Journal of transcultural nursing : official journal of the Transcultural Nursing Society. 2019;30(3):260-267.

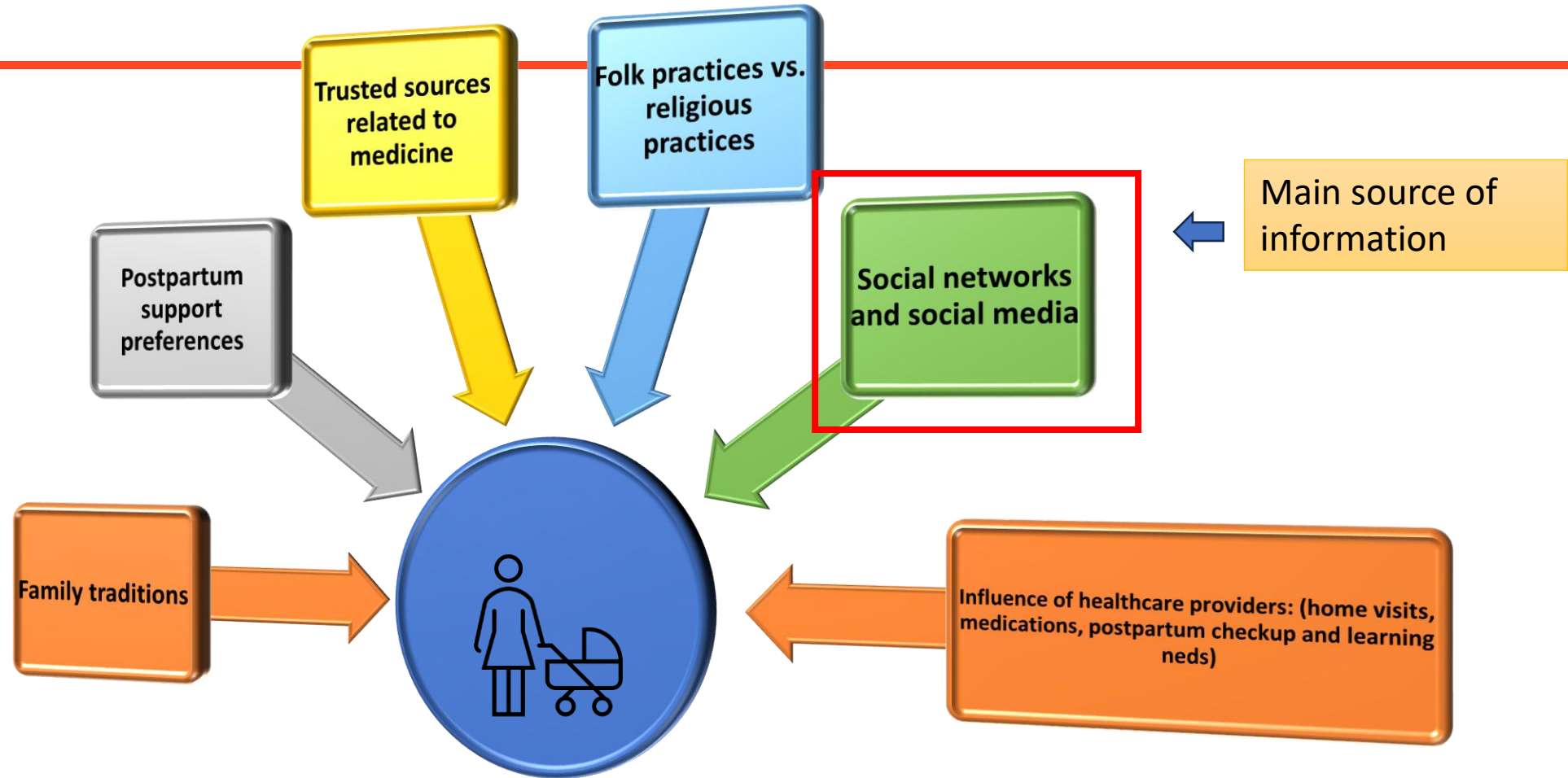
3. Arabiat DH, Whitehead L, Al Jabery M, Towell-Barnard A, Shields L, Abu Sabah E. Traditional methods for managing illness in newborns and infants in an Arab society. International nursing review. 2019;66(3):329-337.

1. Knowledge, Attitude, and Practice of Breastfeeding Among Working Mothers in South Jordan

(why cessation of Breast feeding?)



3.Sources of infant feeding information



Arabiat DH, Whitehead L, Al Jabery MA, Darawad M, Geraghty S, Halasa S. Newborn Care Practices of Mothers in Arab Societies: Implication for Infant Welfare. *Journal of transcultural nursing : official journal of the Transcultural Nursing Society.* 2019;30(3):260-267.

Arabiat DH, Whitehead L, Al Jabery M, Towell-Barnard A, Shields L, Abu Sabah E. Traditional methods for managing illness in newborns and infants in an Arab society. *International nursing review.* 2019;66(3):329-337.

Shaban IA, Al-Awamreh K, Mohammad K, Gharaibeh H. Postnatal women's perspectives on the feasibility of introducing postpartum home visits: a Jordanian study. *Home health care services quarterly.* 2018;37(3):247-258.

Al-Sawalha NA, Tahaine L, Sawalha A, Almomani BA. Medication Use in Breastfeeding Women: A National Study. *Breastfeeding medicine : the official journal of the Academy of Breastfeeding Medicine.* 2016;11:386-391.

Almalik MM. Understanding maternal postpartum needs: A descriptive survey of current maternal health services. *Journal of clinical nursing.* 2017;26(23-24):4654-4663.

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Relevant National breastfeeding policies and programs

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Section 2

Relevant National breastfeeding policies and programs

Relevant National breastfeeding policies and programs

Area	Instrum ent	Article	Highlights
Maternity Leave	Labor	67	Unpaid leave for a period not exceeding one year
Maternity Leave	Civil Service Bureau ديوان الخدمة المدنية 2025	11	Maternity leave for a period of 90 consecutive days of fully paid maternity leave, with at least six weeks (42 days) following childbirth.

Continued... Relevant National breastfeeding policies and programs

Area	Instrument	Article	Highlights
Breastfeeding Break (sum or divided)	Labor	70	Obtain within a year of the date of delivery, a period or periods not exceeding one hour in total per day with pay for the purpose of nursing her newborn
Role of the Ministry of Health in preventing the marketing of infant formula	Public health law (2008) قانون الصحة العامة	4	Encouraging and promoting breastfeeding for children
BMS Code	62/2015 انون تسويق بدائل حليب الأم		Regulating the promotion of BMS in Jordan



نظام ضبط تسويق بدائل حليب الأم لسنة 2015

Just to Know about it

International Breast Milk Substitutes (BMS) Code

What is the Code of Marketing of Breastmilk Substitutes ?

- The Code is a code of **marketing**.
- The code **aims to protect and promote breastfeeding by** ensuring appropriate marketing and distribution of breastmilk substitutes .
- Code **applies to breastmilk substitutes**, when marketed or otherwise represented as a partial or total replacement for breastmilk.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 1

يسمى هذا النظام (نظام ضبط تسويق بدائل حليب الأم لسنة 2015) ويعمل به من تاريخ نشره في الجريدة الرسمية.

المادة 2

يكون للكلمات والعبارات التالية حيثما وردت في هذا النظام المعاني المخصصة لها أدناه، ما لم تدل القرينة على غير ذلك:-

- الوزارة: وزارة الصحة.
- الوزير: وزير الصحة.
- بدائل حليب الأم: الحليب أو المنتج الغذائي الذي يسوق أو يعرض بأي شكل على أنه بديل جزئي أو كلي لحليب الأم للطفل الرضيع دون السنة وتشمل المنتجات المنصوص عليها في المادة (3) من هذا النظام.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

تتمة ... المادة 2

- **التسويق:** استعمال أي وسيلة اعلان مرئية أو مسموعة أو مقروءة، أو أي مجسم أو أي وسيلة لعرض المذكرات أو الإرشادات أو بطاقات التعريف أو صفائح العرض أو الصور أو الأفلام أو البضائع بأي صورة للإعلان عن بدائل حليب الأم أو الترويج لها أو توزيعها أو بيعها بطريقة مباشرة أو غير مباشرة لتشجيع الشخص على شراء هذه البدائل أو استعمالها.
- **اللجنة الفنية:** اللجنة المشكلة وفقاً لاحكام المادة (12) من هذا النظام.
- **لجنة المتابعة:** اللجنة المشكلة وفقاً لاحكام المادة (13) من هذا النظام.
- **الموزع:** الشخص الطبيعي أو المعنوي الذي يسوق أو يوزع بدائل حليب الأم.
- **بطاقة التعريف:** البطاقة أو السمة أو العلامة أو الصورة أو المادة الوصفية أو المكتوبة أو المطبوعة أو الملصقة أو المعلقة لأي من بدائل حليب الأم.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 3

أ- تعتبر أي من بدائل حليب الأم أي من المنتجات التالية :-

- 1- تركيبة حليب الرضع.
- 2- أغذية الرضع.
- 3- حليب المتابعة للرضع.
- 4- التركيبة الخاصة لتغذية الرضع.
- 5- الأغذية التكميلية للرضع.

ب- للوزير بناءً على تنسيب اللجنة الفنية إضافة أي منتج الى المنتجات المنصوص عليها في الفقرة (أ) من هذه المادة.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 4

أ- مع مراعاة ما ورد في المادة (35) من قانون الدواء والصيدلة والتشريعات ذات العلاقة يحظر القيام بأي مما يلي:-

1- التسويق لأي من بدائل حليب الأم في أي مكان بما في ذلك الجهات التي تهتم أو تعمل بصورة مباشرة أو غير مباشرة بالرعاية الصحية للأمهات والرضع والحوامل والمنظمات والجمعيات ودور الحضانه ومؤسسات رعاية الأطفال والمؤسسات الصيدلانية والمحلات التجارية والمستشفيات والمراكز الصحية.

2- استخدام مراكز البيع لتوزيع عينات، أو كوبونات خصم أو جوائز أو هدايا أو عروض بيع خاصة لأي من المنتجات.

ب- يحظر على المنتجين والموزعين لأي من بدائل حليب الأم تقديم أية هدايا أو مواد أو أدوات أو عينات مجانية الى الحوامل أو أمهات الرضع وصغار الأطفال أو لأي من العاملين في المجال الصحي أو أعضاء أسرهم لغايات تسويق منتجاتهم.

ج- للوزير بناء على تنسيب اللجنة الفنية منع أي وسيلة إعلان أو تسويق لم يرد النص عليه في هذا النظام.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 5

• يجب أن تحتوي مواد الإعلام والتثقيف والتي يقصد منها أن تصل إلى الحوامل وأمهات الرضع وصغار الأطفال على المعلومات التالية:-

- أ- فوائد الرضاعة الطبيعية ومزاياها مقارنة بالرضاعة غير الطبيعية.
- ب- أهمية تغذية الأمهات وتشجيعهن على الرضاعة الطبيعية والاستمرار فيها.
- ج- الآثار السلبية لتغذية الرضع التكميلية مقارنة مع الرضاعة الطبيعية.
- د- الاستعمال الصحيح لأغذية الرضع سواء كانت مصنعة أو محضرة منزلياً عند الحاجة لها.
- هـ- المخاطر الصحية الناجمة عن الأغذية أو أساليب التغذية غير الملائمة وعن الاستعمال غير السليم أو غير الضروري لأي من بدائل حليب الأم.
- و- الآثار الاجتماعية والمالية المترتبة على استعمال أي من بدائل حليب الأم.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 6

- يجوز في حالات خاصة ومبررة وبموافقة الوزير بناء على تنسيب اللجنة الفنية قبول الهبات أو المعدات أو المنتجات بأسعار مخفضة لأي من بدائل حليب الأم من المنتجين أو الموزعين، بشرط أن يتم توزيعها بإشراف الوزارة.

المادة 7

- يجب الحصول على الموافقة المسبقة من الوزير المستندة إلى تنسيب لجنة المتابعة لأي مادة إعلانية أو تثقيفية يقدمها المنتجون أو الموزعون لأي عامل في المجال الصحي لأي من بدائل حليب الأم بحيث تتفق مع الحقائق العلمية والعملية الموثقة لها.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 8

- يحظر على العاملين في التسويق بصفقتهم الوظيفية القيام بأي اتصال مباشر أو غير مباشر ومهما كان نوعه بالحوامل أو أمهات الرضع وصغار الأطفال.

المادة 9

- يجب أن يحصل العامل في المجال الصحي على موافقة الوزير لحضور أي نشاط يعرض عليه من شركة، أو منتج، أو موزع، أو غيره لأي من المواد والمنتجات التي يستلمها هذا النظام مثل حضور مؤتمرات وغيرها.

المادة 10

- في الحالات التي يجوز فيها استعمال أي من بدائل حليب الأم، على العاملين في المجال الصحي والمدربين شرح طريقة الاستعمال السليم للأمهات لأي من بدائل حليب الأم على أن يتضمن هذا الشرح مخاطر الاستعمال غير السليم لها.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 11

يجب أن تحتوي كل عبوة لأي من بدائل حليب الأم على:

أ. بطاقة تعريف واضحة ومقروءة ومفهومة ومطبوعة باللغة العربية وفي مكان يتطابق مع المواصفات القياسية الأردنية.

ب. إشارة إلى الفوائد الطبيعية.

نظام ضبط تسويق بدائل حليب الأم لسنة 2015

المادة 14

- يعاقب كل من يخالف أحكام هذا النظام بالعقوبات المنصوص عليها في قانون الصحة العامة.

المادة 15

- للوزير تفويض أي من صلاحياته المنصوص عليها في هذا النظام لأمين عام الوزارة أو أي من موظفي الوزارة المختصين على أن يكون التفويض خطياً ومحددًا.

المادة 16

- يصدر الوزير التعليمات اللازمة لتنفيذ أحكام هذا النظام.

International Breast Milk Substitutes (BMS) Code

Summary of the Main Points of the International Code – 1

- **No** advertising of breastmilk substitutes and other products to the public.
- **No** free samples to mothers.
- **No** promotion in healthcare facilities, including no free or low-cost supplies.
- **No** company personnel to contact mothers.
- **No** gifts or personal samples to health workers. Health workers should never pass samples on to mothers.

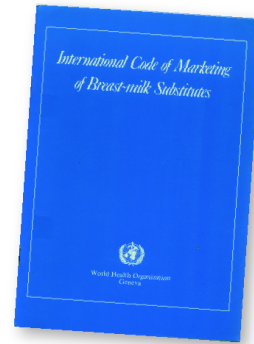


Chart 2/5

Summary of the Main Points of the International Code – 2

- **No** pictures of infants, or other words or pictures idealising artificial feeding, on the labels of the products.
- Information to health workers should be restricted to scientific and factual matters.
- Information on artificial feeding should explain the benefits and superiority of breastfeeding and the costs and dangers associated with artificial feeding.
- Unsuitable products, such as sweetened condensed milk, should not be promoted for babies.

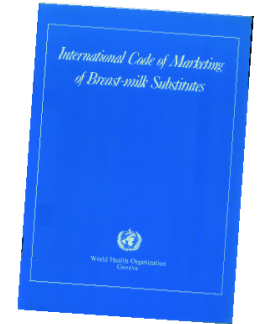


Chart 2/6



Objectives

Infant and Young Child Feeding Situation in Jordan

Why? What influence caregiver's infant feeding practices?

Relevant National breastfeeding policies and programs

Health facility practices: Implementing the Baby-Friendly Hospital Initiative (BFHI)

Why breastfeeding is important

Normal growth and nutritional needs of breastfeeding infants
- Components of Breast Milk

**Health facility practices:
Implementing the
Baby-Friendly Hospital Initiative (BFHI)**



Accreditation

Ministry of Health Royal Medical Services University Private

No.	Logo	Hospital Name	Governarate	Sector	Date of Certification	Level of Certification
1		Al Karak Governmental Hospital	Karak	Governmental	6-December-2021	Platinum
2		Al Bashier Hospital	Amman	Governmental	11-January-2022	Platinum
3		Al Mafraq Gynecology and Pediatric Hospital	Mafraq	Governmental	2-October-2022	Platinum
4		Zarqa New Governmenal Hospital	Zarqa	Governmental	20-September-2022	Platinum
5		Al Ghour Al Safi Hospital	Karak	Governmental	2-October-2022	Platinum

HCAC Accredited Ambulatory Centers

HCAC Certified Baby Friendly Hospitals

Ministry of Health Royal Medical Services University Private

No.	Logo	Hospital Name	Governarate	Sector	Date of Certification	Level of Certification
1		Specialty Hospital	Amman	Private	6-December-2021	Platinum
2		Istiqlal Hospital	Amman	Private	20-September-2022	Platinum
3		ROYAL HOSPITAL	Amman	Private	20-September-2022	Platinum

2024: 13 health facility are Baby friendly Hospitals

HCAC Accredited Ambulatory Centers

HCAC Certified Baby Friendly Hospitals

Ministry of Health Royal Medical Services University Private

No.	Logo	Hospital Name	Governarate	Sector	Date of Certification	Level of Certification
1		KING HUSSEIN HOSPITAL	Amman	Military	20-September-2022	Gold
2		Prince Hashem Bin Abdulla ii Hospital	Aqaba	Military	20-September-2022	Platinum
3		prince zaid bin alhussein military hospital	Tafila	Military	20-September-2022	Platinum

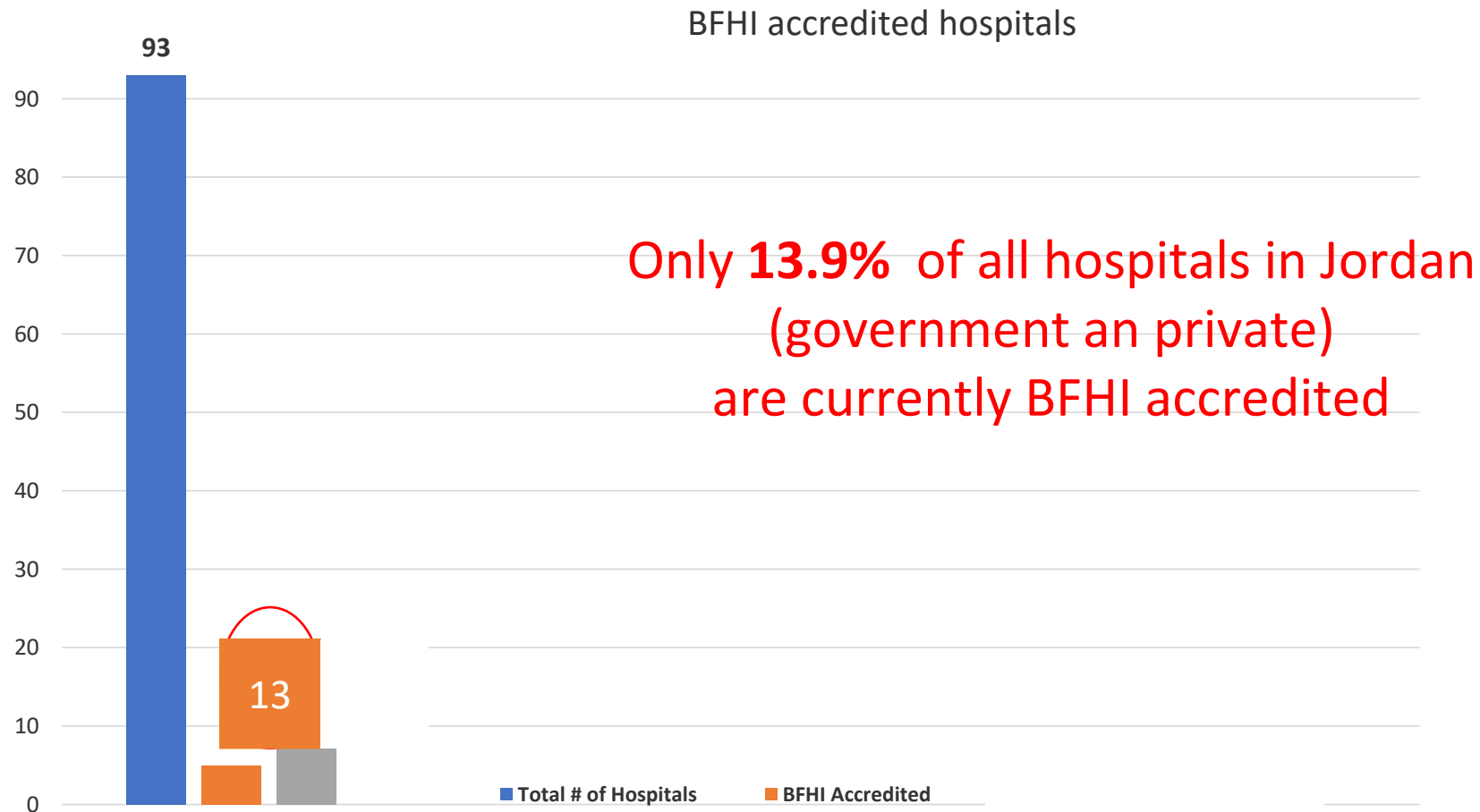
HCAC Accredited Ambulatory Centers

HCAC Certified Baby Friendly Hospitals

Ministry of Health Royal Medical Services University Private

No.	Logo	Hospital Name	Governarate	Sector	Date of Certification	Level of Certification
1		Jordan University Hospital	Amman	University	6-December-2021	Platinum
2		King Abdullah University Hospital	Irbid	University	2-October-2022	Gold

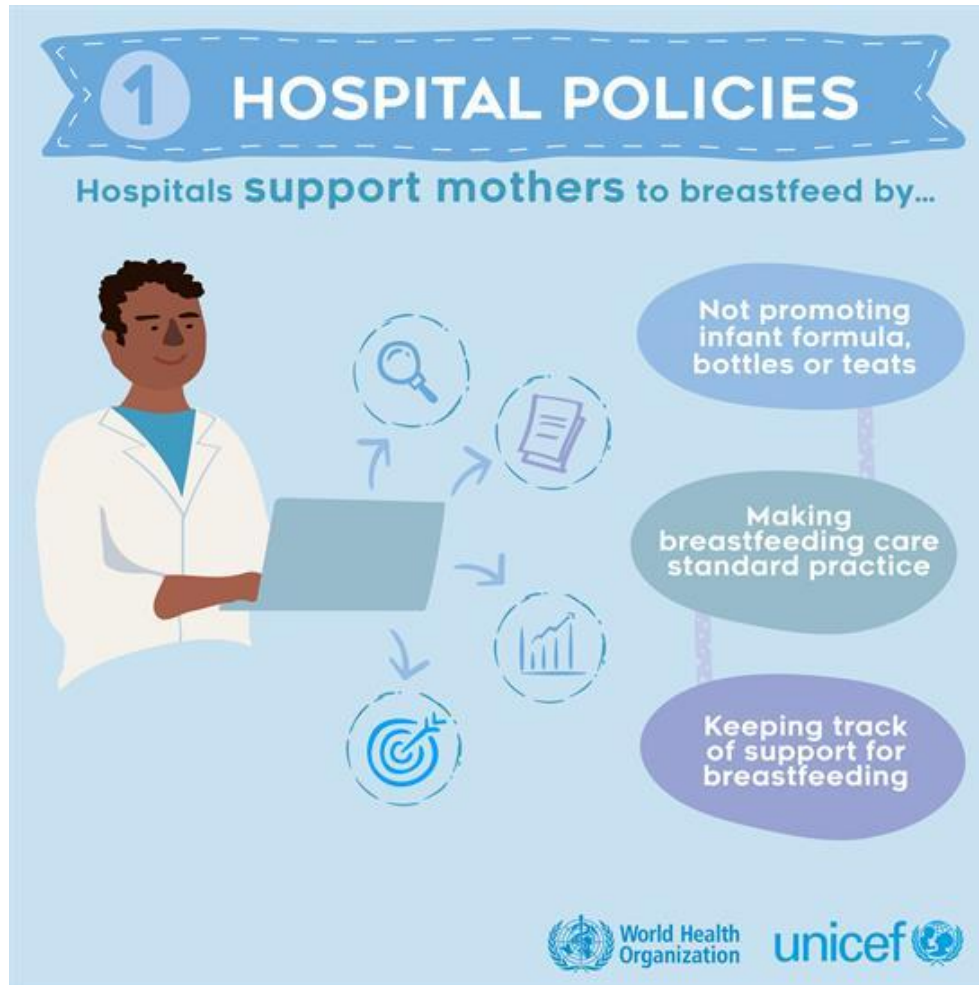
The Baby Friendly Hospital Initiative in Jordan (2024)



HCAC, 2024



Step 1 (applied to be BFH)



This is not just for hospitals, but it should apply to all health facilities including lactation/breastfeeding counseling clinics and areas

Step 2 (applied to be BFH)



All staff providing breastfeeding and lactation counseling services should receive appropriate and frequent training to support pregnant women and mothers of children under 2 years of age

Step 3 Antenatal counseling



Step3 cont...

Antenatal Care (ANC) topic: Importance and management of breastfeeding

- Counsel **all pregnant** women and show you want to help them
- Counsel young women or those having first baby
- Counsel all women at **least twice antenatally** about breastfeeding
- Remember: Antenatal breast preparation is not necessary



Step 3 (applied to be BFH)



Step 4 (applied to be BFH)



Early Initiation of Breastfeeding : Benefits

skin-to-skin contact after delivery provides benefits:

1. **regulate the body temperature** of newborns
2. Allows their bodies to be populated with **beneficial bacteria** from their mother's skin.
3. **is strongly predictive of future exclusive breastfeeding. (only breast feeding first 6 months)**

Step 5 (applied to be BFH)



Step 6 (applied to be BFH)



Step 7 (applied to be BFH)



Step 8 (applied to be BFH)



Step 9 (applied to be BFH)



Step 10 (applied to be BFH)



References:

1. The International Code of Marketing of Breast-milk Substitutes: Frequently Asked Questions (2017 Update), Geneva, Switzerland, World Health Organization; 2017. License: CC BY-NCSA 3.0 IGO.
2. نظام ضبط تسويق بدائل حليب الام/قانون الصحة العامة (47) سنة (2008)
3. Baby-friendly Hospital Initiative training course for maternity staff: trainer's guide. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2020. License: CC BY-NC-SA 3.0 IGO
4. WHO/UNICEF Baby Friendly Hospital Initiative, infographics. Available from: <https://www.who.int/teams/nutrition-and-food-safety/food-and-nutrition-actions-in-health-systems/ten-steps-to-successful-breastfeeding>

Objectives

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Normal growth and nutritional needs of breastfeeding infants

- Components of Breast Milk

Why breastfeeding is important

“Human breastmilk is thus

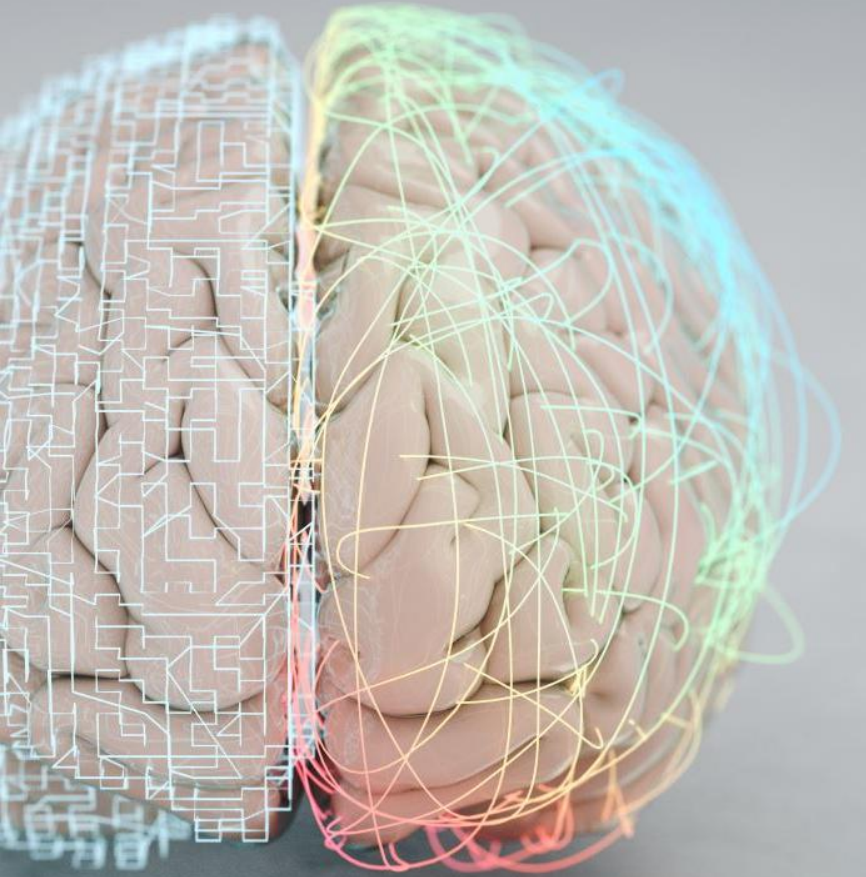
- ❖ A perfectly adapted nutritional supply for the infant**
- ❖ specific personalized medicine**

Lancet series 2016(Simon Murch)

Maternal Advantages of Breastfeeding as determined by the AHRQ*

Mother Outcomes	Reduction in Relative Risk
Return to pre-pregnancy weight	Yes, but not clear value
Maternal type 2 diabetes	2%-12%
Osteoporosis	Unclear
Postpartum depression	Too few studies
Breast cancer	28% for 12 or more months (4.3% for each year of breastfeeding)
Ovarian cancer	21%

*AHRQ- Agency for Healthcare Research and Quality



Cognitive Development

- Rapid brain growth in the first 1000 days of life.
- Breastfed infants score higher on cognitive and intelligence tests.
- Has Long-term benefits on IQ, educational attainment, and income.



Mechanisms of Cognitive Benefits

- **Essential Fatty Acids** in Breast Milk : DHA and arachidonic acid support brain structure and function.
- **Sphingolipids** in Breast Milk: Support axonal maturation and brain network development.
- **Sialic Acid** in Breast Milk: Facilitates cell-to-cell interactions, neuronal growth, and memory formation.
- **Maternal-infant interaction** :
 - higher scores in memory function

The economic case for investing in breastfeeding

Economic gains:

US\$302 billion/year

(0.47% of global GNI)

Due to **increased productivity**
associated with **higher intelligence**

Estimated health benefits: **Reduced annual healthcare costs totaling nearly \$400 million** in the U.S., UK, Brazil and urban China

Lancet, 2016

	Estimated percentage loss in gross national income	Estimated loss in 2012 US\$
Eastern and southern Africa	0.04%	\$0.1 billion
West and central Africa	0.06%	\$0.3 billion
Middle East and north Africa	0.97%	\$11.8 billion
South Asia	0.05%	\$1.0 billion
East Asia and Pacific	0.31%	\$28.1 billion
Latin America and the Caribbean	0.39%	\$12.1 billion
Eastern Europe and central Asia	0.75%	\$17.6 billion
Subtotal (low-income and middle-income countries)	0.39%	\$70.9 billion
High-income countries	0.53%	\$231.4 billion
World	0.49%*	\$302.0 billion (total estimated loss)

Estimates are based on data for 96 countries (of 197 countries in the UNICEF's 2014 database).⁹¹ For details about data and included countries, and country-level results, see appendix pp 115–16. *Global average, weighted by gross national income.

Table 2: Estimated economic losses from cognitive deficits associated with regional infant feeding practices compared with every infant breastfeeding until at least 6 months of age.

Duration of Breast feeding

**Breastfeeding
Promotion:** Exclusive
breastfeeding for
the first six months.

Continued
breastfeeding with
solid foods until at
least 24 months.

Section 4

Normal growth and nutritional needs of breastfeeding infants

Continued... Normal Growth (2)

1. Bottle-fed infants gain more rapidly in weight and length during the first months of life than do breastfed infants.
1. These differences were attributed to caloric intake rather than the difference in composition of the diet.

Lawrence, Breastfeeding: A guide for medical professionals, 2021

**What is the daily expected weight increase
for a normal child?**

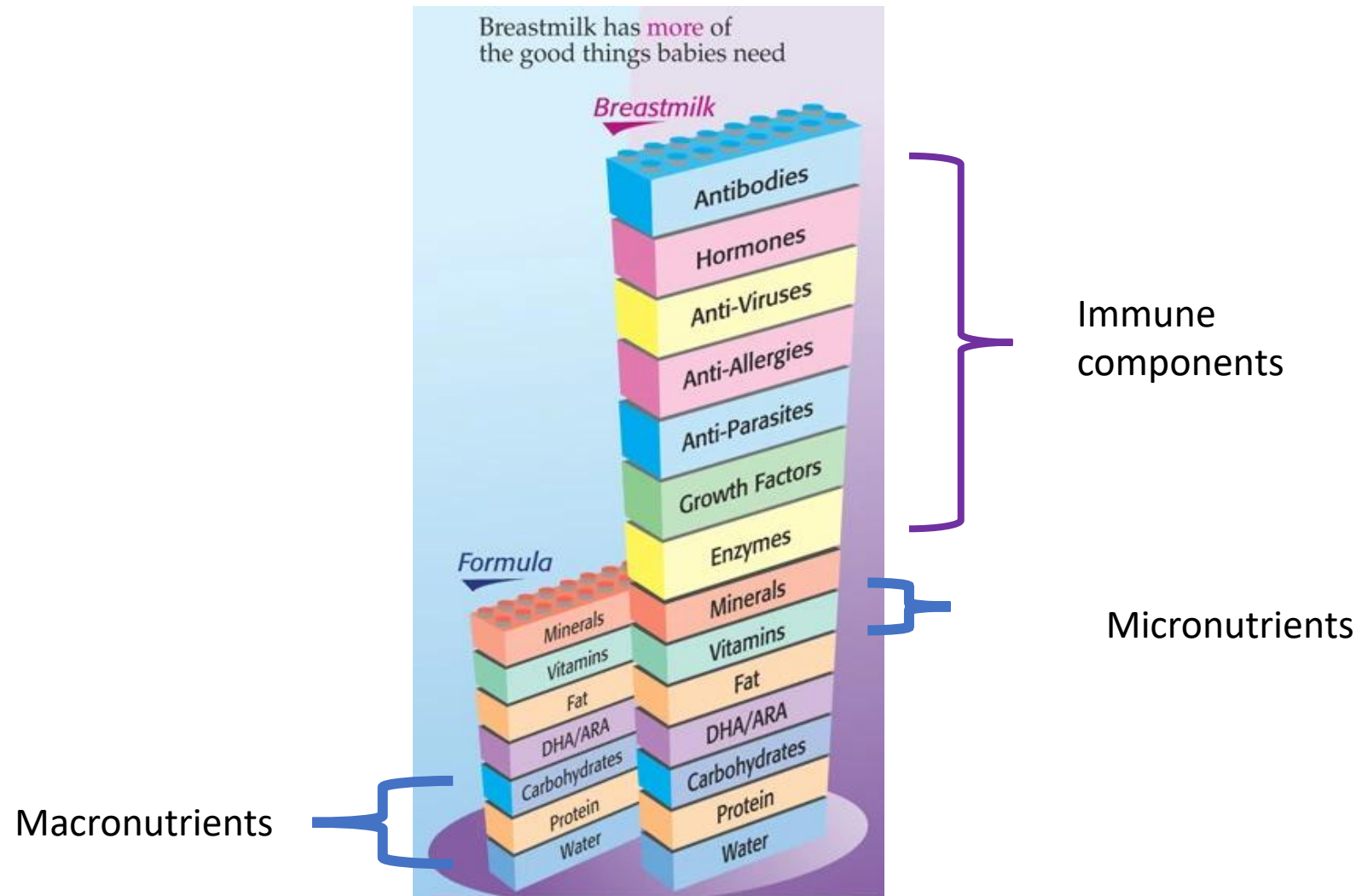
Daily Weight Gain and Recommended Allowances

Age (mo)	Median Daily Weight Gain (g)	Recommended Daily Allowance (kcal/kg/day)
0-3	26-31	108
3-6	17-18	108
6-9	12-13	98
9-12	9	98

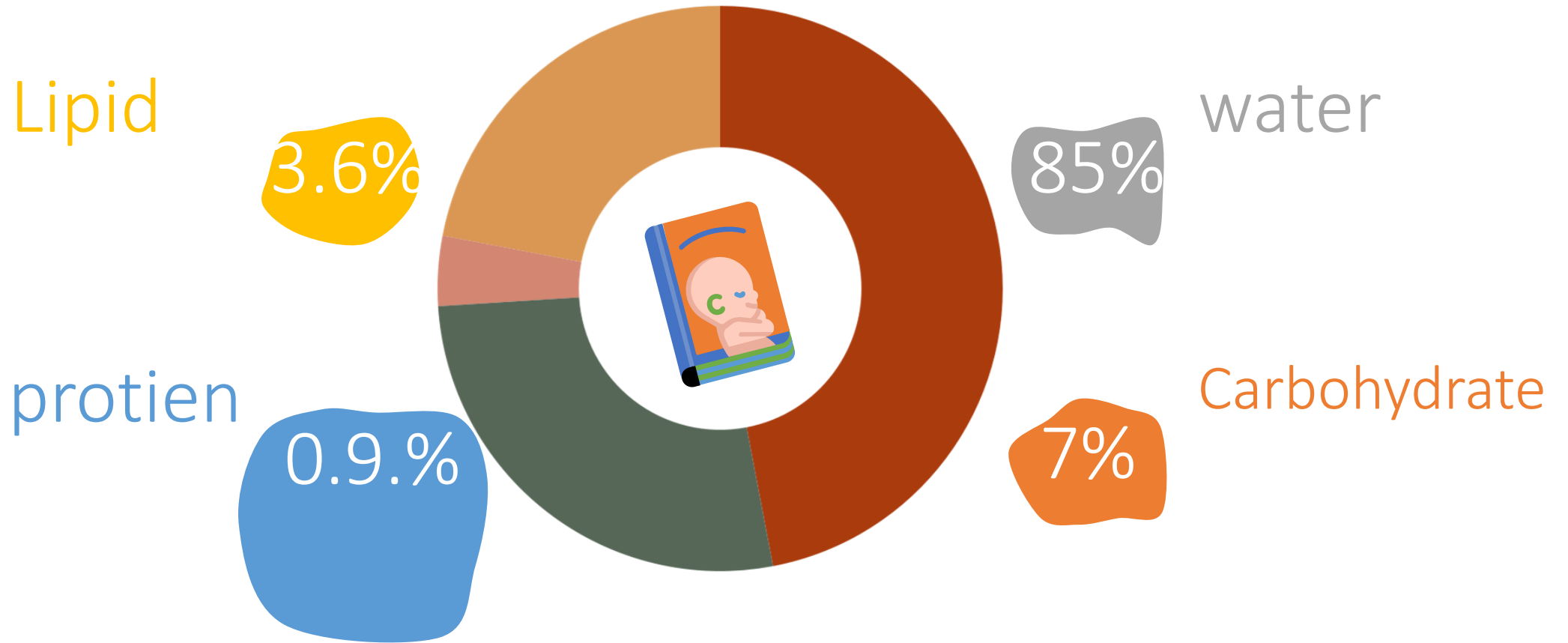
National Research Council, Food and Nutrition Board, National Academy of Sciences: *Recommended dietary allowances*, ed 10, Washington, D.C., 1989, US Government Printing Office

Section 5

Components of Breast Milk

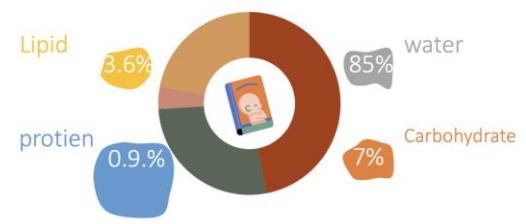


Human milk Macronutrient . (Gm/100ml)



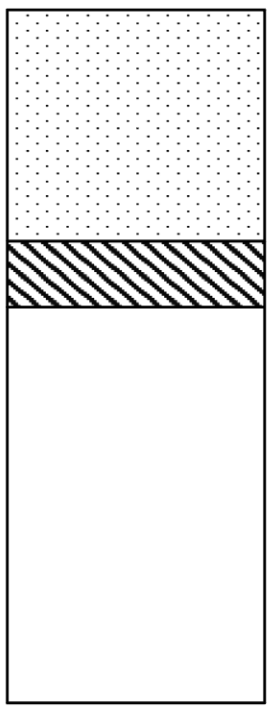
What are the Macronutrients in human and animal milk

Human milk Macronutrient . (Gm/100ml)

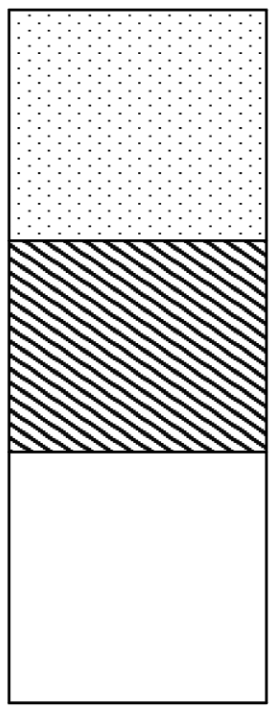


Macronutrients { Fat
Protein
Lactose

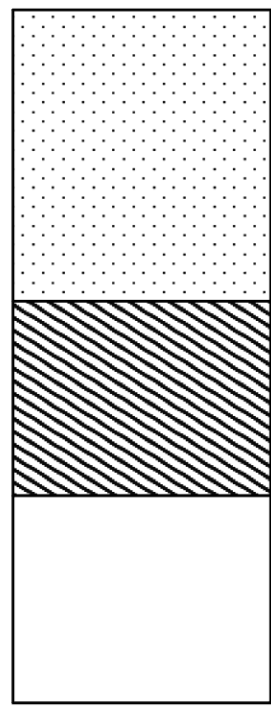
Human



Cow's



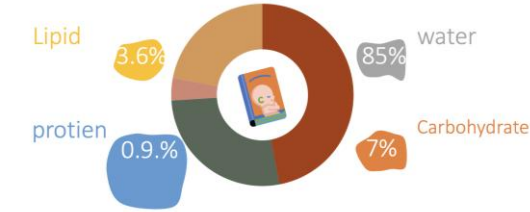
Goat's



Composition of Milks Macronutrients obtained from different mammals and growth rate of their offspring

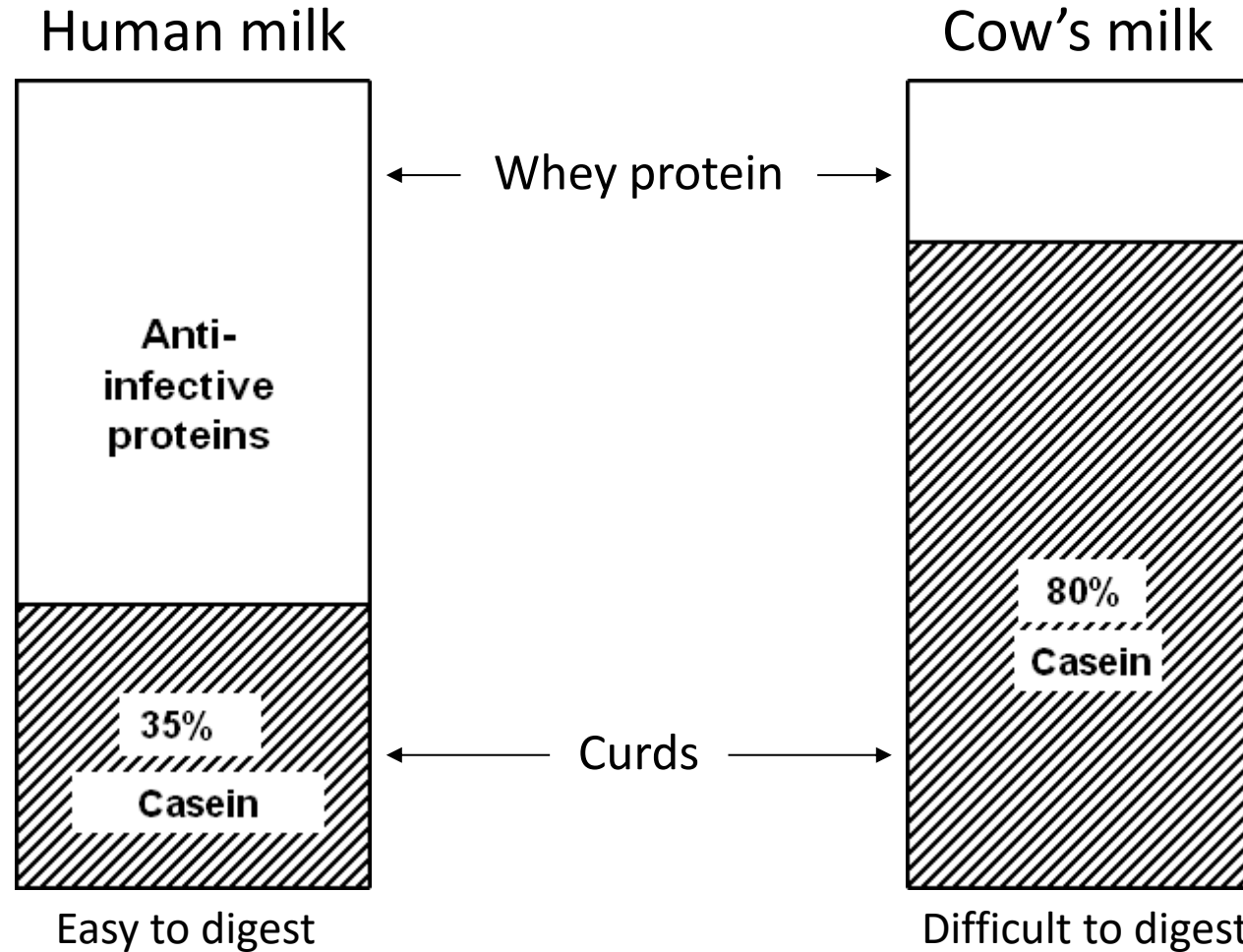
Species	Days Required to Double Birth Weight	Content of Milk (%)			
		Fat	Protein	Lactose	Ash
Human	180	3.8	0.9	7.0	0.2
Horse	60	1.9	2.5	6.2	0.5
Cow	47	3.7	3.4	4.8	0.7
Reindeer	30	16.9	11.5	2.8	–
Goat	19	4.5	2.9	4.1	0.8
Sheep	10	7.4	5.5	4.8	1.0
Rat	6	15.0	12.0	3.0	2.0

Source: Hambraeus L, Proprietary milk versus human breast milk in infant feeding: a critical appraisal from the nutritional point of view, *Pediatr Clin North Am* 24:17, 1977.



1- Protein Macronutrient:

Quality of proteins in different milk (human vs Cow's)



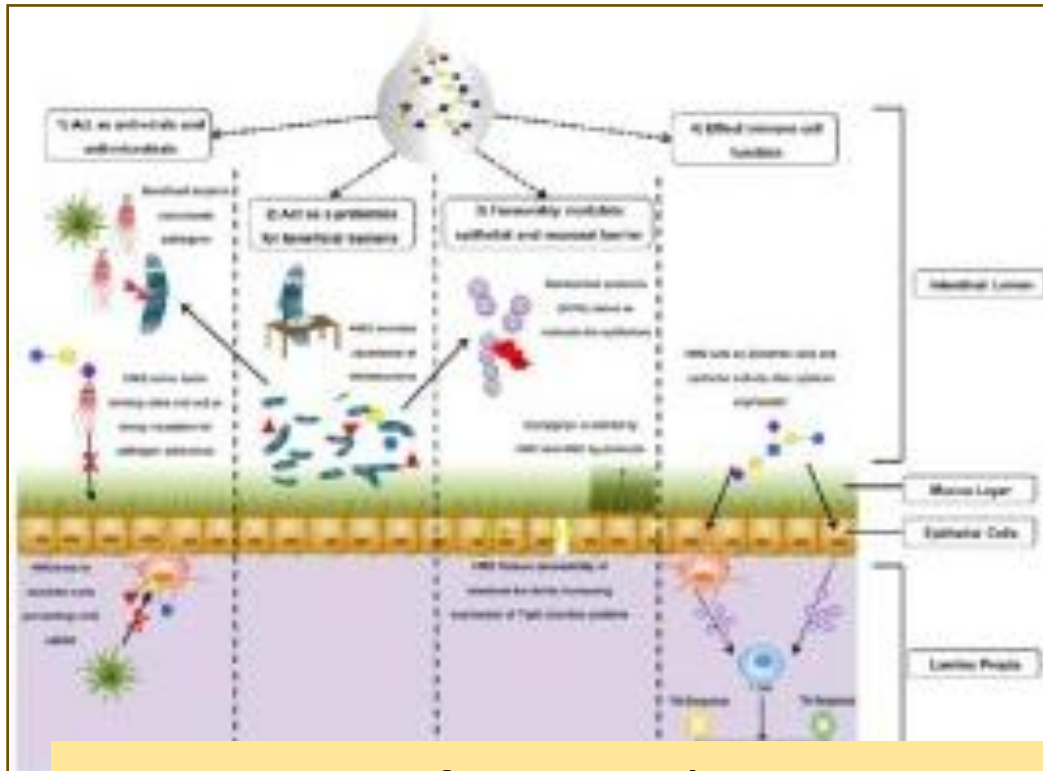
WHO, 2022



2. Carbohydrate components in human milk

- **Lactose.**
 - nucleotide sugars.
 - Glycoprotein.
 - glycolipids.
 - **non-digestible milk oligosaccharides.**
- 

Human Oligosaccharides. (HMOS)



Promote the **growth of beneficial bacteria in the gut.**

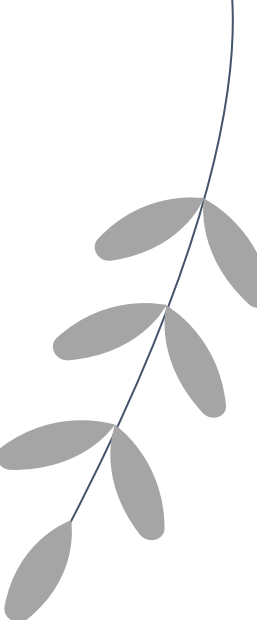
Prevent harmful bacteria from adhering to the gastrointestinal mucosal surfaces

stimulate maturation of the intestinal epithelial surface.

serve as **prebiotics** that support the growth of beneficial gut microbiota, such as Bifidobacteria.



Human Milk : Lactose content(dynamic)



In colostrum

5 g per 100 ml

In mature milk

7 g per 100 ml



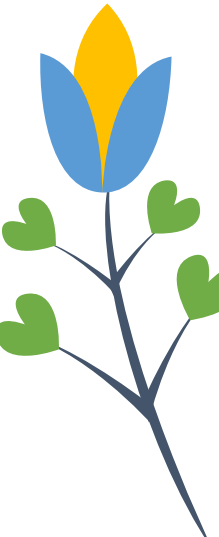
3. Lipid

Lipids are the major energy source in human milk.

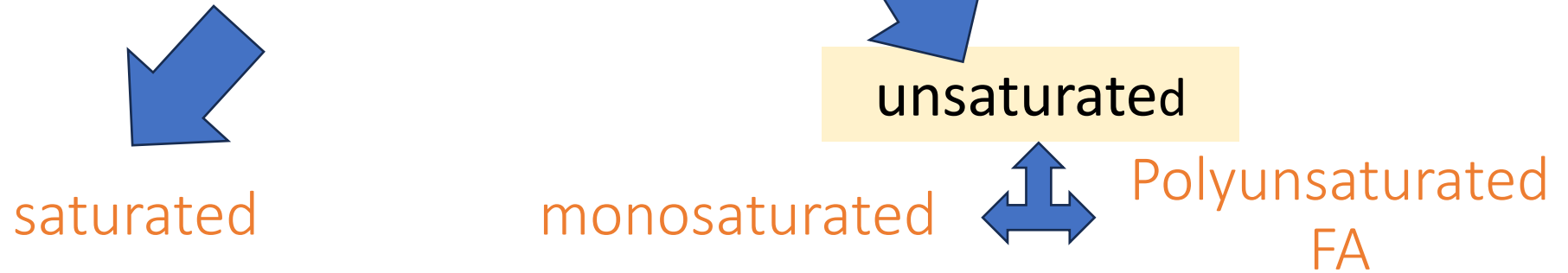
They cover about half of the infant's energy supply

Human milk lipids are more unsaturated than cow's milk fat

better absorbed



Fatty acids.



occur in cis and trans
isomeric forms

omega-6 and omega-3 series
are essential because our
body cannot produce them.
Therefore, humans depend
on their supply through the
diet.

DHA
AA



Mechanisms of Cognitive Benefits

- **Essential Fatty Acids** in Breast Milk : DHA and arachidonic acid support brain structure and function.
- **Sphingolipids** in Breast Milk: Support axonal maturation and brain network development.
- **Sialic Acid in Breast Milk**: Facilitates cell-to-cell interactions, neuronal growth, and memory formation.
- **Maternal-infant interaction** :
 - higher scores in memory function

4. Immune components of breastmilk and protection of infant health

Immune components

Bioactive molecules IN BREAST MILK

1

Content: Cells: Including white blood cells (B cells and T cells).

2

Anti-infectious agents:

- immunoglobulin A (IgA),
- Lactoferrin
- lysozyme.

3

Anti-inflammatory

agents: Help reduce inflammation and protect the infant.

Immune components

These cells provide both passive and active immunity.

White blood cells (B cells and T cells) protect against infections.

Macrophages in breast milk destroy pathogens.

Regulatory cells,

monocytes/

neutrophils

natural killer cells

macrophages phagocytose pathogens,.

neutrophils provide first-line defense against infections.

B cells produce antibodies,
T cells regulate immune responses,

Immune components

Cytokines

Regulate immune responses, including inflammation and cell signaling.

Breast milk contains **various cytokines and chemokines** such as IL-1, IL-6, TNF- α , TGF- β , which are involved in:

Function:

- Immune regulation
 - Development of IgA-producing cells
 - Maturation of the infant's immune system.
-

Immune components

breast Milk
immunoglobulin A
(IgA)

IgA Found in high concentrations in
colostrum

Also Breast milk contain
IgG and
IgM

Critical for **antiviral** /anti bacterial
defense.

Coats the lining of the infant's
intestines, preventing germ leakage.

Found in **high** concentrations in
colostrum.

Other immune components

Human milk glycoproteins

- More than 400 proteins, most of which are glycosylated,
- Protect infants against pathogens.

Table 1.

Molecular Size and Concentration of Major Human Milk Glycoproteins

Mucins	200–2,000	729±75 ⁶
sIgA	160	200–6,200 ⁷
Xanthine dehydrogenase/oxidase	146	Not reported
BSSL	120–140	100–200 ⁸
Lactoferrin	80	1,000–7,000 ⁹
Lactoperoxidase	77.5	0.77±0.38 ¹⁰
Butyrophilin	66	41±3 ⁶
Lactadherin	46	93±10 ⁶
Adiponectin	30	4–88 ¹¹
β-Casein	24	4,670±890 ¹²
κ-Casein	19	100–4,600 ⁷
Leptin	16	0.003 ¹³
Lysozyme	14.4	21±13 ¹⁴

Table 2.

Known Pathogens That Interact with Human Milk Mucin 1 and Mucin 4

<i>Mucin</i>	<i>Molecular size</i>	<i>Microorganism</i>
Mucin 1	~400 kDa	HIV ²³
		Rotavirus ²⁴
		<i>Escherichia coli</i> ²⁵
		<i>Salmonella</i> ²²
Mucin 4	~900 kDa ¹⁶	<i>Salmonella</i> ²²

[Open in a separate window](#)

HIV, human immunodeficiency virus.

Immune components

Lysozyme

- Provides antimicrobial protection
 - . (breaking down **bacterial cell walls**)
- Effective against **gram-positive bacteria.**



Immune components

breast Milk immunoglobulin A (IgA)

IGA Found in high concentrations in
colostrum

Table 3.

Antipathogen Activities of Human Milk Secretory Immunoglobulin A

*Clostridium difficile*³³

*Escherichia coli*³⁶

*Haemophilus influenzae*³⁸

*Mycobacterium tuberculosis*⁴⁰

*Salmonella typhimurium*⁴²

Shigellae⁴⁴

*Staphylococcus aureus*⁴⁶

*Helicobacter pylori*⁴⁷

*Vibrio cholerae*²⁹

Viruses Cocksackie B4 virus³¹

Norovirus³⁴

**Also Breast milk
contain**

IgG and IgM

Immune function of Zinc and fatty acid

- Breast milk contains zinc and fatty acids that help strengthen the immune system

6. Extracellular Vesicles (EV)

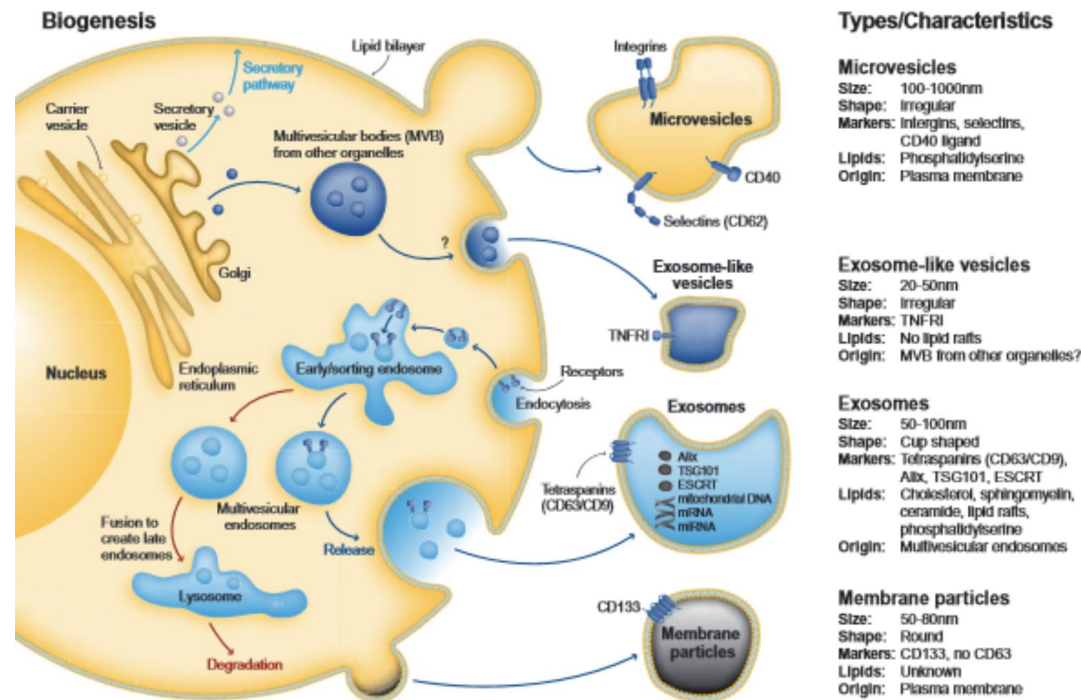
Extracellular vesicles: these are diverse group of membrane-bound particles that play a **role in cell-to-cell communication**.

Exosomes are a specific type of EV

- They play roles in gut health
- Reducing inflammation
- enhancing the infant's immune system.

Secreted Extracellular Vesicles

abcam®
discover more



Functions

Various secreted extracellular vesicles are present in urine, amniotic fluid, bronchoalveolar lavage fluid, breast milk, saliva and blood.

Cellular uptake mechanisms

- Ligand/receptor interactions
- Attachment and fusion via integrins and cell adhesion molecules
- Transcytosis

Physiological functions

- Inter-cellular communication
- Disposal of defective or effete proteins
- Formation of morphogen gradients for tissue patterning during development
- Antigen presentation to T cells

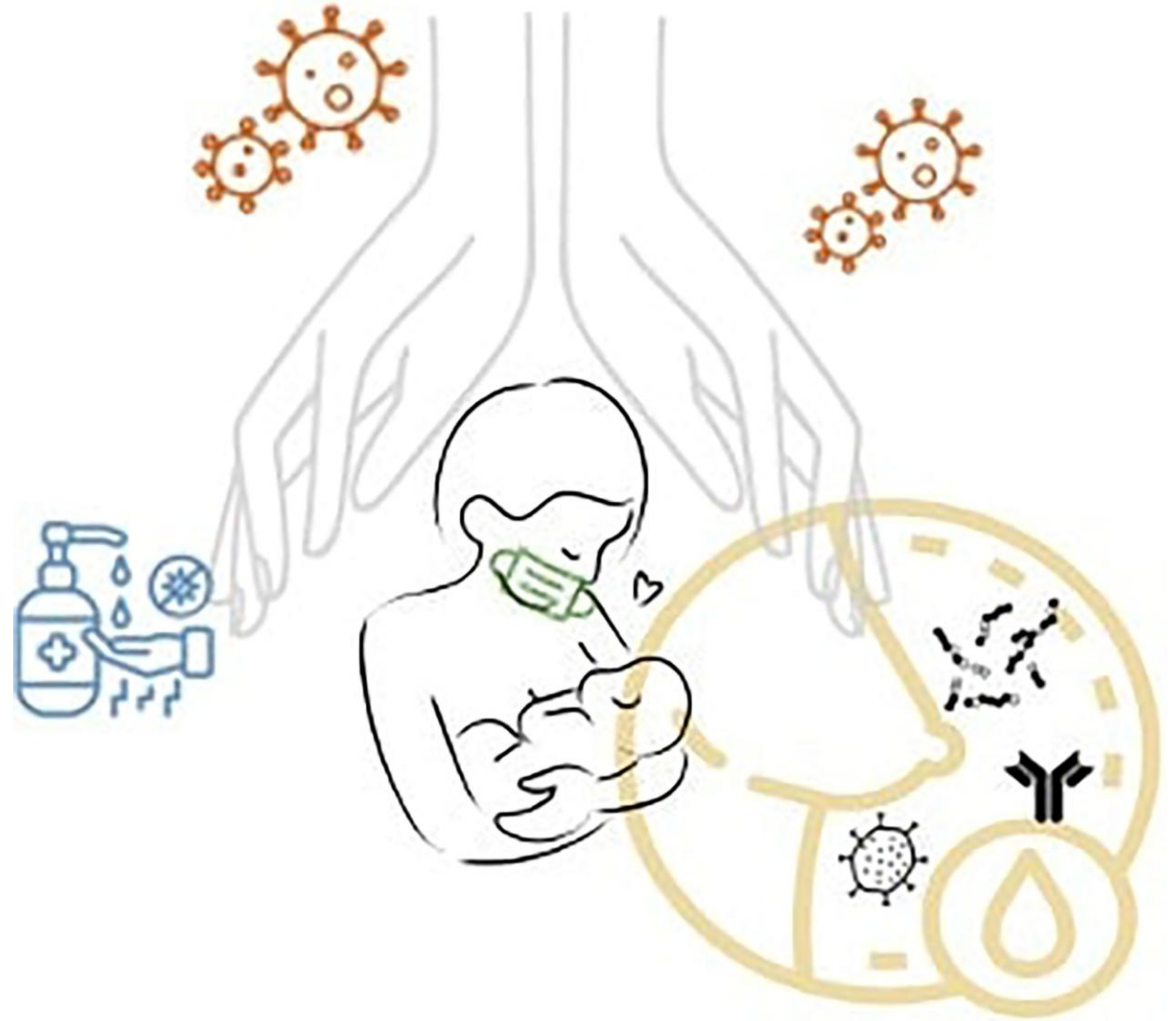
Pathological functions

- Transmission of viruses, prions and β -amyloid in Alzheimer's disease
- Tumor pathogenesis

Discover more at [abcam.com](https://www.abcam.com)

Why Immune components: Protective Benefits of Breastfeeding

- protect against
 - - **Infection**
 - - **Inflammation**
 - - **Contribute to immune maturation**
 - - **Organ development**
 - - **Healthy microbial colonization.**



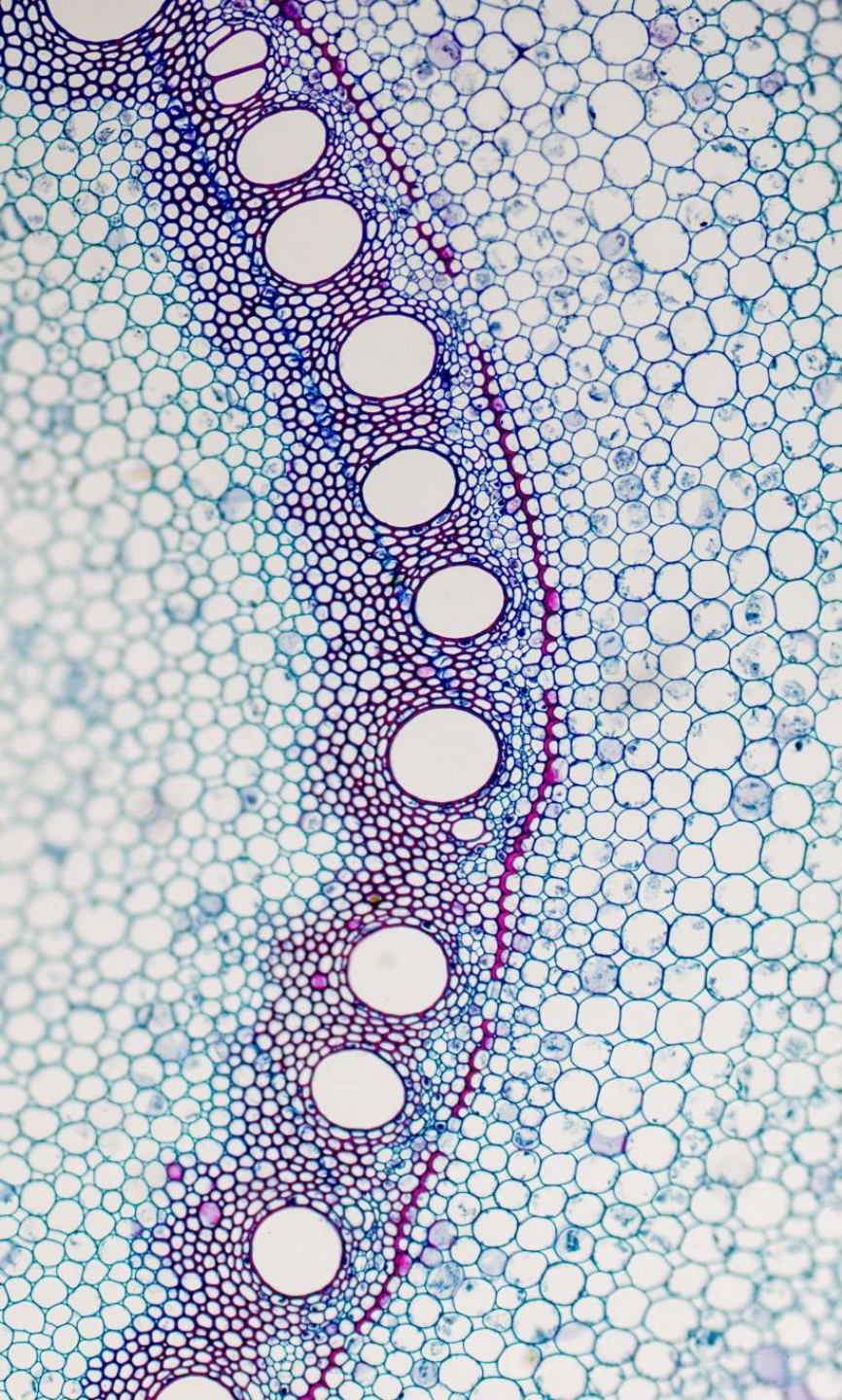
5. Microbiota

Breast milk microbiota includes:

Beneficial bacteria like Lactobacillus and Bifidobacterium,

which help in establishing a healthy gut microbiome in the infant,

- protecting against infections and promoting immune development.



Stem Cells

- Stem cells from breast milk
- can cross the infant's gastrointestinal tract, enter the circulatory system
- populate distant organs
- contributing to the development and repair of the infant's tissues and organs.

Exclusive breast feeding : Long term benefits

- **Protection Against Chronic Diseases**

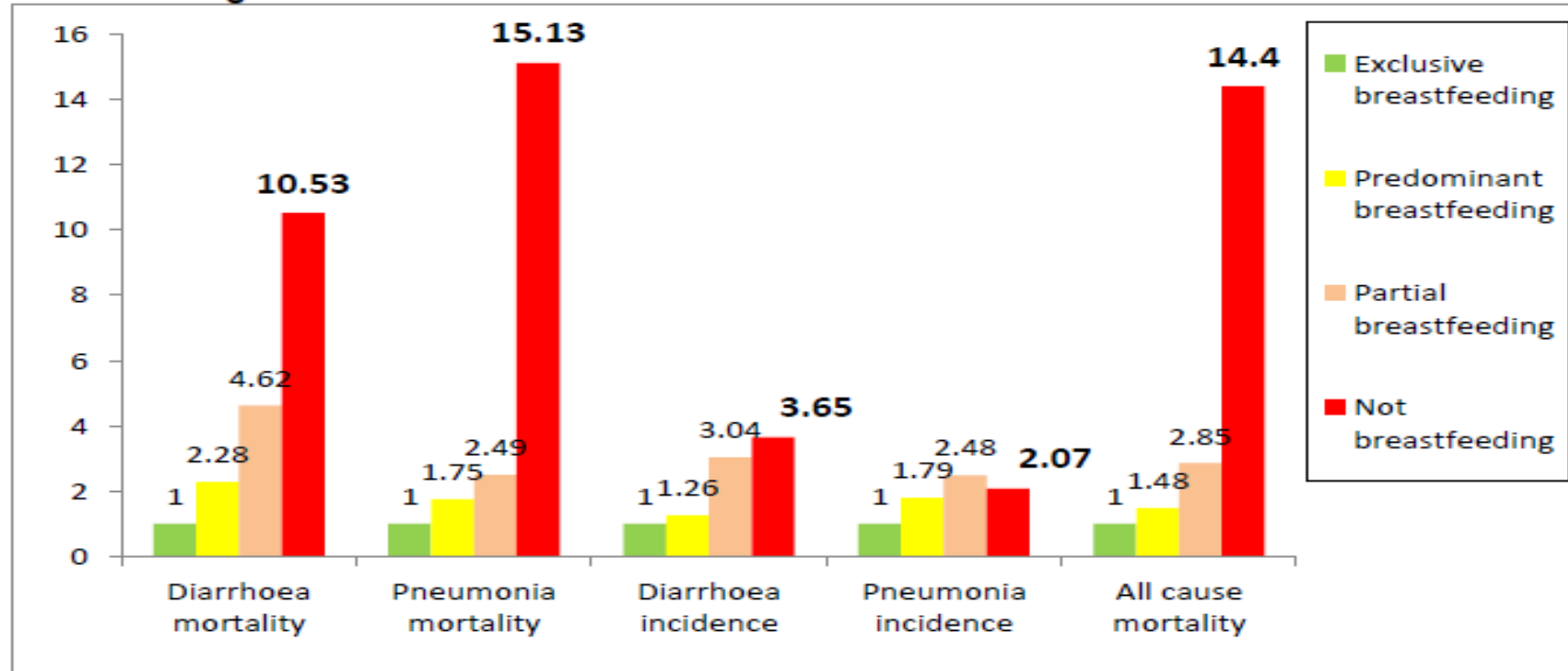
- - **Obesity**: Breastfeeding reduces the risk of obesity later in life
- - **Type 2 Diabetes**: Linked to lower risk due to reduced obesity.
- - **Immune-Mediated Diseases**: Enhances immune responses and reduces risk of conditions like type 1 diabetes and inflammatory bowel diseases (**Ulcerative colitis and Crohn's**)
- - **Atopic Diseases** (Eczema, Food Allergy, Allergic Rhinitis)

- **Due to**
 - **Better immune maturation**
 - **Better Organ development**
 - **Healthy microbial colonization**

Higher RISKS for non-breastfed children

BENEFETS OF BREAST FEEDING :
LESS INFECTION

Figure 2: Relative risk of not breastfeeding for infections and mortality compared to exclusive breastfeeding from 0-5 months



Source: Lancet 2008 [3].

Protection Against Ear Infections (Otitis Media)

Breastfeeding

Infant Health Benefits

- Allergies, eczema
- Urinary tract infections
- Inflammatory bowel disease
- Diabetes, type 1
- Gastroenteritis
- Hodgkin's lymphoma
- Otitis media
- *Haemophilus influenzae* meningitis
- Necrotizing enterocolitis.
- Pneumonia/lower respiratory tract infection
- Respiratory syncytial virus infection
- Sepsis
- Sudden infant death syndrome.
- **Provides immunologic protection while the infant's immune system is maturing**
 - Antimicrobial agents
 - Anti-inflammatory agents
 - Immunomodulating agents

Breast Milk Is dynamic

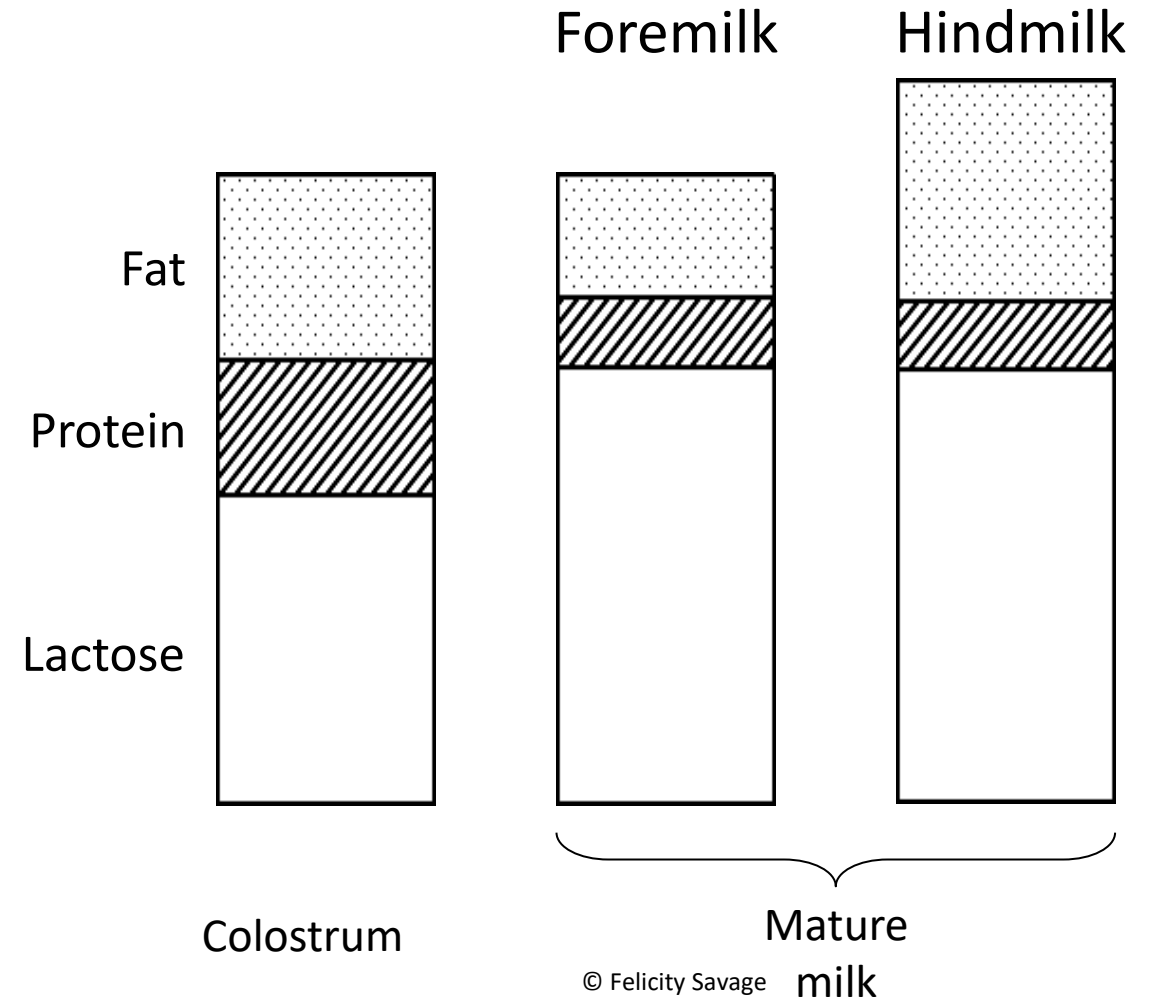


Differences between colostrum and mature milk

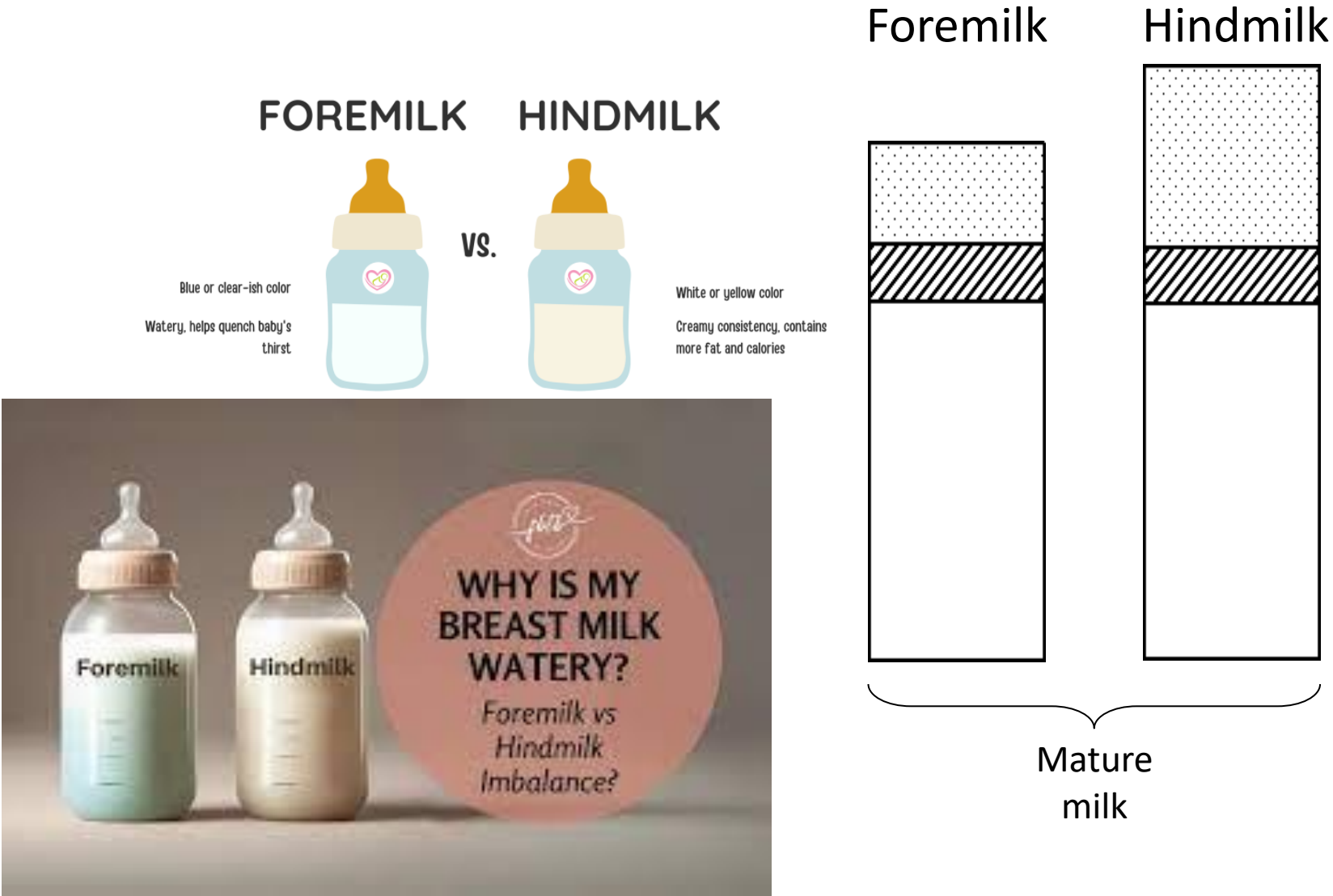
Colostrum

1. can be secreted prenatally and for **several days after birth**.
2. A **thick**, sticky, rich-looking substance,
3. it comes in a **range of colors** and viscosity—from clear and thin, to orange.
4. The high concentration of **protein** to promote the rapid growth of the newborn and protect **from infection** and **inflammation**
5. Colostrum **has a laxative** effect that eliminates meconium from the infant's bowels..

WHO, 2022



Milk Dynamicity



**What are the nutritional needs
during the first weeks of a newborn?**

First weeks of newborn's life

- Day 1-3
 - **Baby gets colostrum**
 - Breasts feel soft
- Day 3-4
 - Milk “comes in”, changes
 - **Volume produced increases**
 - **Breasts feel full**
- Day 6-7
 - **Baby loses weight**
 - Fluid and glucose needs covered by extra in the infant's body from before birth
 - Once breastfeeding is established, weight increases
- Day 10-14
 - **Infant regains birth weight**

Newborn stomach: Size and volume

 Size of a cherry	 Size of a walnut	 Size of an apricot	 Size of an egg
Day 1	Day 2	1 Week	1 Month
5-7 mL	22-27 mL	45-60 mL	80-150 mL

Bergman NJ. Neonatal stomach volume and physiology. Acta Paediatrica. 2013;102:773–7.

Zangen S, DiLorenzo C, Zangen T, Mertz H, Schwankovsky L, Hyman PE. Rapid maturation of gastric relaxation in newborn infants. Pediatr Res. 2001;50:629–32.

Best Start Resource Centre: Ontario's Maternal Newborn and Early Child Development Resource Centre

References:

1. Lawrence et al, Chapter 11, Normal Growth, Failure to Thrive page s 338 to 340,2021
2. WHO/UNICEF IYCF counseling Training Package,2021. Available from:
<https://www.who.int/publications/i/item/9789240032408>
3. WHO/UNICEF BFHI Training counseling, Package,2021.Available from:
<https://www.who.int/publications/i/item/9789240008915>
4. WHO/UNICEF Combines course on Growth Assessment and IYCF counseling Training Package. Available from:
https://apps.who.int/iris/bitstream/handle/10665/77944/9789241504812_Participants_manual_eng.pdf?sequence=4

[Back to the module outline](#)

Thank you

The end

Session 7

Assessing and Observing Breastfeeding

Breastfeeding positions

- Breastfeeding positions video: Global Health Media, Breastfeeding positions. Available from: <https://globalhealthmedia.org/videos/breastfeeding-positions/>

Session 8

Counseling Skills

Signs and symptoms: Newborn not getting enough milk (actual)

1. **Clinical evidence of significant dehydration** not improved after assessment and management of breastfeeding
2. **Weight loss** 8–10% by day five (120 hours) or weight loss >75th percentile for age
3. **Delayed bowel movements, fewer than four stools on day four, or delayed transition** from meconium to transitional stools (by 120 hours)
4. **A small amount of concentrated urine:** less than 6 times per day

Counseling skills: Listening and learning



Section 7

expressing breastmilk and storage



Human Milk Storage Guidelines (CDC).

Type of Breast Milk	Storage Location and Temperatures		
	Countertop 77°F (25°C) or colder (room temperature)	Refrigerator 40°F (4°C)	Freezer 0°F (-18°C) or colder
Freshly Expressed or Pumped	Up to 4 Hours	Up to 4 Days	Within 6 months is best Up to 12 months is acceptable
Thawed, Previously Frozen	1–2 Hours	Up to 1 Day (24 hours)	NEVER refreeze human milk after it has been thawed
Leftover from a Feeding (baby did not finish the feed)	Use within 2 hours after the baby is finished feeding https://www.cdc.gov/breastfeeding/recommendations/handling_breastmilk.htm		

Show and discuss the videos

Expressing and storing breast milk:

<https://globalhealthmedia.org/videos/expressing-and-storing-breastmilk/>

END