Supplementary File 1: Ranked strategies and number of times selected

Strategy Ranking	**Number of** times selected	**Strategy**
1	84	Deliver realistic, evidence-based information in multiple formats on how to deliver the breastfeeding support intervention and why it is important
2	75	Assign a key practitioner to raise awareness about the intervention to ensure a consistent message
3	72	New or existing funding for breastfeeding support should be a general health investment for local councils, and the government, and not just the NHS.
3	72	Create an Infant Feeding Team in every NHS organisation to lead the intervention, working collaboratively with multidisciplinary practitioners/lay supporters
5	70	Revise roles as needed to support the intervention- e.g., integrate peer supporters with NHS infant feeding teams, and consider upskilling maternity staff to specialist lactation training levels.
6	67	Train staff across sectors involved in breastfeeding support to Baby-Friendly Initiative standards as a minimum
7	65	Start with pilots (in BFI and non-BFI accredited settings) to refine implementation and resources required as a means of phasing in the intervention and change in a sustainable way
8	64	Build feedback from women, families, peer supporters and local charities into the implementation review processes
9	63	Discuss with women and families, service providers and grassroots organisations, what breastfeeding support is needed to meet the needs of diverse local populations and settings.
10	62	Agree and disseminate intervention goals, strategies, timeframe and performance indicators.
11	58	Involve parents, peer supporters and charities in adapting the intervention, for the local area and to encourage uptake.
11	58	Create visible intervention champions to promote, educate and inform colleagues about the importance of the intervention and need for breastfeeding support to increase uptake.
13	58	Obtain written commitments from key stakeholders of how they will support the implementation
13	56	Utilise existing technical support/assistance within the NHS and develop a dedicated trained support team for the intervention

Strategy Ranking	Number of times selected	Strategy
13	56	Identify leaders in BF support and train them to lead change within their areas
13	56	Use multi-media (including social media networks) to promote the breastfeeding support intervention alongside a wider campaign to normalise breastfeeding
13	56	Develop communication networks with all involved in implementing breastfeeding support in the NHS to ensure support is joined-up across geographical areas
18	54	Raise awareness among parents of the evidence base of the intervention to empower them as active participants in the intervention.
18	54	Use new survey and routine data to assess impact and monitor the quality of the breastfeeding support intervention
20	53	Share knowledge about how breastfeeding support has been made to work well in different settings and for diverse populations
21	53	Families, peer supporters and charities from diverse backgrounds should review pilot test data and help develop implementation strategies to overcome identified barriers.
22	52	Strengthen existing breastfeeding stakeholder networks and partnerships to enhance collaborative learning to deliver evidence-based breastfeeding support
22	52	Provide rapid feedback to practitioners on intervention outcomes to promote use of the intervention
22	52	Staff to monitor information provided by breastfeeding women to identify where further support is needed.
25	50	Leaders declare support for the intervention at all levels of policy including mandatory reviews of breastfeeding support in HR policies.
26	49	Hold multidisciplinary meetings with all relevant stakeholders to educate them about the breastfeeding support intervention
27	48	NHS organisations partner with universities to share training and apply research skills to intervention implementation
28	44	Assess whether breastfeeding support interventions align with current NHS systems and guidelines
29	42	Build on existing networks such as the National Infant Feeding Network to share information, and promote collaborative problem-solving that supports implementation of the intervention

Strategy Ranking	Number of times selected	Strategy
30	41	Integrate clinical records across organisations and systems to facilitate implementation
31	40	Create a local implementation group of all levels of stakeholders from families to NHS leaders to advise on the implementation efforts and make recommendations for improvements
32	37	Learn from others where change has worked well, observe skills needed to promote change and ask them to provide ongoing consultation
33	34	Adapt current NHS documentation so that it records relevant information on breastfeeding support interventions without increasing the burden for staff
34	29	Identify barriers and enablers to implementing breastfeeding support interventions

Additional strategies proposed by workshop participants

- Ensure service users and providers agree with intervention goals prior to rollout
- Include wider community groups in discussions around needs, implementation, and evaluation
- Understand the population
- Breastfeeding should be valued as a public health intervention
- Breastfeeding peer support should be transferrable across the UK
- Fund ongoing research
- Ensure the family is kept at the centre of the process
- Raise awareness of the importance of breastfeeding in schools and colleges
- Infant feeding education throughout lifecourse
- Implement “Code of Best Practice” for media portrayal of feeding to normalise breastfeeding
- Use multi-media strategies that use inclusive images of breastfeeding wherever babies feature
- Recruit diverse volunteers
- Debriefing of staff personal experiences to reduce barriers to staff delivering breastfeeding support services
- Public consultation on appropriate venue for breastfeeding support groups - options for home/texts/WhatsApp/zoom
- Educate staff on WHO code and motivate compliance and stop sponsored study days
- Integrate environment/climate change goals with sustainability
- Access to clinically indicated donor milk within all hospital systems.

Supplementary file 2: Draft toolkit

1. Evidence-based recommendations for breastfeeding support services

Based on the most recently available high-quality evidence on effectiveness of breastfeeding support interventions, the most effective intervention strategies have been identified and used to develop a comprehensive breastfeeding support programme prototype.

The proposed programme involves the following components and activities:

The breastfeeding support package will be delivered one-to-one by infant feeding advisors. It consists of one 30-minute antenatal appointment, one 30-minute hospital visit, one 30-minute home visit within 48 hrs of discharge and regular phone calls. The antenatal session will focus on rapport building, education and identifying any concerns regarding breastfeeding. The hospital and discharge visits will involve checking latch, helping with positioning and observing a feed if requested by the mother. Infant feeding advisors will also provide encouragement, praise and reassurance during visits. Women will be given the chance to ask questions and raise any concerns.

Following the initial three contacts support will be provided remotely unless a face-to-face visit is required. For the first 4 weeks there will be a weekly proactive phone call and beyond that support will be provided monthly until 3 months or when breastfeeding ceases. Women can also contact infant feeding advisors as needed via phone or SMS during this three-month period and beyond it as new issues arise.

The infant feeding advisor will also signpost women to the local breastfeeding peer support group which provides support via WhatsApp and weekly face-to-face support groups. Infant feeding advisors will receive training on the intervention delivery.

2. Adapting the evidence-based recommendations to your local services

- Prioritised transferability criteria findings (sources - stakeholder engagement and PPI)
    1. Population's acceptability of the intervention
    2. The quality of the primary evidence available
    3. Sustainability of the intervention
    4. Service providers' perception and support of the intervention
    5. Conditions of health service provision
    6. Existence of a knowledge translation process for the intervention
    7. Quality of communication in multidisciplinary work and teams
    8. The utility/usefulness of the primary evidence available
    9. The structure of the healthcare system and relevant services
    10. Cooperation between intervention providers and recipients
    11. Socio-demographic characteristics of the population
    12. The conception of the intervention

- Adaptations to meet needs of women with multiple conditions from workshops (source-stakeholder engagement, PPI, workshops)
    - The antenatal appointment should be longer than 30 minutes;
    - continuity with the same person delivering the intervention antenatally and postnatally so that women don't have to repeat their stories
    - infant feeding advisors should be included in joint obstetric and medical clinics.

Other adaptations to consider:

- the person delivering the intervention should have expertise in medications and breastfeeding, as well as in breastfeeding support;
- antenatal appointments of 90 minutes would be more realistic, or several shorter appointments could be helpful.
- starting discussions early in pregnancy could be beneficial to take account of the higher risk of preterm birth for women with multi-morbidities and to give practitioners more time to find accurate information;
- women require a medication review in early pregnancy, and this should involve a pharmacist who is knowledgeable about medications and breastfeeding.
- women should be able to see all their healthcare providers (e.g., midwife, obstetrician, physician, pharmacist) at one appointment to minimise the woman's time, effort and costs. Ideally the appointment would include key members of the women's support network (e.g., partner, family);
- the antenatal appointment should focus on practical tips for managing varying levels of fatigue and pain such as how to find comfortable positions for breastfeeding. Content should also be flexible to meet the women's needs, adaptable to changing circumstances, and consistent across different healthcare providers;
- 30-minute postnatal appointments are too short;
- for the three-month follow-up support, women should have the option of telephone or face-to-face contacts and 24-hour telephone support should be available;
- peer support could be offered antenatally, and group antenatal peer support could help normalise breastfeeding for women with long-term conditions. Women could be offered the choice of one-to-one or group peer support.
- third sector organisations could help with provision of breastfeeding and emotional support;
- to be sustainable, peer supporters should be paid;
- training is needed to increase knowledge of breastfeeding and multi-morbidities in the multi-disciplinary team including GPs. Supporting women with multi-morbidities to breastfeed should be included in routine breastfeeding training updates;
- services should be co-ordinated with infant feeding advisor as the key point of contact for the multi-disciplinary team.

3. Implementing your new breastfeeding support service

3.1. Part 1: Considering the barriers and enablers to implementing your new service

- Key enablers to address (source - evidence-based recommendations based on most reported enablers arising from process evaluations linked to effective interventions)
    - Training – counselling skills and technical competence, practical expectations of undertaking the breastfeeding supporter role (e.g. uncertainties about safety, transport and reimbursement while delivering support, managing difficult scenarios, interplay of cultural beliefs and breastfeeding practice
    - Effective management and supervision
    - Ongoing emotional support, including mentoring and motivation for peer, lay or volunteer supporters
    - Offering women the opportunity to ask questions and being allowed to spend enough time to address any issues

- Provide support flexibly as needed, rather than having to fit support around fixed working hours or at times which might not be convenient for women

- Barriers to address (source- stakeholder engagement, PPI, workshops)

The intervention

- schedule and length of appointments lacks flexibility and would need to be tailored to individual women's needs and circumstances
- the intervention does not include the women's partner and/or other family members who could be important sources of breastfeeding support
- lack of continuity across the intervention
- lack of intensity in the first two weeks postnatally
- costs to the service
- multiple appointments may not be convenient for women
- intervention may not be perceived to be better than existing or alternative approaches to breastfeeding support.

External barriers

- negative societal attitudes to breastfeeding/bottle feeding culture
- pressure from families/social networks
- impact of formula marketing
- challenges to developing partnerships between health services and other sectors (local authorities, third sector organisations)
- socio-economic and structural factors e.g., lack of transport, lack of childcare, digital poverty, cost of living crisis
- lack of external financing.

Health system barriers

- workforce challenges – staff shortages, high staff turnover, lack of staff time, lack of right skill mix
- overdependency on individuals or small groups of staff
- poor communication within the multi-disciplinary team
- fragmented services
- lack of valuing peer support services and barriers to integrating professional and peer support
- reliance on unpaid volunteers to provide peer support
- lack of tailoring of services for diverse populations e.g., lack of language support, lack of accessible venues, staff attitudes (stereotyping)
- lack of feedback to staff e.g. data sharing, sharing good practices
- lack of resources - appropriate venues to deliver the intervention considering space for women to breastfeed and accessible locations for groups to meet
- lack of compatibility of the innovation with existing policies and guidelines
- early postnatal discharge following birth
- overlap of the innovation with existing breastfeeding support services

Individuals

- for those delivering the intervention – lack of knowledge, practical and interpersonal skills, lack of experience and training, lack of motivation, lack of confidence
- for strategic and operational managers – lack of buy-in, lack of understanding of the value of breastfeeding, lack of commitment, lack of champions and skilled implementation leads and teams

- for intervention recipients - inaccessible services, lack of awareness of services, lack of time.

Implementation process

- lack of engagement of staff/resistance to change
- lack of management oversight to ensure innovation implemented as intended
- lack of feedback to staff concerning the quality of the intervention

3.2. Part 2: Planning the implementation strategy to successfully roll out your new service

- Overview of most relevant strategies linked to key barriers identified (source- stakeholder engagement, PPI, workshops)

Strategy	Linked barriers
Deliver realistic, evidence-based information in multiple formats on how to deliver the breastfeeding support intervention and why it is important	Lack of staff training, knowledge and skills Lack of consistency of information Lack of continuity of care Challenges to accessing the intervention for women and families Lack of buy-in from senior managers
Assign a key practitioner to raise awareness about the intervention to ensure a consistent message	Challenges to working with sectors outside the health system Poor communication across the multi-disciplinary team Lack of joined-up vision and working
New or existing funding for breastfeeding support should be a general health investment for local councils, and the government, and not just the NHS.	Lack of funding within the health system Cost of the service to the NHS Lack of relationship between the health system and the community Lack of sustainability Cost of the intervention to women Reliance on non-paid peer supporters
Create an Infant Feeding Team in every NHS organisation to lead the intervention, working collaboratively with multidisciplinary practitioners and lay supporters	Lack of availability of good quality training Time and capacity issues Professional boundaries – especially working with peer supporters Lack of confidence of those delivering the intervention Lack of integration across the continuum (antenatal/postnatal) and across the multi-disciplinary team
Revise roles as needed to support the intervention- e.g., integrate peer supporters with NHS infant feeding teams, and consider upskilling maternity staff to specialist lactation training levels.	Barriers to integrating peer support with health services including lack of valuing peer support Lack of right skill mix Lack of knowledge and skills of staff delivering the intervention Infant feeding specialists overloaded

4. Evaluating your new breastfeeding support service

- Recommended outcomes (source - workshops)
  - Parental feeding expectations and goals met
  - Satisfaction with support and information received
  - Confidence after the intervention (self-efficacy)
  - Views and experiences of intervention delivers and recipients

- Intervention fidelity
- Breastfeeding rates - exclusive and any with clear definitions and consider further sub-divisions at:

  First feed within one hour after birth
  Discharge from hospital
  Six to eight weeks
  Six months
  (consider adding to above 10-12 days, 3-4 months, 12 months)

- Number of infants admitted to hospital
- Reasons for stopping breastfeeding

- Practical considerations for evaluation strategies (source - workshops)
  - Collect data early to capture those who cease to engage with the intervention
  - Gain feedback from those who declined the intervention
  - Use digital options for data collection
  - Collect data on participant characteristics
  - Consider using quality improvement approaches or comparative studies