Safe Prescribing in Pregnancy, Lactation and Children

Information for all healthcare professionals supporting parents and parents to be, and people who are breastfeeding or chestfeeding.

Sam Morris
Medicines Management pharmacist

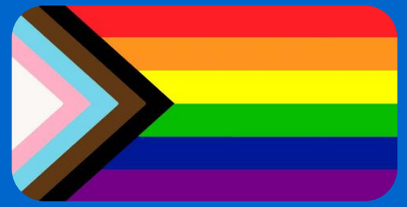
With thanks to members of the Somerset Infant Feeding and Nutrition Steering Group.

Medicines in pregnancy, children and lactation - NHS Somerset ICB

March 2025- content is under review

Where to start?

Pre-conception period
Pregnancy
Baby and parent
Lactation- Parents may lactate without a pregnancy, this may occur in adoptions or some LGBT+ families.



It's important to prepare for a pregnancy where possible- think:

- **Folic acid- 400mcg or 5mg?**
- **Risk of pre-eclampsia? Aspirin to reduce the risk of pre-eclampsia NHS Somerset patient leaflet**
- **Long term conditions**
- **Safe prescribing in pregnancy (is it safe in pregnancy but suppresses lactation, does your patient know that?)**
- **Are they on long term medications which shouldn't be taken in pregnancy?**

Use our resources on safe prescribing in pregnancy:
Medicines used in pregnancy - NHS Somerset

Newly Pregnant?

NHS Somerset

Booking Self-Referral campaign:

Positive Test? Book Before 10 Weeks!
Search 'Somerset Foundation Trust Maternity' or Scan the QR code
https://www.badgernotes.net/SelfReferral/CareLocation/somerset
Your first midwife appointment (also called the booking appointment) should happen before you're 10 weeks pregnant. This is because you'll be offered some tests that can only be done in early pregnancy. However, you will be well cared for whenever you tell us you are pregnant, it's never too late!

Think:
Folic Acid Self-care for the first 12 weeks (but can continue)
Risk factors needing a higher dose of Folic acid?

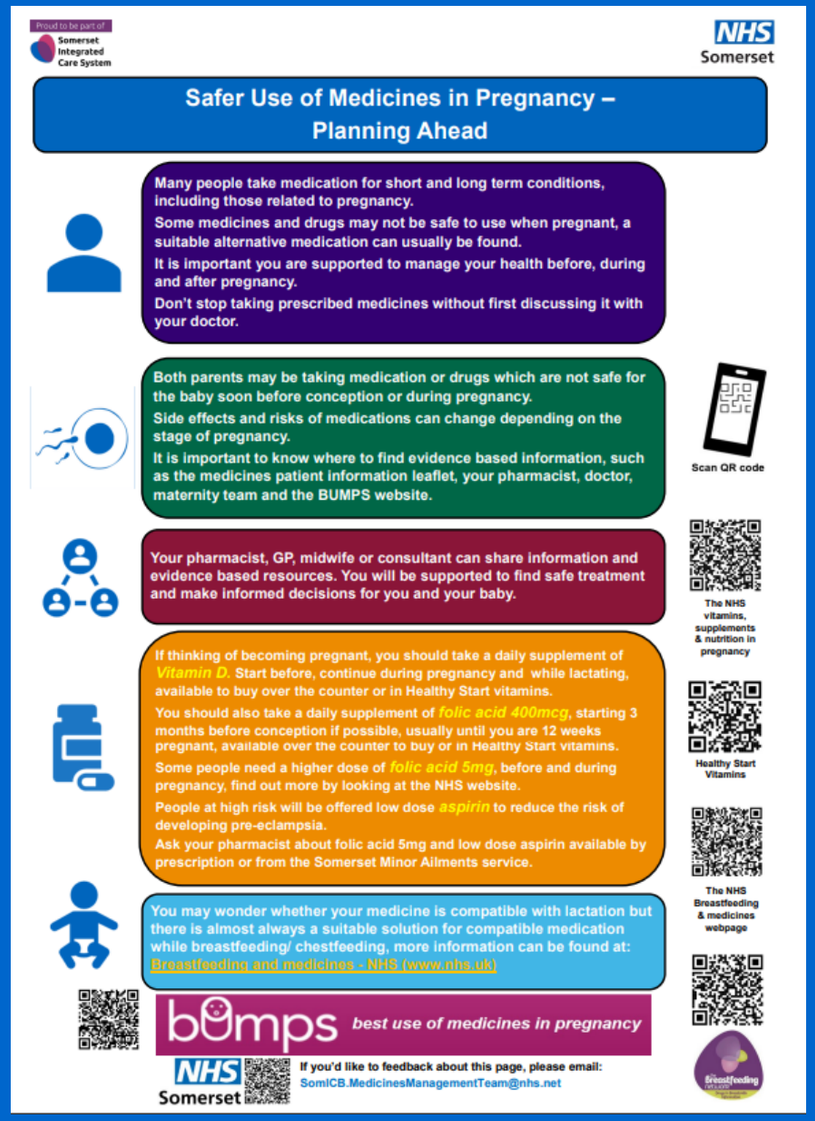
Vitamin D daily until end of pregnancy and finished breastfeeding

Will they need low dose aspirin from 12 weeks?

Aspirin In Pregnancy Leaflet - NHS Somerset ICB

Use our resources on safe prescribing in pregnancy:
Medicines used in pregnancy - NHS Somerset

Pregnancy Project



Proud to be part of Somerset Integrated Care System

NHS Somerset

Safer Use of Medicines in Pregnancy – Planning Ahead

Many people take medication for short and long term conditions, including those related to pregnancy.

Some medicines and drugs may not be safe to use when pregnant, a suitable alternative medication can usually be found.

It is important you are supported to manage your health before, during and after pregnancy.

Don't stop taking prescribed medicines without first discussing it with your doctor.

Both parents may be taking medication or drugs which are not safe for the baby soon before conception or during pregnancy.

Side effects and risks of medications can change depending on the stage of pregnancy.

It is important to know where to find evidence based information, such as the medicines patient information leaflet, your pharmacist, doctor, maternity team and the BUMPS website.

Scan QR code

Your pharmacist, GP, midwife or consultant can share information and evidence based resources. You will be supported to find safe treatment and make informed decisions for you and your baby.

The NHS vitamins, supplements & nutrition in pregnancy

If thinking of becoming pregnant, you should take a daily supplement of *Vitamin D*. Start before, continue during pregnancy and while lactating, available to buy over the counter or in Healthy Start vitamins.

You should also take a daily supplement of *folic acid 400mcg*, starting 3 months before conception if possible, usually until you are 12 weeks pregnant, available over the counter to buy or in Healthy Start vitamins.

Some people need a higher dose of *folic acid 5mg*, before and during pregnancy, find out more by looking at the NHS website.

People at high risk will be offered low dose *aspirin* to reduce the risk of developing pre-eclampsia.

Ask your pharmacist about folic acid 5mg and low dose aspirin available by prescription or from the Somerset Minor Ailments service.

Healthy Start Vitamins

You may wonder whether your medicine is compatible with lactation but there is almost always a suitable solution for compatible medication while breastfeeding/ chestfeeding, more information can be found at: Breastfeeding and medicines - NHS (www.nhs.uk)

The NHS Breastfeeding & medicines webpage

bumps best use of medicines in pregnancy

NHS Somerset

If you'd like to feedback about this page, please email: SomICB.MedicinesManagementTeam@nhs.net

Shared with pharmacy & General Practice

Prioritisation of safety of medications in pregnancy and breastfeeding has not been high.

We know that approximately 81.2% of women use at least one medication during pregnancy (prescribed or OTC)[1].

In Somerset in 2019 we had approximately 5155 pregnancies which means over 4000 pregnancies exposed to medication.

In March 2018 we saw a strengthened regulatory position on the use of valproate in women and children of childbearing age needing a pregnancy prevention programme in place while having treatment.

According to MBRRACE-UK 2019, 13% of maternal deaths in pregnancy and the immediate period after giving birth were attributed to epilepsy or stroke.

1. Medication use in pregnancy: a cross-sectional, multinational web-based study | BMJ Open [Accessed 12/08/2021]

Pregnancy Project

Patient Safety Alert

Medication Safety - NHS Somerset ICB

Shared Care and PGDs - NHS Somerset ICB

SCP-Valproate Shared Care Protocol

Safe Prescribing is increasingly on the agenda

Daily News

European PRAC starts review of topiramate use in pregnancy and women of childbearing potential

European PRAC recommends new measures to avoid topiramate exposure in pregnancy

Topiramate (Topamax): introduction of new safety measures, including a Pregnancy Prevention Programme - GOV.UK

1. Medication use in pregnancy: a cross-sectional, multinational web-based study | BMJ Open [Accessed 12/08/2021]

Infant feeding

NHS Somerset

Infant and young child feeding- WHO >>> Breastfeeding WHO

WHO and UNICEF recommend:

World Health Organization

Early initiation of breastfeeding within 1 hour of birth

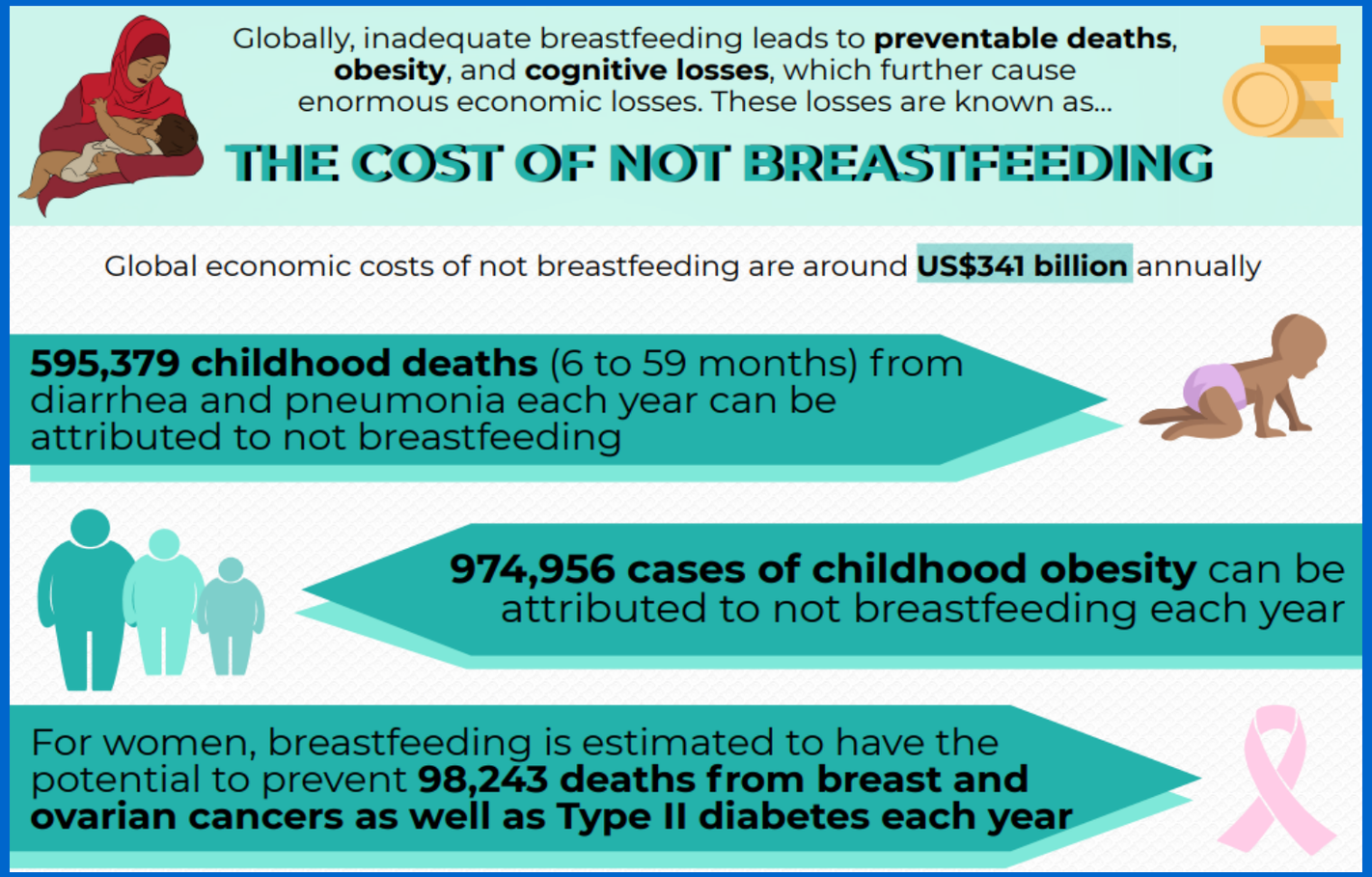
Exclusive breastfeeding for the first 6 months of life

Breastfeed responsively day and night

Introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age and beyond.

What's it all about?

NHS Somerset



Among $BRCA_1$ mutation carriers, those who breastfed for at least one year, were associated with a 32% reduction in risk.

Several studies have now documented a 25% to 50% lower risk of triple-negative breast cancer in parous women who have breastfed for at least four to six months relative to parous women who have never breastfed.

While the use of tamoxifen to reduce second cases of breast cancer in women with $BRCA_1$ and $BRCA_2$ mutations was found to be 44% risk reduction.

Bronchiolitis - Causes - NHS (www.nhs.uk)

Risk factors- being breastfed for less than 2 months, or not at all.

Unicef The cost of not breastfeeding: A series of tools by Alive & Thrive - Baby Friendly Initiative (unicef.org.uk)

(Bartick & Reinhold, 2010) (Dylan D Walters, 2019) (Kotsopoulos & et al, 2012) Cost-of-not-breastfeeding-infographic1.pdf (aliveandthrive.org)

BRCA Mutations and Breast Cancer Prevention - PubMed (nih.gov) full article

Breastfeeding and infant hospitalisation: analysis of the UK 2010 Infant Feeding Survey (wiley.com)

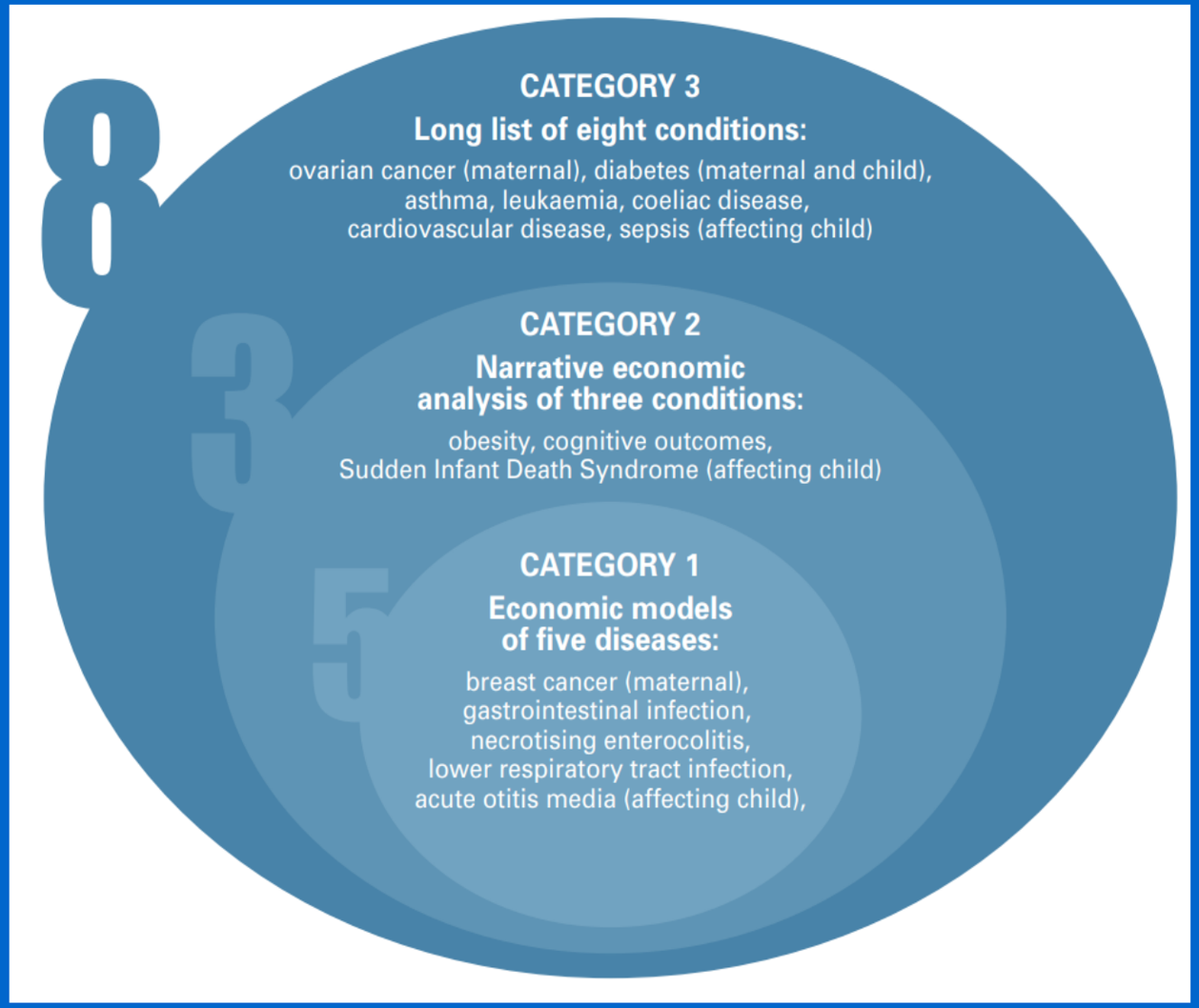
Preventing disease and saving resources: the potential contribution of increasing breastfeeding rates in the UK (unicef.org.uk)

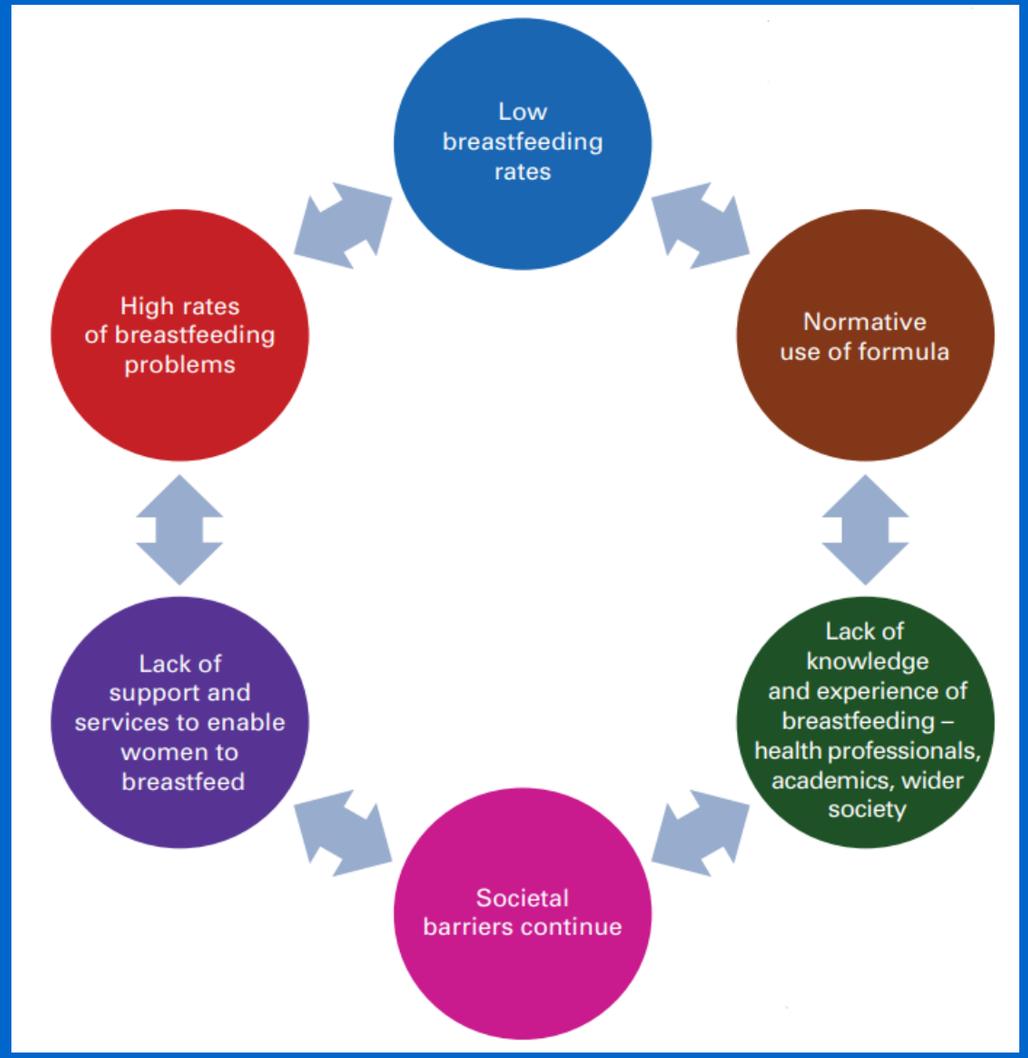
Breastfeeding and the risk of breast cancer in BRCA1 and BRCA2 mutation carriers | Breast Cancer Research | Full Text (biomedcentral.com)

UNICEF UK findings in pictogram

NHS Somerset

[Preventing disease and saving resources: the potential contribution of increasing breastfeeding rates in the UK (unicef.org.uk)]

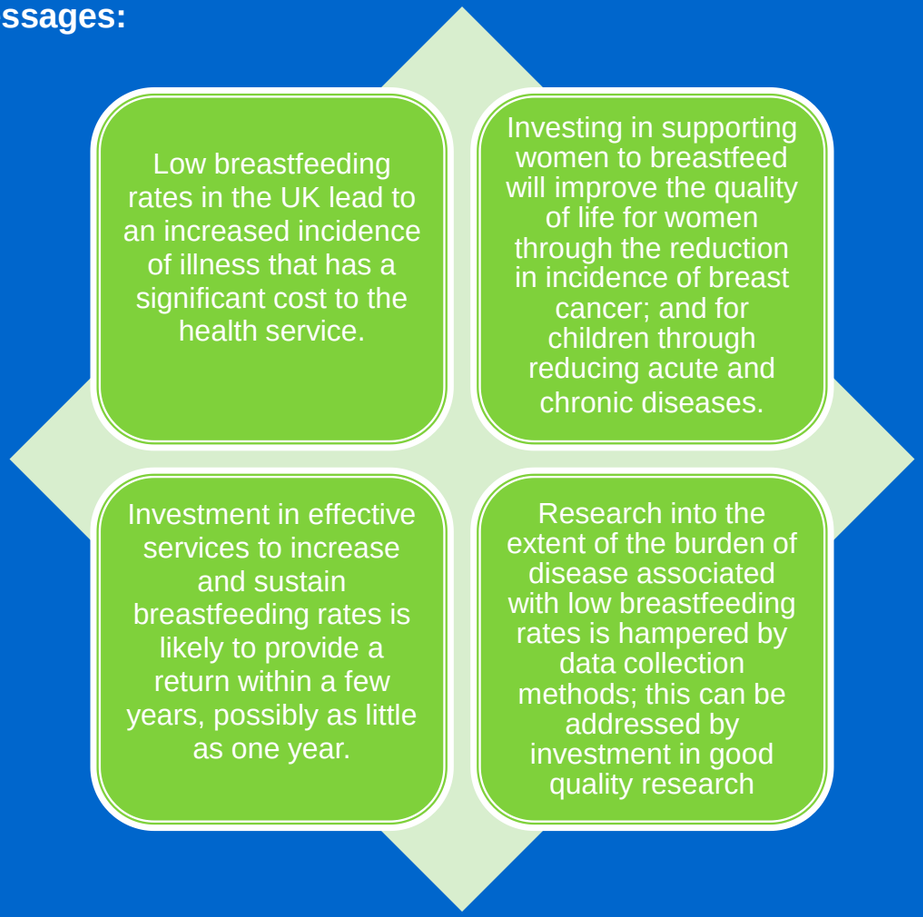




UNICEF UK findings and the Infant Feeding Survey- The numbers

UNICEF: The potential contribution of increasing breastfeeding rates in the UK

Key Messages:



The last infant feeding survey

In the UK we have some of the lowest breastfeeding rates in the world, with eight out of ten women stopping breastfeeding before they want to.

- The last UK-wide **Infant Feeding Survey** was conducted in 2010, and we are calling on UK governments to reinstate this. Key findings were:
- Breastfeeding initiation: 81% (up from 76% in 2005)
- Exclusive breastfeeding at six weeks was 24% in England compared to 17% in Wales and 13% in Northern Ireland – see below for more recent survey results from Scotland

In 2018 **Scotland released results from its Maternal and Infant Nutrition Survey**, highlighting marked improvements in breastfeeding rates – particularly the rise in breastfeeding at six months from 32% in 2010 to 43% in 2017. The results highlight the positive impact of a national infant feeding strategy, including supporting 100% of maternity and community services in Scotland to achieve Baby Friendly accreditation.

UNICEF UK findings

NHS Somerset

Assuming a moderate increase in breastfeeding rates, **if 45% of women exclusively breastfed for four months,** and if **75% of babies in neonatal units were breastfed at discharge**, <u>every year</u> there could be an estimated:

3,285 **fewer** gastrointestinal infection-related hospital admissions and **10,637 fewer GP consultations**, with over **£3.6 million saved** in treatment costs annually

5,916 **fewer** lower respiratory tract infection-related hospital admissions and **22,248 fewer GP consultations**, with around **£6.7 million** saved in treatment costs annually

21,045 **fewer** acute otitis media (AOM) related GP consultations, with over **£750,000 saved** in treatment costs annually

361 **fewer** cases of NEC, with over **£6 million** saved in treatment costs annually

In total, over £17 million could be gained annually by avoiding the costs of treating four acute diseases in infants. Increasing breastfeeding prevalence further would result in even greater cost savings.

If half those mothers who currently do not breastfeed were to breastfeed for up to 18 months in their lifetime, for each annual cohort of around 313,000 first-time mothers there could be:

- **865 fewer breast cancer cases**
- **with cost savings to the health service of over £21 million**
- **512 breast cancer-related quality adjusted life years (QALYs) would be gained, equating to a value of over £10 million.**

This could result in an incremental benefit of more than £31 million, over the lifetime of each annual cohort of first-time mothers.

NICE National Institute for Health and Care Excellence

and

MHRA

NHS Somerset

PH11 Recommendations | Maternal and child nutrition | NICE

Prescribing-Recommendation 15. What action should they take?

Ensure health professionals and pharmacists who prescribe or dispense drugs to a breastfeeding mother consult supplementary sources (for example, the **Drugs and Lactation Database** [LactMed] or seek guidance from the **Specialist Pharmacy Service**.

Health professionals should discuss the benefits and risks associated with the prescribed medication and encourage the mother to continue breastfeeding, if reasonable to do so. In most cases, it should be possible to identify a suitable medication which is safe to take during breastfeeding by analysing pharmacokinetic and study data. Appendix 5 of the 'British national formulary' should only be used as a guide as it does not contain quantitative data on which to base individual decisions.

Health professionals should recognise that there may be adverse health consequences for both mother and baby if the mother does not breastfeed. They should also recognise that it may not be easy for the mother to stop breastfeeding abruptly – and that it is difficult to reverse.

Superseded by: NG247 Recommendations | Maternal and child nutrition: nutrition and weight management in pregnancy, and nutrition in children up to 5 years | Guidance | NICE

1.3.6 Use appropriate resources for safe medicine use and prescribing during breastfeeding, such as the UK Drugs in Lactation Advisory Service, to enable continued breastfeeding. [2025]

NG194 Recommendations | Postnatal care | NICE

Role of the healthcare professional supporting breastfeeding

Healthcare professionals caring for women and babies in the postnatal period should know about:

* breast milk production
* signs of good attachment at the breast
* effective milk transfer
* how to encourage and support women with common breastfeeding problems
* appropriate resources for safe medicine use and prescribing for breastfeeding women.

The **Safer Medicines in Pregnancy and Breastfeeding Consortium** brings together 16 leading organisations under a common pledge to meet the information needs of pregnant and breastfeeding women and healthcare professionals, through accessible, clear and consistent advice.

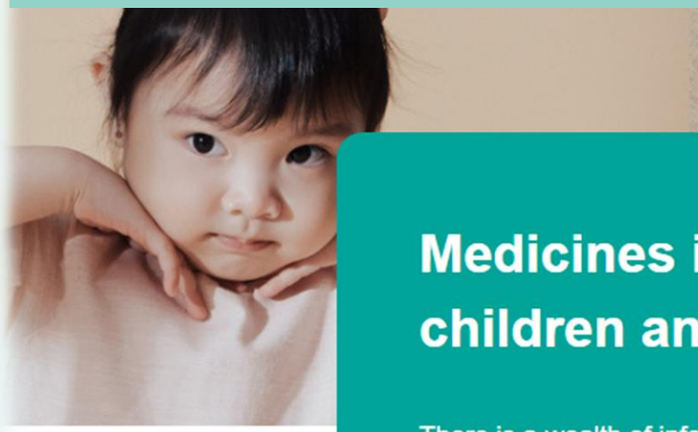
Medicines in pregnancy, children and lactation - NHS Somerset

Breastfeeding and medicines - NHS Somerset

Bumps

Best use of medicines in pregnancy

uktis
uk teratology information service



NICE National Institute for Health and Care Excellence

Clinical Knowledge Summaries

Medicines in pregnancy, children and lactation

There is a wealth of information for us to use when considering medications prescribed for use in pregnancy, while breastfeeding and with children.

Back to Prescribing and Medicines Management

Breastfeeding and medicines

On this page you will find information and resources on prescribing in patients who are breastfeeding

Back to Medicines in Pregnancy, Children and Lactation

the Breastfeeding network

Information resources for safe prescribing

GP and Healthcare Education

Specialist Pharmacy Service

The first stop for professional medicines advice

Safe Prescribing resources

- ✓ Medicines in pregnancy, children and lactation - NHS Somerset
- ✓ Safety in breastfeeding – SPS - Specialist Pharmacy Service
- ✓ UKTIS – Evidence-based safety information about medication, vaccine, chemical and radiological exposures in pregnancy

Resources available

Medicines information:

The formulary page on infant feeding links to the CMPA formulary: Infant Feeding - NHS Somerset

Medicines management formulary webpage for drugs in lactation: Breastfeeding and medicines - NHS Somerset

UK drugs in Lactation Advisory Service is also available in working hours: Advising on medicines during breastfeeding – SPS - Specialist Pharmacy Service – UKDILAS UK Drugs in Lactation Service

Drugs and Lactation Database (LactMed) - NCBI Bookshelf (nih.gov)

The Breastfeeding networks Drugs in Breastmilk service is also available:
Drugs In Breastmilk - Is It Safe? - The Breastfeeding Network
Breastfeeding for Doctors list of resources v2
Medicines in pregnancy, children and lactation - NHS Somerset
The GP Infant Feeding Network (UK) | A Website to Assist Primary Care Practitioners with Best Practice in Infant Feeding
Breastfeeding resources - Baby Friendly Initiative (unicef.org.uk)

Parental Support

The National breastfeeding helpline, open 24/7- 365 days a year:

National Breastfeeding Helpline – Helpline

Best Start in Life: 0 to 5 years]

Somerset Maternity Voices Partnership

Other Somerset resources:

Health & Wellbeing : Somerset Maternity Toolkit

Infant Feeding Team - Maternity - Somerset NHS Foundation Trust

Health & Wellbeing : Public Health- HV Team

Maternity - Maternity (somersetft.nhs.uk)

Breastfeeding and medicines - NHS Somerset ICB

Language

NHS Somerset

Breastfeeding, chestfeeding, lactating, nursing…

Infant, baby, child, nursling, local terms including bairn, picknie and more

Parent, gestational parent, mum, dad, partner, birthing parent,

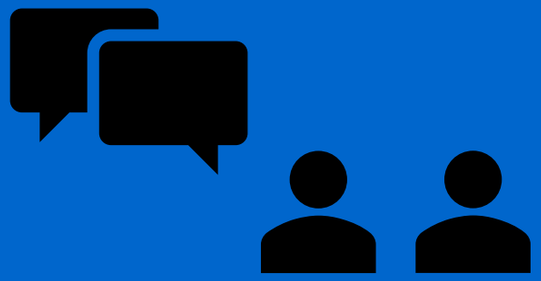
Human milk, breastmilk

Use the language your patient would like, it's ok to ask for preferred language and or someone's pronouns.

If someone corrects you, thank them

Example from a Non-Binary parent:

When baby arrived, the midwife asked if B was happy with using, she/her pronouns for the baby, and if using breastfeeding was ok. This made B feel heard and comfortable with their midwife' s care.



Many parents share their lived experience on social media, could you follow them to learn more?

Black and brown skin

NHS Somerset

Breast and skin conditions may not present with redness in black, brown and dark skin tones.

A visual assessment alone may not be adequate.

Listen to the patient with careful assessment to make accurate diagnosis.

Ask the patient how it feels, if there is a difference in sensation or colouration from their normal.

A lack of cultural competencies amongst healthcare professionals can cause hesitancy to show one's breast or chest or discuss in detail.

Think: chaperone, asking the parent how you can help make them comfortable, patience.

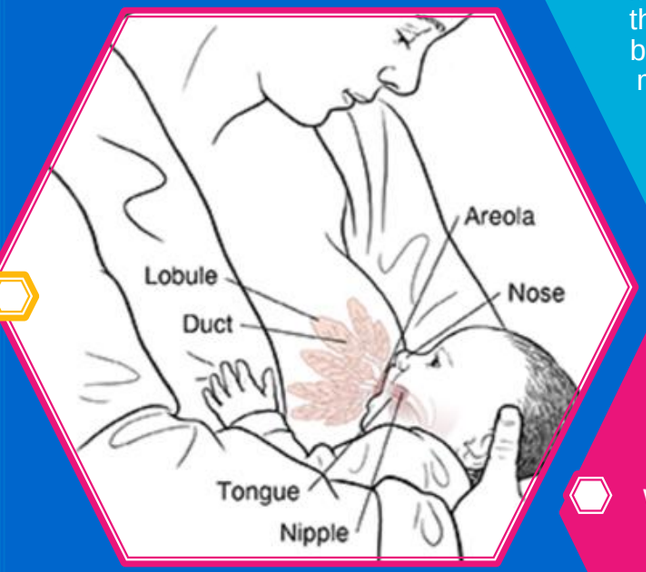
Resources:

- -Nekisha Killings (goldlearning.com)
- -Mind the Gap — Black & brown skin (blackandbrownskin.co.uk)
- -BREASTFEEDING AS A BLACK WOMAN IN MODERN DAY UK - VANISHA VIRGO (abm.me.uk)
- -Ruth Dennison- Why Black Breastfeeding Week? Blog
- -Spectrum Lactation (newbabynetwork.co.uk)

BLACK BREASTFEEDING WEEK

Lactogenesis- milk production terminology

NHS Somerset



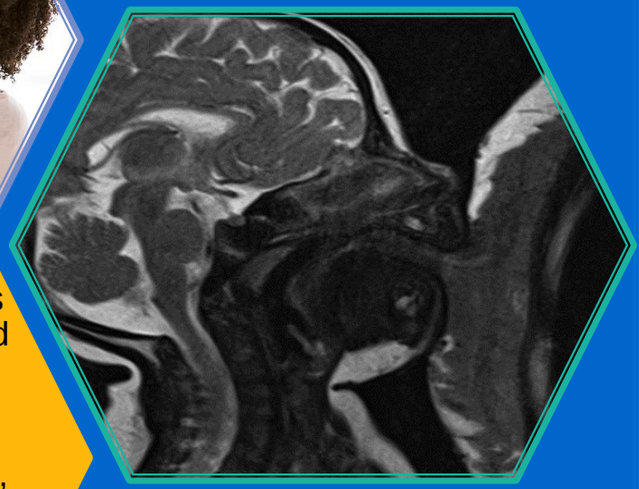
The Areola has glands called **Montgomery's glands** which secrete lubricating oil. This protects the nipple skin. In an affective latch, the latch may be asymmetric, the chin is tucked into the breast with the nose free, more of the lower areola will be covered by the baby's mouth than the top of the areola.

Lactiferous Ducts carry milk to the nipple

Nipple has small openings where milk is ejected, some people have less or more openings than others.

Transitional milk comes in 2 to 5 days after birth. It can look creamy, white, or yellow. It lasts for around 2 weeks.

Colostrum is the first milk. It is thick and yellowish, which is why many people call it liquid gold. Colostrum provides all of the nutrients that your baby needs in the first days. It may not look like much, but it's all your baby needs during this time.



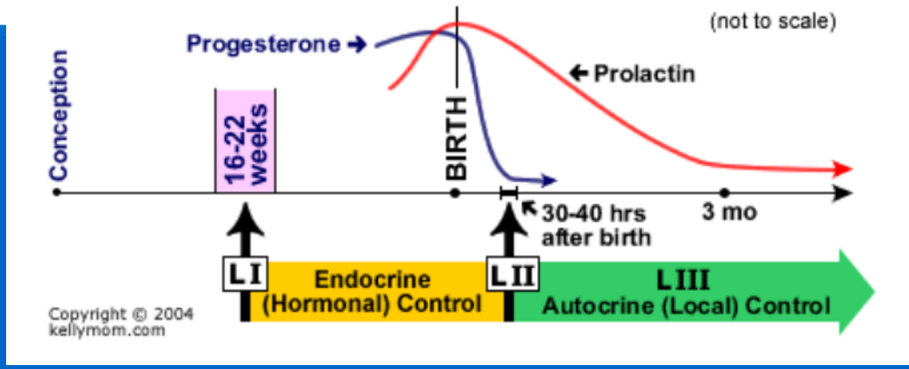
Gland Lobules are where milk is produced, they are made of smaller milk glands called alveoli, walls of the alveoli are lined with lactocytes which synthesis the milk. Breasts are factories, not warehouses, they are not storage units.

Mature milk begins in the second or third week after birth. It looks thinner. It can have a bluish tint. Levels of protein, fat, and antibodies in mature milk change as your baby's needs change.

Lactogenesis- milk production

Lactogenesis 1 (secretory initiation)

Takes place during the second half of pregnancy. The placenta supplies high levels of progesterone which inhibit further differentiation. In this stage, small amounts of milk can be secreted by week 16 gestation. By late pregnancy, some people can (hand) express colostrum if they choose.



Lactogenesis 2 (secretory activation)

Initiation of copious milk production at or just after parturition. With the separation of the placenta at delivery, the rapid drop in progesterone, as well as the presence of elevated levels of prolactin, cortisol, and insulin, are what stimulate this stage.

Transitional milk secretion begins 2-5 days post partum and develops into mature milk secretion by 2-3 weeks (Lactogenesis 3)

Breastfeeding is not a tap with an easy on/ off option.

Lactogenesis 3 (Autocrine (local) control of milk synthesis)

Milk removal is the primary control mechanism for supply maintenance, hormonal problems can still interfere with milk supply for some.

Lactogenesis 4 (involution)

Involution occurs, on average, 40 days after the last breastfeed, when breast milk secretion ceases.

Lactation is maintained by regular removal of milk and stimulation of the nipple

How does milk production work? - KellyMom.com Physiology, Lactation - StatPearls - NCBI Bookshelf (nih.gov) Editorial (tandfonline.com)

Lactogenesis- milk production

NHS Somerset

FIL- Feedback inhibitor of lactation (not father-in-law!)

FIL is a protein found in breastmilk, the more milk which is produced (and not removed) the higher the level of FIL in the breast.

More FIL = production of milk slowed down

Less FIL = production of milk is increased

Frequent, effective removal of milk is essential for a good supply.

N.B. the breast is never empty, milk production is continuous, a breast which has had effective milk removal, will contain less FIL which signals an increase in production of milk.

Prolactin

Must be present for milk synthesis, lactocytes on the walls of the alveoli contain prolactin receptors that allow prolactin to move into the lactocytes and stimulate the synthesis of milk in the alveoli.

Full alveoli stretch changing the prolactin receptor shape, which also decreases prolactin levels in the lactocytes and therefore reduces synthesis of milk.

Some drugs can have significant impact on prolactin levels:

Well known galactagogues such as domperidone will increase prolactin levels.

Some drugs such as aripiprazole can have a profound effect on prolactin levels decreasing them to the detriment of breastfeeding, reducing supply, despite being compatible with breastfeeding- consider alternatives when initiating in pregnancy.

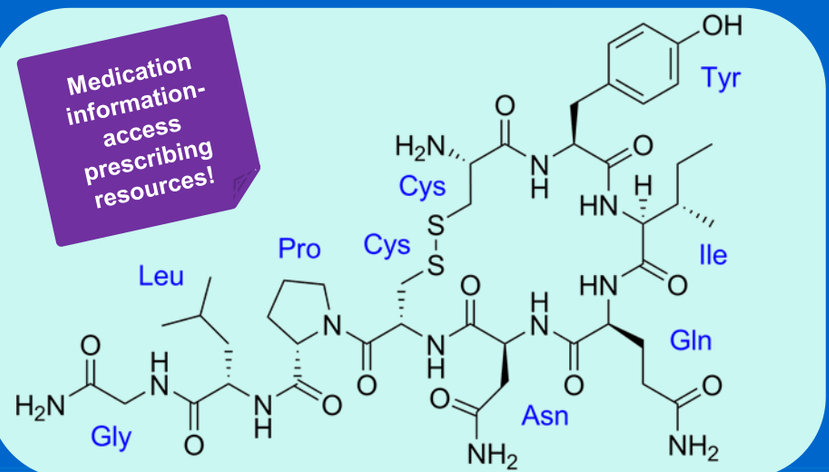
Oxytocin

Oxytocin causes the muscle fibres wrapped around the alveoli to contract, squeezing the milk from the alveoli through the ducts toward the nipple- known as “milk ejection reflex” or “let-down”.

Oxytocin also produces feelings of pleasure and relaxation, anti-stress and wellbeing.

Oxytocin is inhibited by worry, stress, shock or fear, which may prevent let-down of milk.

Medication information- access prescribing resources!



DID YOU EVER WONDER WHAT'S IN... ?

NHS Somerset

BREASTMILK

WATER

CARBOHYDRATES (energy source)
- Lactose
- **Oligosaccharides (see below)**

CARBOXYLIC ACID
- Alpha hydroxy acid
  - Lactic acid

PROTEINS
(building muscles and bones)
- Whey protein
  - Alpha-lactalbumin
    - HAMLET (Human Alpha-lactalbumin Made Lethal to Tumour cells)
  - Lactoferrin
  - Many antimicrobial factors (see below)
- Casein
- Serum albumin

NON-PROTEIN NITROGENS
- Creatine
- Creatinine
- Urea
- Uric acid
- Peptides (see below)
- Amino Acids (the building blocks of proteins)
  - Alanine
  - Arginine
  - Aspartate
  - Clycine
  - Cystine
  - Glutamate
  - Histidine
  - Isoleucine
  - Leucine
  - Lycine
  - Methionine
  - Phenylalanine
  - Proline
  - Serine
  - Taurine
  - Theronine
  - Tryptophan
  - Tyrosine
  - Valine
  - Carnitine (amino acid compound necessary to make use of fatty acids as an energy source)
- Nucleotides (chemical compounds that are the structural units of RNA and DNA)
  - 5'-Adenosine monophosphate (5''-AMP)
  - 3':5'-Cyclic adenosine monophosphate (3':5'-cyclic AMP)
  - 5'-Cytidine monophosphate (5'-CMP)
  - Cytidine diphosphate choline (CDP choline)
  - Guanosine diphosphate (UDP)
  - Guanosine diphosphate - mannose
  - 3'- Uridine monophosphate (3'-UMP)
  - 5'-Uridine monophosphate (5'-UMP)
  - Uridine diphosphate (UDP)
  - Uridine diphosphate hexose (UDPH)
  - Uridine diphosphate-N-acetyl-hexosamine (UDPAH)
  - Uridine diphosphoglucuronic acid (UDPGA)
  - Several more novel nucleotides of the UDP type

FATS
- Triglycerides
  - Long-chain polyunsaturated fatty acids
    - Docosahexaenoic acid (DHA) (important for brain development)
    - Arachidonic acid (AHA) (important for brain development)
    - Linoleic acid
    - Alpha-linolenic acid (ALA)
    - Eicosapentaenoic acid (EPA)
    - Conjugated linoleic acid (Rumenic acid)
  - Free Fatty Acids
  - Monounsaturated fatty acids
    - Oleic acid
    - Palmitoleic acid
    - Heptadecenoic acid
  - Saturated fatty acids
    - Stearic
    - Palmitic acid
    - Lauric acid
    - Myristic acid
- Phospholipids
  - Phosphatidylcholine
  - Phosphatidylethanolamine
  - Phosphatidylinositol
  - Lysophosphatidylcholine
  - Lysophosphatidylethanolamine
  - Plasmalogens
- Sphingolipids
  - Sphingomyelin
  - Gangliosides
    - GM1
    - GM2
    - GM3
  - Glucosylceramide
  - Glycosphingolipids
  - Galactosylceramide
  - Lactosylceramide
  - Globotriaosylceramide (GB3)
  - Globoside (GB4)
- Sterols
  - Squalene
  - Lanosterol
  - Dimethylsterol
  - Methosterol
  - Lathosterol
  - Desmosterol
  - Triacylglycerol
  - Cholesterol
  - 7-dehydrocholesterol
  - Stigma-and campesterol
  - 7-ketocholesterol
  - Sitosterol
  - β-lathosterol
  - Vitamin D metabolites
  - Steroid hormones

VITAMINS
- Vitamin A
- Beta carotene
- Vitamin B6
- Vitamin B8 (Inositol)
- Vitamin B12
- Vitamin C
- Vitamin D
- Vitamin E
- a-Tocopherol
- Vitamin K
- Thiamine
- Riboflavin
- Niacin
- Folic acid
- Pantothenic acid
- Biotin

MINERALS
- Calcium
- Sodium
- Potassium
- Iron
- Zinc
- Chloride
- Phosphorus
- Magnesium
- Copper
- Manganese
- Iodine
- Selenium
- Choline
- Sulpher
- Chromium
- Cobalt
- Fluorine
- Nickel

METAL
- Molybdenum (essential element in many enzymes)

GROWTH FACTORS
(aid in the maturation of the intestinal lining)
- Cytokines
  - interleukin-1β (IL-1β)
  - IL-2
  - IL-4
  - IL-6
  - IL-8
  - IL-10
  - Granulocyte-colony stimulating factor (G-CSF)
  - Macrophage-colony stimulating factor (M-CSF)
  - Platelet derived growth factors (PDGF)
  - Vascular endothelial growth factor (VEGF)
  - Hepatocyte growth factor -α (HGF-α)
  - HGF-β
  - Tumor necrosis factor-α
    - Interferon-γ
  - Epithelial growth factor (EGF)
  - Transforming growth factor-α (TGF-α)
  - TGF β1
  - TGF-β2
  - Insulin-like growth factor-I (IGF-I) (also known as somatomedin C)
  - Insulin-like growth factor- II
  - Nerve growth factor (NGF)
  - Erythropoietin

PEPTIDES
(combinations of amino acids)
- HMGF I (Human growth factor)
- HMGF II
- HMGF III
- Cholecystokinin (CCK)
- β-endorphins
- Parathyroid hormone (PTH)
- Parathyroid hormone-related peptide (PTHrP)
- β-defensin-1
- Calcitonin
- Gastrin
- Motilin
- Bombesin (gastric releasing peptide, also known as neuromedin B)
- Neurotensin
- Somatostatin

HORMONES
(chemical messengers that carry signals from one cell, or group of cells, to another via the blood)
- Cortisol
- Triiodothyronine (T3)
- Thyroxine (T4)
- Thyroid stimulating hormone (TSH) (also known as thyrotropin)
- Thyroid releasing hormone (TRH)
- Prolactin
- Oxytocin
- Insulin
- Corticosterone
- Thrombopoietin
- Gonadotropin-releasing hormone (GnRH)
- GRH
- Leptin (aids in regulation of food intake)
- Ghrelin (aids in regulation of food intake)
- Adiponectin
- Feedback inhibitor of lactation (FIL)
- Eicosanoids
  - Prostaglandins (enzymatically derived from fatty acids)
    - PG-E1
    - PG-E2
    - PG-F2
  - Leukotrienes
  - Thromboxanes
  - Prostacyclins

ENZYMES
(catalysts that support chemical reactions in the body)
- Amylase
- Arysulfatase
- Catalase
- Histaminase
- Lipase
- Lysozyme
- PAF-acetylhydrolase
- Phosphatase
- Xanthine oxidase

ANTIPROTEASES
(thought to bind themselves to macromolecules such as enzymes and as a result prevent allergic and anaphylactic reactions)
- a-1-antitrypsin
- a-1-antichymotrypsin

ANTIMICROBIAL FACTORS
(are used by the immune system to identify and neutralize foreign objects, such as bacteria and viruses.)
- Leukocytes (white blood cells)
  - Phagocytes
    - Basophils
    - Neutrophils
    - Eoisinophils
  - Macrophages
  - Lymphocytes
    - B lymphocytes (also known as B cells)
    - T lymphocytes (also known as C cells)
- sIgA (Secretory immunoglobulin A) (the most important antiinfective factor)
- IgA2
- IgG
- IgD
- IgM
- IgE
- Complement C1
- Complement C2
- Complement C3
- Complement C4
- Complement C5
- Complement C6
- Complement C7
- Complement C8
- Complement C9
- Glycoproteins
  - Mucins (attaches to bacteria and viruses to prevent them from clinging to mucousal tissues)
  - Lactadherin
- Alpha-lactoglobulin
- Alpha-2 macroglobulin
- Lewis antigens
- Ribonuclease
- Haemagglutinin inhibitors
- Bifidus Factor (increases growth of Lactobacillus bifidus - which is a good bacteria)
- Lactoferrin (binds to iron which prevents harmful bacteria from using the iron to grow)
- Lactoperoxidase
- B12 binding protein (deprives microorganisms of vitamin B12)
- Fibronectin (makes phagocytes more aggressive, minimizes inflammation, and repairs damage caused by inflammation)
- Oligosaccharides (more than 200 different kinds!)

FORMULA

WATER

CARBOHYDRATES
- Lactose
- Corn maltodextrin

PROTEIN
- Partially hydrolyzed reduced minerals whey protein concentrate (from cow's milk)

FATS
- Palm olein
- Soybean oil
- Coconut oil
- High oleic safflower oil (or sunflower oil)
- M. alpina oil (Fungal DHA)
- C.cohnii oil (Algal ARA)

MINERALS
- Potassium citrate
- Potassium phosphate
- Calcium chloride
- Tricalcium phosphate
- Sodium citrate
- Magnesium chloride
- Ferrous sulphate
- Zinc sulphate
- Sodium chloride
- Copper sulphate
- Potassium iodide
- Manganese sulphate
- Sodium selenate

VITAMINS
- Sodium ascorbate
- Inositol
- Choline bitartrate
- Alpha-Tocopheryl acetate
- Niacinamide
- Calcium pantothenate
- Riboflavin
- Vitamin A acetate
- Pyridoxine hydrochloride
- Thiamine mononitrate
- Folic acid
- Phylloquinone
- Biotin
- Vitamin D3
- Vitamin B12

ENZYME
- Trypsin

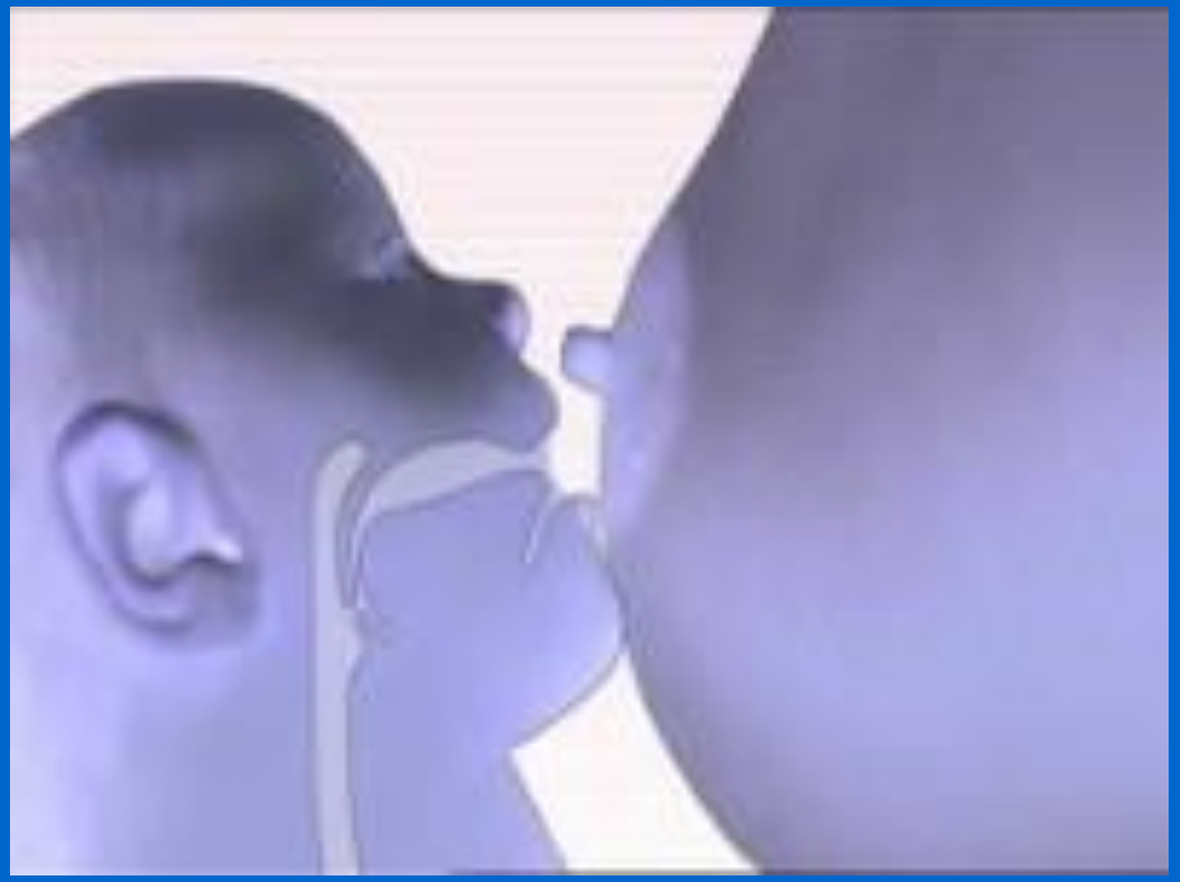
AMINO ACID
- Taurine
- L-Carnitine (a combination of two different amino acids)

NUCLEOTIDES
- Cytidine 5-monophosphate
- Disodium uridine 5-monophosphate
- Adenosine 5-monophosphate
- Disodium guanosine 5-monophosphate
- Soy Lecithin

Seek expert advice!

Signs of good attachment

NHS Somerset



Positioning and attachment video - Baby Friendly Initiative (unicef.org.uk)

Link if video doesn't work.

Global Health Media have some excellent videos which show effective attachment

Videos — English - Global Health Media Project

Breastfeeding Attachment - Video - Global Health Media Project

Link if video doesn't work.

Signs of effective attachment

NHS Somerset

The latch

- Your baby has a large mouthful of breast.
- Your baby's chin is firmly touching your breast.
- Your baby's mouth is wide open.
- If you can see the dark skin around your nipple, you should see more dark skin above your baby's top lip than below your baby's bottom lip.
- Your baby's cheeks stay rounded during sucking.

How it feels

- It doesn't hurt you when your baby feeds (although the first few sucks may feel strong).
- No change in shape or colour of the nipple after feeds e.g. should not be lipstick shaped or have lines across the nipple.

The Feed

- Your baby rhythmically takes long sucks and swallows (it is normal for your baby to pause from time to time).
- Your baby finishes the feed and comes off the breast on their own.
- You can hear and see the baby swallowing the milk although there will be pauses.

Nappies

- Baby produces regular soaked/heavy nappies; See slide 17 what's in a nappy
- From about 6 weeks the amount of poo varies from day to day, often with larger amounts. You will get to know your baby's pattern.

Expressing- a skill

Seek expert advice!

Expressing is not a requirement to breastfeed.

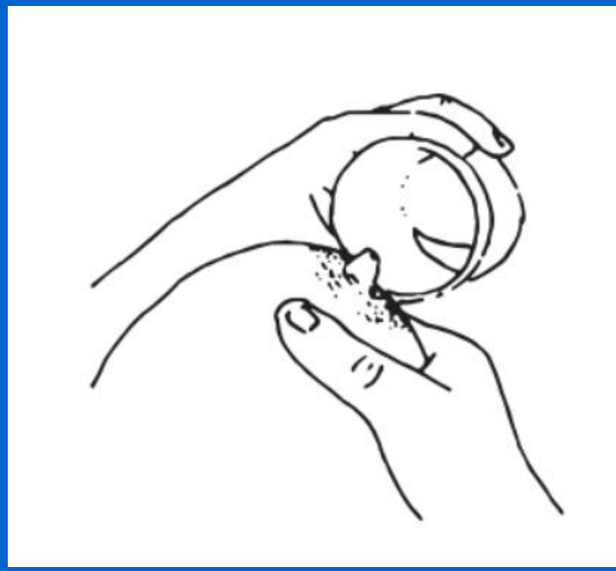
- BFN: Expressing and Storing Breastmilk
- BFN Expressing Leaflet 2019
- Expressing your milk before your baby arrives - ABM

Hand expression video - Baby Friendly Initiative (unicef.org.uk)
See link if embedded video doesn't work.

Expressing can be done by hand or pump.

Once mastered, hand expressing requires little equipment.

Expressing is a skill, parents may benefit from skilled advice if learning to express.



Effective milk transfer

NHS Somerset

Seek expert advice!

Breastfeeding Assessment Tools - Baby Friendly Initiative (unicef.org.uk)

How can I tell that breastfeeding is going well?

Breastfeeding is going well when:	Talk to your midwife / health visitor if:
Your baby has 8 feeds or more in 24 hours	Your baby is sleepy and has had less than 6 feeds in 24 hours
Your baby is feeding for between 5 and 40 minutes at each feed	Your baby consistently feeds for 5 minutes or less at each feed Your baby consistently feeds for longer than 40 minutes at each feed
	Your baby always falls asleep on the breast and/or never finishes the feed himself
Your baby has normal skin colour	Your baby appears jaundiced (yellow discolouration of the skin) Most jaundice in babies is not harmful, however, it is important to check your baby for any signs of yellow colouring particularly during the first week of life. The yellow colour will usually appear around the face and forehead first and then spread to the body, arms and legs. A good time to check is when you are changing a nappy or clothes. From time to time press your baby's skin gently to see if you can see a yellow tinge developing. Also check the whites of your baby's eyes when they are open and the inside of his/her mouth when open to see if the sides, gums or roof of the mouth look yellow
Your baby is generally calm and relaxed whist feeding and is content after most feeds	Your baby comes on and off the breast frequently during the feed or refuses to breastfeed
Your baby has wet and dirty nappies (see chart over page)	Your baby is not having the wet and dirty nappies explained overleaf
Breastfeeding is comfortable	You are having pain in your breasts or nipples, which doesn't disappear after the baby's first few sucks. Your nipple comes out of the baby's mouth looking pinched or flattened on one side
When your baby is 3-4 days old and beyond you should be able to hear your baby swallowing frequently during the feed	You cannot tell if your baby is swallowing any milk when your baby is 3-4 days old and beyond
	You think your baby needs a dummy
	You feel you need to give your baby formula milk

Seek expert advice!

What's in a nappy?

Breastfeeding Assessment Tools - Baby Friendly Initiative (unicef.org.uk)

NHS Somerset

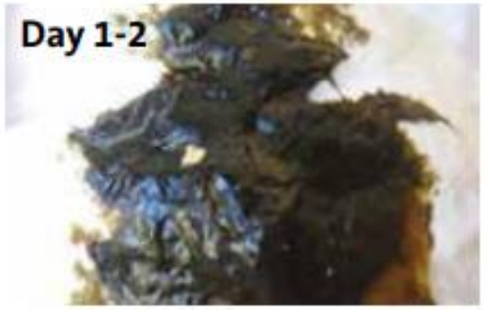
Nappies

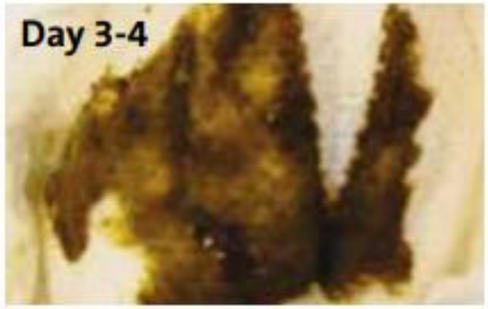
The contents of your baby's nappies will change during the first week. These changes will help you know if feeding is going well. Speak to your midwife if you have any concerns

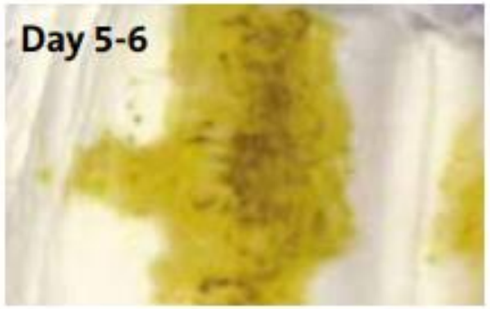
Baby's age	**Wet** nappies	**Dirty** nappies
1-2 days old	1-2 or more per day urates may be present*	1 or more dark green/black 'tar like' called meconium
3-4 days old	3 or more per day nappies feel heavier	At least 2, changing in colour and consistency – brown/green/yellow, becoming looser ('changing stool')
5-6 days old	5 or more Heavy wet**	At least 2, yellow; may be quite watery
7 days to 28 days old	6 or more heavy wet	At least 2, at least the size of a £2 coin yellow and watery, 'seedy' appearance

*Urates are a dark pink/red substance that many babies pass in the first couple of days. At this age they are not a problem, however if they go beyond the first couple of days you should tell your midwife as that may be a sign that your baby is not getting enough milk.

** With new disposable nappies it is often hard to tell if they are wet, so to get an idea if there is enough urine, take a nappy and add 2-4 tablespoons of water. This will give you an idea of what to look/feel for.







How to encourage and support parents

NHS Somerset

Infant crying is normal and will stop

Comfort methods can sometimes soothe the baby and crying will stop

Ok to walk away for a few minutes if you've checked the baby is safe

Never shake or hurt the baby.

ICON

5 tips to help soothe a crying baby

1. Talk calmly, hum or sing to your baby
2. Let them hear a repeating or soothing sound
3. Hold them close, skin to skin
4. Go for a walk outside, with your baby
5. Give them a warm bath

Babies should sleep in the same room as their care-giver for at least the first 6 months. Safe sleep practice should always be observed

It is important for you to know that there are some circumstances in which Bed sharing with your baby can be very dangerous:

- **Either you or your partner smokes (even if you do not smoke in the bedroom)**
- **Either you or your partner has drunk alcohol or taken drugs (including medications that may make you drowsy)**
- **Your baby was born premature (before 37 weeks)**
- **Your baby was born at a low weight (2.5kg or 5½ lbs or less)**

Never sleep on a sofa or armchair with your baby, this can increase the risk of SIDS by 50 times

You should never sleep together with your baby if any of the above points apply to you or your partner.

How to encourage and support parents- SAFEGUARDING

NHS Somerset

With parents, particularly new parents consider safeguarding.

- What is adding to the risk? Lots of crying? Mental health distress?
- Has the parent got support?
- Is their partner supportive? Is the partner getting support?
- What was the parents' childhood like? Did they have a good experience? Do they need more support?

From April to November 2021, we saw 6 children under 1 year of age come to harm, most of them were not known to children social care but they were all seeing their HV and GP.

Babies pick up on stress and domestic abuse, could a distressed breastfeeding dyad be a sign of domestic abuse or other distress at home?

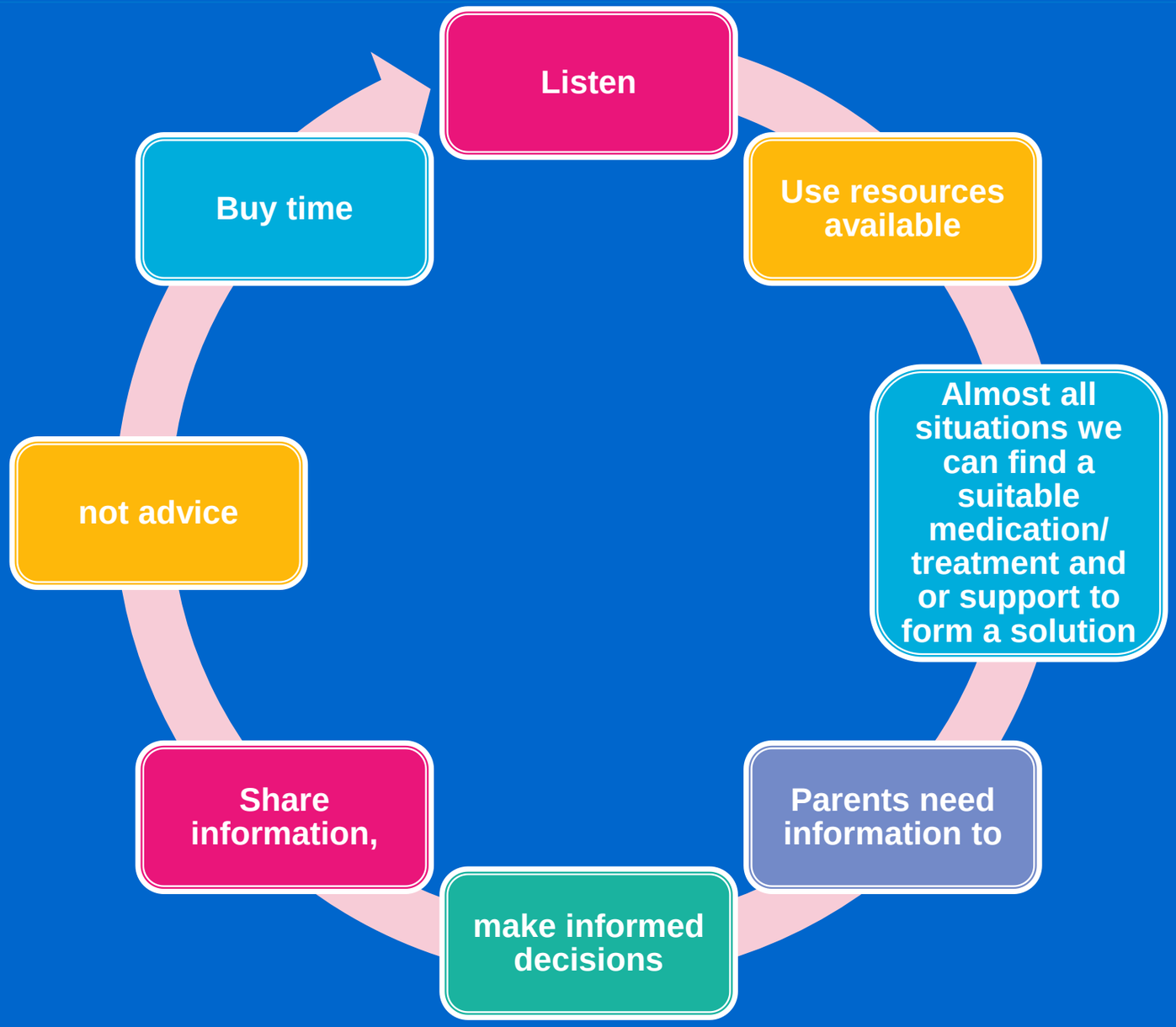
Seek expert advice!

If you have concerns, contact your safeguarding lead in the first instance.

SSCP – Somerset Safeguarding Children Partnership (safeguardingsomerset.org.uk)

How to encourage and support parents with common breastfeeding problems

NHS Somerset



Seek expert advice:

- ✓Infant feeding team at YDH and Musgrove
  - ❖Under 16 weeks for tongue tie
  - ❖Under 6 weeks for general support
  - ❖Faltering growth where HV is referring to Paeds
- ✓Health Visiting teams

BMJ Venn: Assessment of mother and baby for nipple pain in the mother.

Identifying the cause of breast and nipple pain during lactation | The BMJ (Published 13 July 2021)

Seek expert advice!

NHS Somerset

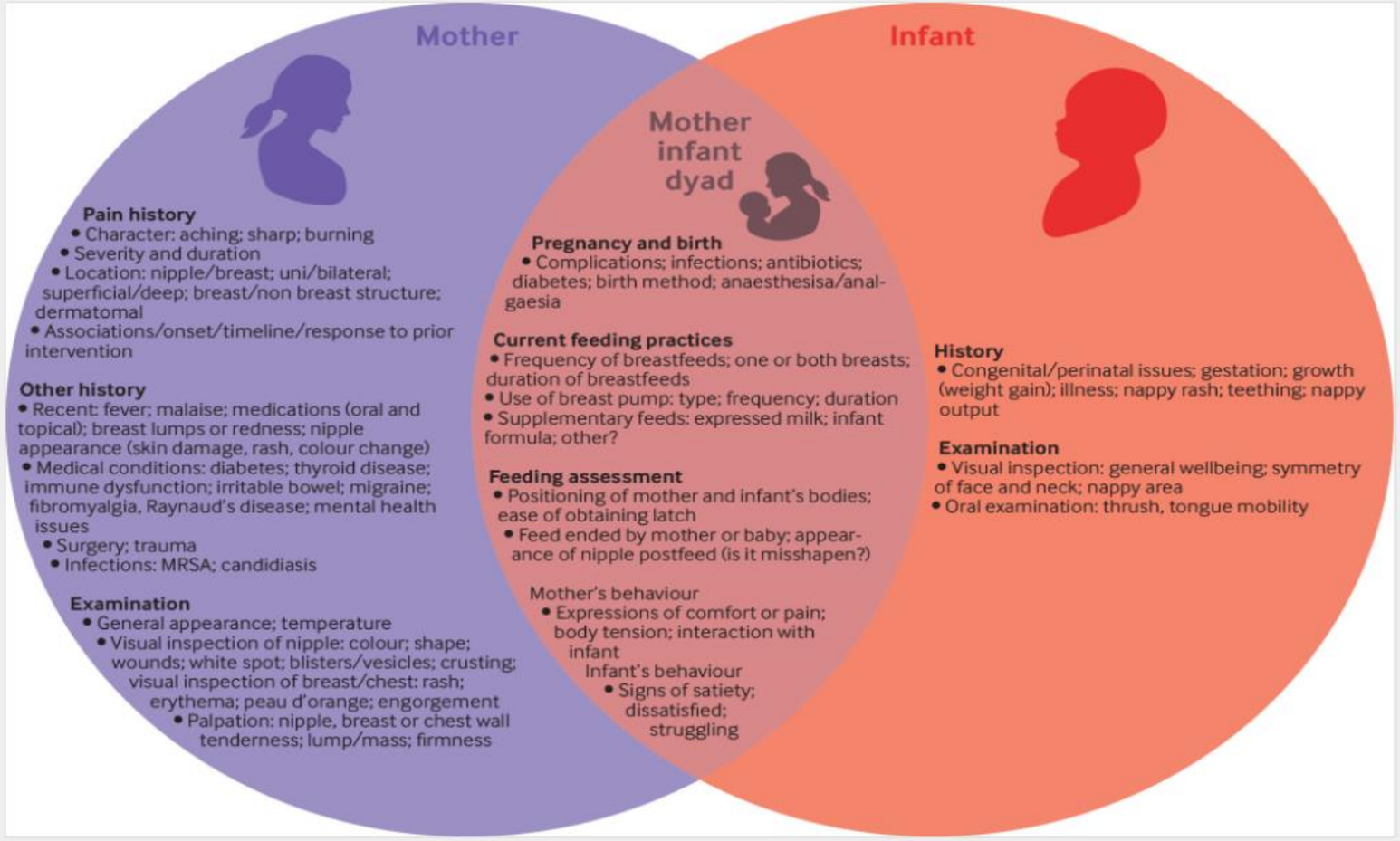


Fig 1

Assessment of mother and baby for breast or nipple pain in the mother

The most frequent cause of nipple pain when breastfeeding, is poor latch or attachment to the breast

There will be a solution

Don't rush to prescribe before you know what's wrong (is it really Thrush?!)

An itchy, erythematous rash on the nipple, areola area, or breast is likely to be dry skin/ eczema, and should not automatically be diagnosed as nipple thrush

Persistent nipple and breast pain during lactation is usually multifactorial. Elicit factors from maternal, infant, medical, mental, and psychosocial health, as well as from mechanical trauma or infection.

All or nothing?

- Breastfeeding really doesn't have to be all or nothing but there are some important factors to consider:

Exclusive breastfeeding/ chestfeeding may be extremely important to a family.	Using formula may feel like a failure to some.	Feeding is about more than just nutrition	The parents goals are really very important when discussing options.
Nipple confusion/ flow preference? Nipple Confusion - La Leche League GB	Paced bottle feeding is essential at all times, particularly when mixed feeding! NB eye contact is important.	Parents may not realise that combination feeding is possible, they may think even one top up means they can't continue to breastfeed (exclusively or combination feeding with expressed milk or formula alongside).	Language around mixed feeding, continuing a journey or ending it is really critical to how parents feel after they've been supported.
Mixed feeding may be direct breast and expressed breast milk or breast and formula- it may be a parental choice, or need, where top ups are needed, a parent may wish to return to exclusive breastmilk.	Ideally expressing should wait until 6 weeks- refer to the IFT or HV for trained advice.	Just One Bottle 2014 (health-e-learning.com) "Just One Bottle Won't Hurt"---or Will It?	Parents may not realise that even one breastfeed per day alongside formula has benefits to the baby and mum.

* **Every breastfeed is beneficial to both mum/ parent and baby.**

But surely “fed is best”?

NHS Somerset

We often hear this phrase, but what’s wrong with it?

- The alternative to fed would be to not feed them… “best” implies an alternative option.
- It is often said in a similar breath to “breast is best” which was coined by formula companies it is equally as problematic, breast is not best, it is the biological norm.
- It undermines parents wishes and goals
- It undermines the benefits of breastfeeding to parent and baby
- Are we considering the benefits of optimal feeding?
- Are we considering the cost to parents?
- Are we considering the cost to the NHS? UNICEF: the potential contribution of increasing breastfeeding rates in the UK

How about:

- **Informed is best ☑**
- **Supported is best ☑**

Buy time, keep the baby fed, find more information if you’re not sure

Seek trained advice.

It is not all or nothing, any amount of human milk is valuable The Politics of Breastfeeding: When Breasts are Bad for Business - Gabrielle Palmer - Google Books

Safe use of medications in lactation

NHS Somerset

If in doubt- check it out

Do not cause harm by inaction

Do not cause harm by trying to avoid harm

Transfer of drugs into milk

First few days post-partum (first 72 hours)

Open cellular gaps in alveolar cells allow the passage of immunoglobulins which are large molecules.

These gaps enable free movement of medication into breastmilk.

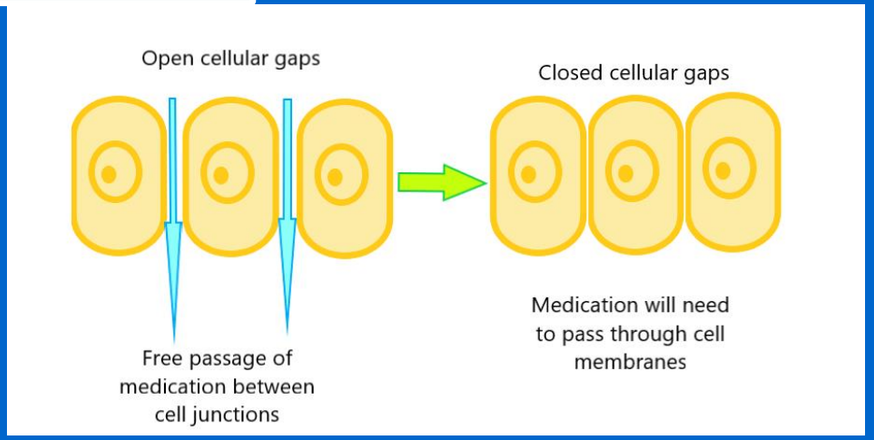
This period is often the most medicated time for most breastfeeding journeys. While medications penetrate into colostrum in higher levels, the absolute dose of drugs is low due to small volumes consumed.

After the first few days post-partum

After the first few days, the alveolar cellular gaps close with prolactin causing the alveolar cells to swell, preventing free movement of medications into breastmilk.

Medication now has to pass through cell membranes, most drugs pass by simple diffusion.

Molecule size of a drug now affects ease of passage into milk.



Breastfeeding and Medicines Are they compatible? (breastfeedingandmedication.co.uk)

Hales Medications and Mothers Milk. 2022

Safe prescribing in lactation- considerations

NHS Somerset

99% of drugs pass into milk by passive diffusion

Usually drugs easily transfer into human milk when they:

- **Have high concentrations in maternal plasma**
- **Low molecular weight (<800)**
- **Low protein binding**
- **Pass into the brain easily.**

<u>Does the timing of feeds help?</u>

Rarely will timing of feeds change the safety of drugs in breastmilk.

Once the drug has reached steady state timing is pointless.

Should you pump and dump? ☒

What about pump and save?

Buy time while you find out more? ☑

Resources:

Breastfeeding and medicines - NHS Somerset

Breastfeeding and Medication Are they compatible? (breastfeeding-and-medication.co.uk)

Pharmacokinetics – Breastfeeding and Medication, Dr Wendy Jones MBE

Drugs in breastfeeding (nih.gov)

Hales Medications and Mothers Milk. 2022 Thomas Hale, Kaytlin Krutsch

Dumping a precious resource when unnecessary (rarely needed, very few exceptions!) is wasteful and causes +++ distress.

It is important to **avoid mastitis**, in some cases, expressing may be needed to protect supply and avoid mastitis

Not all babies will take a bottle

Mum/ parent needs to know how to express either by hand or have a pump to aid them- not all will have this available to them.

! **The topic of drugs in lactation can fill a Masters or PhD so the information here is to give a basic introduction but most importantly, share how to find out information when it's needed. We do not need to know everything, but we must know where to look for the answers.** !

Factors contributing to drug safety
Pharmacokinetics- ADME

NHS Somerset

Absorption

Medication needs to be absorbed into the systemic system to take effect

Poor **oral bioavailability** is good, if a drug is poorly absorbed orally, limited amounts reach milk, then limited amounts will be absorbed by the baby. E.g. Nystatin and vancomycin are not absorbed, so cannot enter the milk.

Stable in stomach acid? Will the drug get destroyed in the baby's stomach? E.g. omeprazole in the milk will not be gastro-protected and will degrade in the infants stomach.

Distribution

- A **high volume of distribution** will contribute to a lower maternal plasma concentration and a subsequent lower concentration in milk.
- **Plasma Protein binding-** Free unbound drug diffuses readily into breastmilk, while highly protein-bound drugs like ibuprofen or warfarin (both 99% protein bound) are unable to diffuse in significant amounts. (high plasma protein bound >90%, highly protein bound means a drug are unable to transfer into milk in high levels)

Metabolism

- **First pass metabolism**? E.g. GTN is not orally bioavailable.
- **Parental pharmacogenomics-** Codeine is variably metabolised to morphine by the cytochrome P450 (CYP) 2D6 enzyme. The ultra-rapid metaboliser phenotype occurs in up to 10% of Western Europeans and up to 30% of North Africans. Repeated codeine doses in these parents produce significant amounts of morphine.
- **Half-life of the drug-** The shorter the t½ the better, after 5 half lives the drug will have left the body and milk. (<24 hours is preferable). Drugs with a long $t_{1/2}$ such as diazepam is likely to accumulate in the infant and cause drowsiness- use shorter acting agent.

Elimination

- Very little drug is transferred/ eliminated into human milk, the summary of product characteristics will often discuss milk levels found in animals, however this may not affect the safety of use of the drug negatively, there may be more information available- use Lactmed or other specialist resources.

Drug Safety in Lactation (medsafe.govt.nz) Pharmacokinetics – Breastfeeding and Medication: Dr Wendy Jones MBE p2016b3_sample.p…accp.com)

Factors contributing to drug safety.

Molecular weight of a drug

- Large molecular weight is good Passage into breastmilk is limited over 200Da and will not pass easily over 800Da

Therapeutic range of drugs

- Wide therapeutic ranges are preferable. Drugs which exceed therapeutic levels can lead to side effects

Milk-plasma ratio

- The higher the milk plasma ratio, the more drug is found in breastmilk. The M/P ratio is the amount of drug in the maternal plasma : the amount of drug in milk.

Milk- plasma ratio:

- <1 less accumulation in breastmilk
- >1 suggest the drug concentrates in breastmilk
- iodine is up to 26, while alcohol is only 1.

Breastmilk doesn't store drugs, as maternal plasma level drops, so does the level in breastmilk.

Age of baby/ volume of breastmilk received

- A 3 year old who only feeds at night will take minimal milk on board compared to an exclusively breastfed 3 month old.

Licenced for use in children already?

- Established safety in infants and babies

Lipid solubility- lipophilic drugs

Common ailments to consider

NHS Somerset

Resources:

Breastfeeding and medicines - Somerset ICB Resources brought together in one place

How to advise women on the safe use of medicines while breastfeeding – Breastfeeding and Medication (breastfeeding-and-medication.co.uk) PJ article describes safe use of medicines while breastfeeding, really useful table included- access to the article available from breastfeeding and medication.

Providing effective, evidence based support for breastfeeding women in primary care – Breastfeeding and Medication (breastfeeding-and-medication.co.uk)

Providing effective evidence based support for breastfeeding women in primary care | The BMJ

	Baby
Reflux	See the slide on Reflux and GORD
Constipation	Is it infant dyschezchia? Are they over 6 weeks old? Do not advise water under 6 months or any fruit juices- only breast milk (or infant formula) under 6 months.
Faltering growth-	Full feeding assessment needed by someone with suitable training and expertise in breastfeeding.
Colic	Common and poorly understood. Empathy is needed +++ OTC products have little to no evidence. Babywearing may help, as well as Colic - NHS
Tongue tie-	Cannot be identified by looking, suspected TT should be referred for full oral assessment by a person trained in TT and oral assessment. Refer to HV team if over 6 weeks see current pathway.

	Mum/ lactating parent
Contraception	☑ Contraception - Somerset ICB
EHC	☑ Emergency contraception and breast-feeding – SPS - Specialist Pharmacy Service
Pain	☑ Analgesics - The Breastfeeding Network Codeine☒
Coughs and colds	Self care (paracetamol + ibuprofen ☑☑) Decongestants are contraindicated ☒
Antimicrobials	☑ See formulary for options
Mental health ,	☑ The BNF will be shortly updated with better monographs for SSRI's which will be positive for the use of medication in breastfeeding. Antipsychotics.
Allergy	☑ Hayfever and corticosteroid nasal sprays
Skin conditions	☑ eczema

Less common issues to consider

Illicit drug use:	
Cocaine	**NOT compatible with breastfeeding. Seek advice from the infant feeding team. Any baby exposed to cocaine must be taken to ED**
Cannabis	**Not compatible with breastfeeding. THC has a long half life and may accumulate, there are no studies on it's safety.**

DMER- Dysphoric Milk Ejection Reflex	What is D-MER? - La Leche League International (llli.org) Negative Feelings: D-MER and Aversion - Breastfeeding Support
Anticoagulation	Using oral anticoagulants in breastfeeding women – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice
CEV parents and covid	Clinically extremely vulnerable, Covid 19 infection and breastfeeding – Breastfeeding and Medication (breastfeeding-and-medication.co.uk)
Menopause	Breastfeeding and medicines - NHS Somerset
Oral thrush	**See thrush slide and** Breastfeeding and medicines - NHS Somerset
Raised cholesterol	Breastfeeding and medicines - NHS Somerset **See cholesterol**
Breast Surgery	www.bfar.org Breast Surgery and Breastfeeding - Breastfeeding Support

Suitable for self-care
Supplements?

Anyone lactating should take a vitamin D supplement daily, as should their nursling also receive a daily vitamin D supplement	•Adults while lactating •Infants and children •Suitable for self care •Available for eligible families via healthy start vitamins •Babies receiving more then 500ml of infant formula per day do not need additional vitamin D supplementation (this may apply to combination fed babies!)
Parents with deficiency	(<25 Serum 25-hydroxyvitamin D levels (nmol/l)) should be prescribed a 10 week course of 4000IU see the formulary page for details.
Anyone who may become pregnant	•Should take a daily supplement of folic acid 400mcg •Prescribe folic acid 5mg to eligible groups with clinical need Medicines used in pregnancy - Somerset CCG •Minor Ailments Scheme coming to community pharmacy for a PGD for supply of folic acid 5mg for patients at increased risk of neural tube defects.
Multivitamins while lactating?	•While a multivitamin isn't necessary, parents may wish to take one: this would be for the parents benefit rather than their nursling, expensive breastfeeding supplements aren't required, as long as a multivitamin contains 10mcg vitamin D, avoiding "high dose preparations" containing excessive supplements which can accumulate in milk such as iodine (do not exceed 100% RDA) Breastfeeding and multivitamin and mineral supplements – Breastfeeding and Medication (breastfeeding-and-medication.co.uk)

It’s NOT Thrush…

Seek expert advice!

NHS Somerset

Breastfeeding and medicines - NHS Somerset	formulary guidance available for thrush while lactating
Milk tongue?	Gently rubbing small circles with a finger tip, or clean muslin dipped in cooled boiled water may reduce or removes the coating. Note, not all milky tongues are easily wiped away, not being able to do so doesn’t confirm thrush
Epstein’s Pearls or Bohn’s nodules?	Both of which are normal and don’t require treatment
Raynaud’s or vasospasm?	See the next slide.
Thrush?	Thrush, being fungal is unlikely to be limited to just the tongue as it spreads to other areas such the inside of lips, cheeks and gums. Candidiasis cannot infect the skin of the nipple or areola or deeper breast tissues in healthy people as these environments are not right for overgrowth of Candida leading to candidiasis.

Signs of thrush in the baby:

- Creamy white patches in your baby’s mouth, on the tongue and may be far back or in the cheeks. Patches do not rub off.
- Baby’s tongue/lips may have a white gloss

Other causes of nipple pain:

- attachment of the baby to the breast may need fine-tuning
- eczema including reactions to breast pads or creams
- tongue-tie in the baby
- Raynaud’s syndrome (associated with history of poor circulation and pain made worse when cold)
- white spot which produces pin-point pain
- bacterial infection which appears as a yellowy, thick discharge
- vasospasm which is associated with less than perfect attachment of the baby at the breast and produces white nipples (particularly at the tip)after breastfeeds

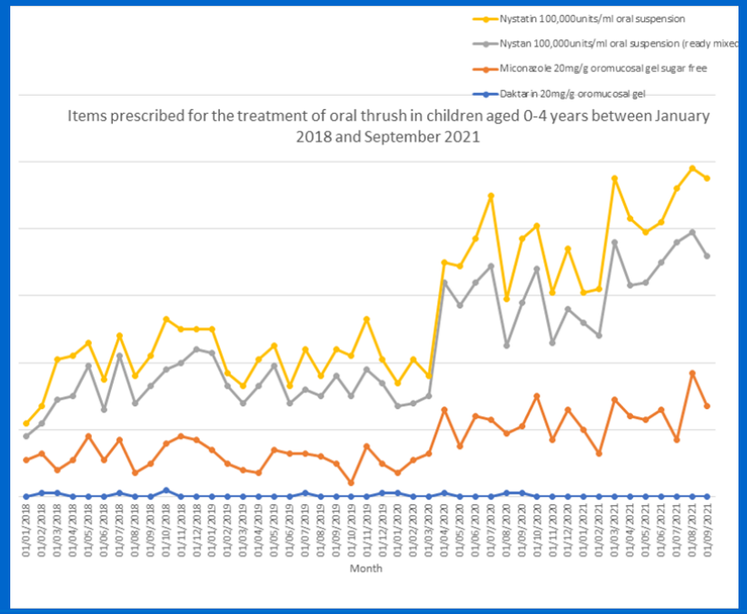
Expert Breastfeeding support is essential

Fungal infections and Breastfeeding – The Breastfeeding Network

Pain: if breastfeeding hurts – The Breastfeeding Network

Diagnosis of nipple pain | Diagnosis | Breastfeeding problems | CKS | NICE

Items prescribed for the treatment of oral thrush in children aged 0-4 years between January 2018 and September 2021 in Somerset.



Raynaud's or vasospasm?

Seek expert advice!

[Breastfeeding and medicines - NHS Somerset]

[Raynaud's Phenomenon in Breastfeeding Mothers - The Breastfeeding Network]

[Nifedipine - Drugs and Lactation Database (LactMed) - NCBI Bookshelf (nih.gov)]

[Mammary Constriction Syndrome - Breastfeeding Support]

Some features of vasospasm or Raynaud's affecting breastfeeding:

- Pain which worsens in the cold e.g. passing fridges in the supermarket or even exposure of the nipple to feed
- Bi or tri-phasic colour changes immediately after feeds
- History of circulation problems or close family history of circulation problems
- Difficulty initiating breastfeeding- poor latch and or tongue tie present
- History of migraines
- Early delivery of baby or small baby – due to vasoconstriction of placental blood vessels
- Optimisation of attachment should be undertaken before considering medical treatment.
- N.B Dark or Black skin may not lose colour in the same way white/ pale skin does.

Mammary constriction syndrome is a new explanation for deep breast pain during breastfeeding.

- Symptoms of deep breast pain that can be caused by the constriction of blood vessels within the breast tissue.
- The pain is likely caused by a baby feeding in an uncomfortable latch and/or due to muscle tension either from the way a mother is sitting to breastfeed, or the tensing of muscles in anticipation of breastfeeding pain.
- Mammary constriction syndrome can be helped by a pectoral muscle massage and improving a baby's positioning and attachment at the breast.

Reflux or GORD?

NHS Somerset

This can be distressing to parents and put pressure on already tired mental health.

It may well be a “laundry” issue, rather than clinical, but it’s important not to use this phrase with parents when they’re seeking support.

What is the issue here? Reflux usually happens because the baby’s oesophagus has not fully developed, so milk can come back up easily.

Infant colic

Commonly affects infants.
It may be colic when the baby cries for more than 3 hours a day, 3 days a week for at least 1 week.

Posseting

Most babies posset milk after a feed and is characterised as effortless regurgitation, usually small amount of milk, easily mopped up with a cloth.

Silent reflux

Typically characterised by reflux symptoms, without the vomiting. Baby may cry or cough after feeds, they may be very unsettled and upset

GORD

GOR that causes symptoms (for example, discomfort or pain) severe enough to merit medical treatment, or to gastro-oesophageal reflux.
Associated complications (such as oesophagitis or pulmonary aspiration).

Reflux

Reflux usually starts before a baby is 8 weeks old and gets better by the time they're 1.

Symptoms of reflux in babies include:

- bringing up milk or being sick during or shortly after feeding
- coughing or hiccupping when feeding
- being unsettled during feeding
- swallowing or gulping after burping or feeding
- crying and not settling
- not gaining weight as they're not keeping enough food down
- Sometimes babies may have signs of reflux but will not bring up milk or be sick. This is known as silent reflux.

GORD Gastro oesophageal reflux disease [NG1]

Initial management

- Do not use positional management. NHS advice on sudden infant death syndrome (SIDS), infants should be placed on their back when sleeping.
- In breast-fed infants with unexplained feeding difficulties or frequent regurgitation associated with marked distress, ensure that a person with appropriate expertise and training carries out a breastfeeding assessment.
- In breast-fed infants with frequent regurgitation associated with marked distress that continues despite a breastfeeding assessment and advice, consider alginate therapy for a trial period of 1 to 2 weeks. If the alginate therapy is successful continue with it, but try stopping it at intervals to see if the infant has recovered.

Do not offer acid-suppressing drugs, such as proton pump inhibitors (PPIs), to treat overt regurgitation in infants and children occurring as an isolated symptom.

Consider a 4-week trial of a PPI for those who are unable to tell you about their symptoms who have overt regurgitation with 1 or more of the following:

- unexplained feeding difficulties (for example, refusing feeds, gagging or choking)
- distressed behaviour
- faltering growth
- Apnoea for more than 20 seconds
- Symptoms of oesophagitis

Cows milk protein allergy- CMPA

NHS Somerset

What is CMPA?

- Cows' milk protein allergy (CMPA) is increasingly on the radar.
- IgE mediated CMPA is also known as severe CMP allergy, with the potential for anaphylaxis is the least common, but still presents in breastfed infants, may only be discovered when weaning onto complimentary foods around 6 months.
- Non-IgE mediated CMPA is also known as mild-moderate CMP allergy. Non-IgE CMPA is more commonly seen in infants.
- CMPA incidence is between 1-8% according to NICE
- Removal of cows milk from the parents diet enables continued breastfeeding without allergy symptoms.
- Non-IgE mediated CMPA is also known as mild-moderate CMP allergy, previous language around this type of allergy was "intolerance" or sensitivity, however when discussing a protein allergy, we need to be distinguishing between IgE and non-IgE mediated allergies. Non-IgE CMPA which is mild to moderate in nature may still have significant impact on a family from a symptom point of view.

Infant Feeding - NHS Somerset

Somerset CMPA guidelines for breastfed infants

Overview of Food Allergy in Children - patientwebinars.co.uk

Suspected mild to moderate CMPA One or more of the following:

- Gastrointestinal: frequent regurgitation, vomiting, diarrhoea, constipation, anaemia
- Dermatological: atopic dermatitis, urticarial (unrelated to acute infections or drugs)
- Respiratory: runny nose, chronic cough, wheeze (all unrelated to infection)
- General: persistent distress or colic more than 3 hours over more than 3 days over more than 3 weeks)

Suspected severe CMPA One or more of the following symptoms:

- Gastrointestinal: failure to thrive due to chronic diarrhoea, or vomiting, blood in stool, anaemia due to occult or macroscopic blood loss, protein losing enteropathy (hypoalbuminaemia), endoscopic or histologically confirmed enteropathy, severe ulcerative colitis.
- Dermatological: urticaria, swelling (angioedema), exudative or severe atopic dermatitis
- Respiratory: acute laryngoedema or bronchial obstruction with difficulty breathing
- Systemic reactions: anaphylactic shock needs immediate hospital management EMERGENCY TREATMENT AND ADMISSION

Dairy free parents

- Must ensure adequate calcium intake, they may need a supplement of calcium if they cannot achieve this in a food first approach. Details can be found: Somerset CMPA guidelines for breastfed infants

Lactose intolerance?

NHS Somerset

- Breastmilk's main carbohydrate is lactose, this is made in the breast, it does not come from the parents diet.
- Breastmilk contains lactase which helps to break down lactose.
- Lactose in breastmilk plays a role in promoting healthy gut bacteria, insulin regulation, and the growth of gut antimicrobial factors.
- Lactose intolerance is not an allergy like CMPA.
- A lactose free maternal diet will not remove lactose from breastmilk.
- Lactose intolerance is rare, there are 2 types:
  - 1- primary lactose intolerance- rare inherited metabolic disorder, baby would not gain weight from birth and show obvious symptoms of malabsorption and dehydration.
  - 2- secondary lactose intolerance- can appear at any age

Parents needing to supplement with formula or wishing to combination feed with formula do not need to use a lactose free formula if their baby successfully breastfeeds with human milk.

Lactose free formula is available to buy over the counter and not suitable for prescribing. In the case of secondary lactose intolerance, breastmilk remains the optimal milk choice and will assist with gut healing which can take as little as a week in older babies, or up to 2 months in a young baby post gastroenteritis.

Evidence is discussed here: Lactose intolerance and Breastfeeding - The Breastfeeding Network

Lactose Intolerance in Babies - Breastfeeding Support

What about lactase drops?

-Breastmilk already contains lactase.

-Lactase enzyme drops are non-formulary,

-Evidence for use is of low quality with limited benefits shown.

Effectiveness of Treatments for Infant Colic | The BMJ

What can I do?

NHS Somerset

Are you on social media?

- You could follow some IBCLC's, they often post about normal infant behaviour and feeding information- the good, the bad and the ugly!
- You could search on your social media for "IBCLC." Many come up- you can check they're registered here: Find an IBCLC ~International Board Certified Lactation Consultant ~ LCGB
- Facebook #SaveTimeProtectBreastfeeding Two GPs and an IBCLC have put together a list of resources
- Follow peoples stories such as Freddy McConnell

Do a bit of CPD

- There's more resources on our website for CPD here: Breastfeeding and medicines - Somerset CCG scroll to the bottom and open "GP Education" for links.

Further learning

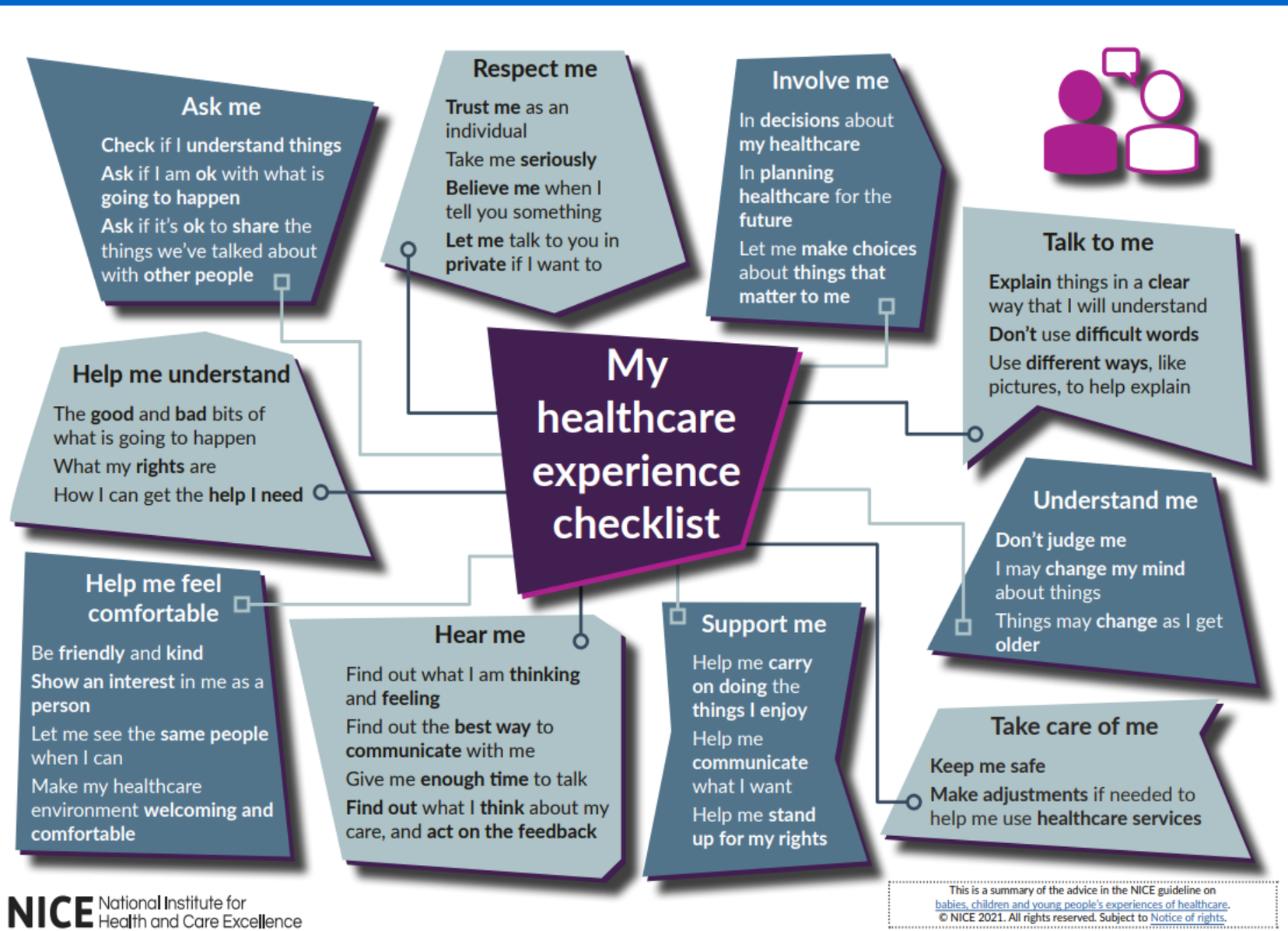
- Could you do a peer supporter course (if you've previously breastfed/ breastfeed) or do a foundation course for medical professionals? Various options available!

Tell new parents they're doing a good job!

- Make sure your practice is breastfeeding friendly and signed up to Somerset Positive about Breastfeeding

A reminder to all.

NHS Somerset



Think BRAIN:

Benefits
Risks
Alternatives
What do **I** *want*
What if I do **N**othing