This a working draft and subject to change

British Association for Child & Adolescent Public Health

Population Health Management Framework for Integrated Care Systems working with babies, children and young people

Introduction

Population health management is based on using data to formulate intelligence about population need and using that intelligence to create more effective care interventions.

Many resources exist for anyone seeking to undertake population health management, such as those found at **NHSE e-learning for health: Intro to PHM**[1]. This guide does not aim to replicate other resources, but to offer a practical framework and toolkit specifically aimed at integrated care systems (ICS) seeking to utilise such an approach to improve outcomes and reduce inequalities for the babies, children and young people in their populations. To enable anyone working in an ICS to design and develop this kind of intervention, we provide:

- An explanation of the principles behind population health management (PHM) and priorities for babies, children and young people.
- An outline of the four steps involved in PHM tailored for babies, children and young people
- A checklist to be used when developing interventions
- Worked examples of case studies using a PHM approach to address common issues affecting babies, children and young people

This framework includes the following sections: it is intended that you can either work through the framework or go straight to the relevant section for you.

What is population health management?

Population Health Management is a way of working built around three key pillars: Know, Connect, Prevent.

Know

Gather insight and data across everything that impacts a person's health, including housing, finances, employment and education.

Identify where best to focus collective resources for greatest impact, targeted on prevention.

Monitor impact, drive continuous improvement and measure success.

Connect

Connect people working to improve health outcomes across health, social care, public services and the voluntary sector.

Ensure people receive the right service, at the right time, by the right people.

Prevent

Change the focus of healthcare from reactive care to proactive, personalised, preventative care.

Help reduce health inequalities and develop long-term health solutions.

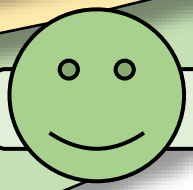
Support people to live their healthiest lives, based on what matters to them and making every contact count.

Characteristics of Population Health Management

- **Systems** approach
- Based on **need**
- Driven by **data**
- **Outcome**-focused
- Considers the **whole life** course
- Addresses the **wider determinants** of health
- Incorporates **prevention** at all levels
- Consider the distribution of health across a population to **address inequalities**

Why undertake population health management for babies, children and young people?

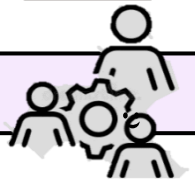
The overall aims of population health management are as follows:



Enhance experience of care

Improve population health and wellbeing

Address inequalities in health and care



Increase workforce wellbeing and engagement

Reduce per capita cost of healthcare and improve productivity

Fig x: The five aims of population health management[2].

All five aims apply across the whole life course. However, there are additional benefits to intervening at earlier life stages. It is recognised that events and experiences in early life have impacts on the health and wellbeing of

- babies, children and young people themselves
- their families and wider communities
- the adults they will become

The effects of events and experiences on a child now ripple outward into society and forward into the future. Therefore, intervening to improve health and wellbeing, reduce inequalities and enhance the care experience for babies, children and young people will benefit current and future populations. Conversely, failing to intervene in early life can worsen outcomes and exacerbate inequalities in health and life chances for years to come.

“Intervening to improve health and wellbeing, reduce inequalities and enhance the care experience for babies, children and young people will benefit current and future populations”

Health and wellbeing are not determined solely by health behaviours or healthcare. Family stability, household income, housing, environment, food systems and nutrition, and education are just some of the factors that interact to influence the trajectory of a child’s life and the transition to adulthood. That said, the health and care sector also plays a crucial role. Throughout pregnancy, birth and the newborn period, into toddlerhood and preschool development, to primary and secondary school, adolescence and into adulthood, health and care systems have an impact. Effective partnerships between health and other sectors are essential to tackle some of the important issues for babies, children and young people such as vaccination uptake, oral health, obesity, respiratory illnesses and poor mental health.

What is different about population health management for babies, children and young people?

The principles of population health management can be applied for any population, founded on using integrated intelligence supported by robust data infrastructure to develop effective targeted interventions. Nevertheless, certain key elements may differ when considering the needs of babies, children and young people.

Not just small adults: babies, children and young people have specific key needs

It may be helpful to consider the specific issues relevant for babies, children and young people under three headings:

- Infrastructure
- Intelligence
- Intervention

Infrastructure

Leadership	Gather a leadership team with representation from areas relevant to babies, children and young people *(e.g. local authority, social care, children and families or their advocates, community services, healthcare - primary including community (midwives, health visitors, school nurses) and secondary (paediatricians, emergency care providers), education and early years, housing).* Develop a shared vision and purpose for understanding the needs of babies, children and young people in your ICS.
Population definitions	In addition to agreeing definitions of population geographies at system, place or neighborhood level, consider which groups of babies, children and young people will constitute your target population.
Data infrastructure and information governance	Consider what population-specific data sources with relevance to babies, children and young people are available to you. Possible data sources may include maternity and child health systems, vaccination management systems, education (early years, primary and secondary schools, higher education, Education Other Than At School (EOTAS) settings), child measurement programme, fingertips child health profiles, youth justice settings, housing teams. Aim to link primary and secondary data and consider linking to other local data concerning the wider determinants of health. Consider IG requirements early to ensure appropriate data sharing arrangements are in place.

Intelligence

Using tailored, integrated intelligence allows systems to:

- Understand population need
- Align that need with effective interventions

Define the broad problem and the specific question to be answered. Use this to choose the target overall population group based on age, setting, condition or other local or national priorities. Initial concerns may arise from a Joint Strategic Needs Assessment or local report, from national priorities or other sources such as patient groups. Consideration of a broad problem e.g. low vaccine uptake in certain geographical areas then allows the development of a specific question to be answered e.g. is there a deprivation effect; what are the barriers to vaccination uptake in particular communities; or whether specific age groups are affected. Knowing what question is to be answered informs development of an appropriate intervention.

Decide how the information will be used e.g. to inform strategic planning or individual care, to improve outcomes or address inequality. Use this to define the cohort - further define your population based on risk stratification.

Agree how to identify need and what outcome measures will be used, based on data and engagement across the system including with children and young people or their advocates.

Identify specific data sources that illustrate your chosen outcome measures for your target population.

Collate and share information across the system.

Align the needs of your population with evidence-based effective interventions.

Intervention

- Make decisions
- Identify and implement effective evidence-based interventions

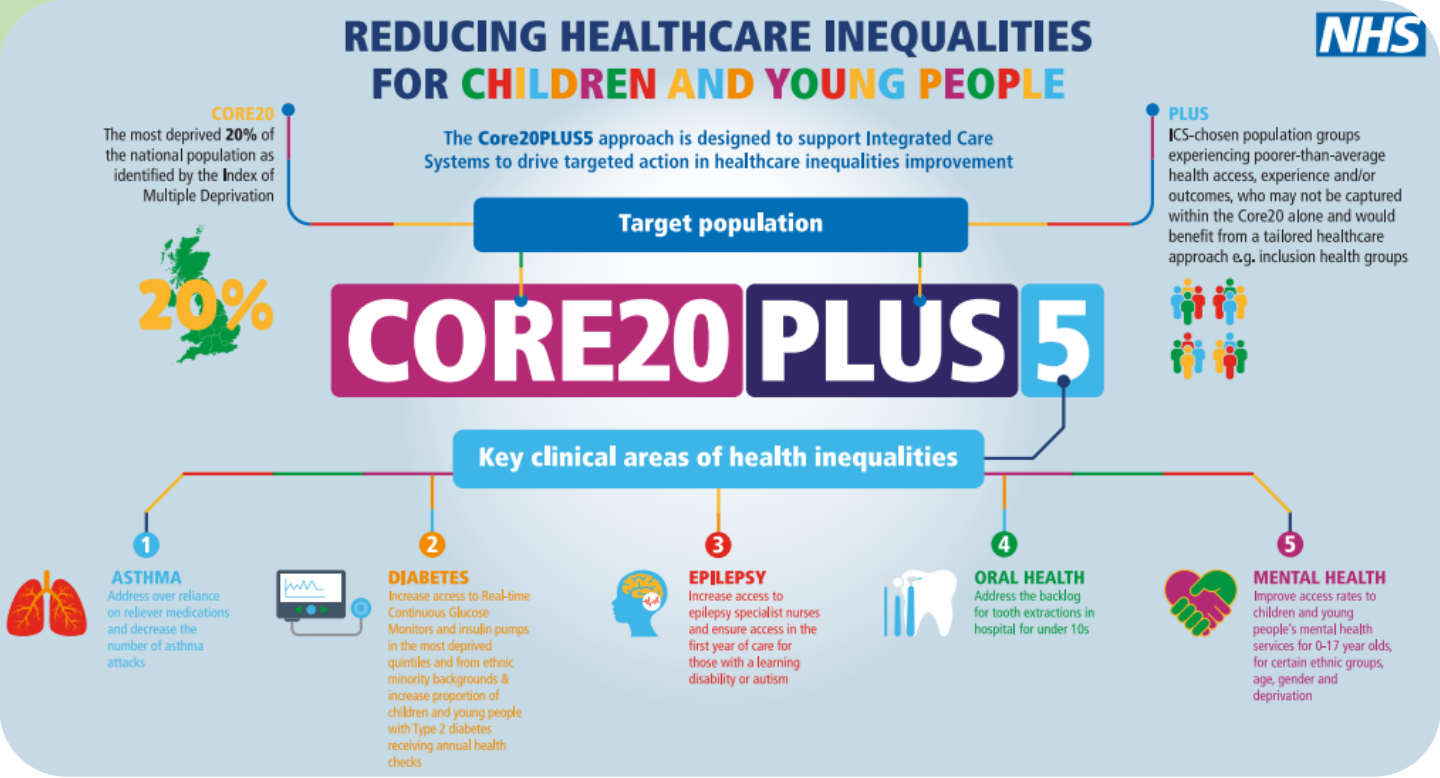
The choice of intervention will depend on your population, the nature of the problem and available resources. Decisions should be based on evidence of what works from published research and learning from other areas. It is important to include the voices of children and young people, whether these are gathered as part of the design of a new intervention or based on previous consultations. Existing frameworks such as the CHILDS framework[3] may prove useful. Monitoring and evaluation should be built in at the outset.

Implementation of effective interventions	Establish what evidence-based effective interventions align with the needs of your population.
	Ensure participation of children and young people and their families, or their representatives, in designing your intervention.
	Consider potential unintended consequences and the effects on inequalities.
Personalised care	Consider the best approaches to supporting all babies, children and young people and their families, including those with long-term conditions and complex needs.
	Adopt a life-course approach, taking into account future growth and development when reflecting on needs.
Care integration	The system should be data-led and data-driven with integrated systems.
Evaluation	Once an intervention is chosen, it is important to build in monitoring and evaluation from the start of the process. By planning for ongoing evaluation, teams can help to ensure that any intervention will remain fit-for-purpose and any necessary changes can be made. Key indicators and outcomes should be clearly defined and agreed, and the programme impact measured against these indicators and outcomes to evaluate success.

What are the priorities for babies, children and young people?

CORE20PLUS5 for children and young people

National priorities have been set out by NHS England using the Core 20 PLUS 5 framework. This is national policy designed to support Integrated Care Systems to drive action in health inequalities improvement and identifies 5 clinical priorities as well as target population groups.



CORE20PLUS5

At the heart is the Core20 - the most deprived 20% of the national population as identified by the national Index of Multiple Deprivation (IMD)[4]. The IMD is a standard measure of community need and deprivation that considers people of all ages. It includes seven domains of deprivation:

Income

Employment

Education

Barriers to Housing and Services

Crime

Health

Living environment

The PLUS group consists of “population groups experiencing poorer-than-average health access, experience and/or outcomes, who may not be captured within the Core20 alone and would benefit from a tailored healthcare approach e.g. inclusion health groups.” These groups are chosen by the ICS and will vary by area. The national framework includes the following inclusion groups:

People in contact with the youth justice system

People living with a learning disability or autism

Young carers

Key priorities highlighted in the CORE20PLUS5 for Maternity

Smoking in pregnancy causes significant harm to both mother and baby and is the single most important modifiable risk factor during pregnancy. There is no safe level of exposure to tobacco smoke while in the womb[5]. Smoking in pregnancy is associated with:

Antenatally	Infancy	Childhood
Miscarriage	Preterm birth	Chest and ear infections
Stillbirth	Low birth weight	Learning difficulties
Birth defects	Infant deaths	Asthma

Maternal deaths: Every week about 2 women in the UK die from complications in pregnancy or childbirth – most of these deaths are preventable. Maternal health and newborn health are closely linked.

Infant deaths: Mortality during the neonatal period is considered a good indicator of both maternal and newborn health and care.

Obesity: Is a significant preconception risk factor and is associated with increased risk of many major adverse maternal and perinatal outcomes.

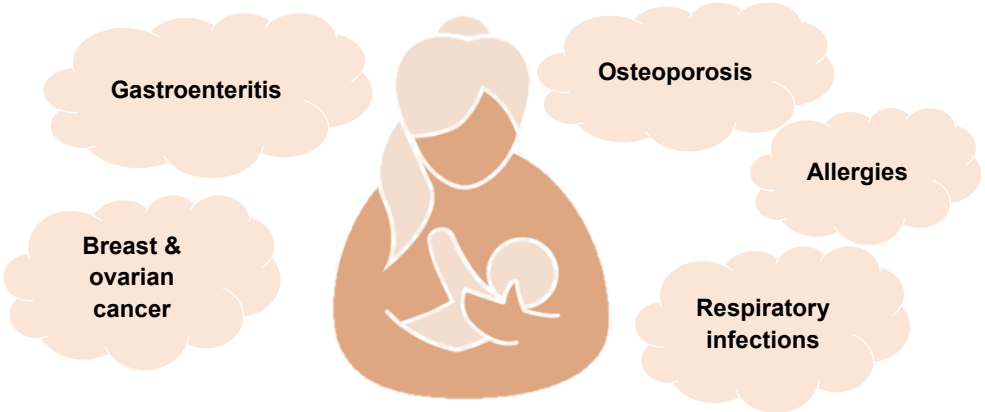
Maternity mental health: Pregnancy and the first year after birth are associated with increased risk for mental health conditions.

Teenage pregnancy:

Teenage pregnancy: Outcomes for young parents and their children are still disproportionately poor, contributing to inter-generational inequity. Outcomes include:

Poor mental health (higher rates)	Low birth rate (30% higher)
Poverty age 30 years (22% more likely)	Sudden infant death 3x more likely
Not in education, training, or employment (1 in 5 are teenage mothers)	Breast feeding 1/3 lower rates

In addition to many other benefits, breastfeeding reduces the risk of significant illnesses including certain cancers.



Wider determinants[6]

It is also important to consider the wider determinants of health facing children and young people and their families across the ICS. Wider determinant priority areas for consideration could include those below. Poverty will have an impact on all of these.

Positive mental wellbeing e.g. meeting social, emotional and mental health needs of child, mother and family; tackling suicide ideation and self harm.

Best start in life e.g. increase breastfeeding rates; improve early development and school readiness

Family life e.g. supporting families experiencing childhood disability or chronic illness

A healthy environment e.g. improving air quality; increasing physical activity

Food insecurity e.g. reduce obesity rates, improve diet and nutrition; reduce tooth decay

The Best Start

As part of The Best Start for Life[7] the following action areas are identified for the critical first 1,001 days to set babies up to maximise their potential for lifelong emotional and physical wellbeing. To work towards achieving this, action is required around the following six areas:

Action Areas

Ensuring families have access to the services they need
1. **Seamless support for families:** a coherent joined up Start for Life offer available to all families.
2. **A welcoming hub for families:** Family Hubs as a place for families to access Start for Life services.
3. **The information families need when they need it:** designing digital, virtual and telephone offers around the needs of the family.
Ensuring the Start for Life system is working together to give families the support they need
4. **An empowered Start for Life workforce:** developing a modern skilled workforce to meet the changing needs of families.
5. **Continually improving the Start for Life offer:** improving data, evaluation, outcomes and proportionate inspection.
6. **Leadership for change:** ensuring local and national accountability and building the economic case.

Healthy Child Programme

Needs and priorities will vary for different age groups. The **DHSC Healthy Child Programme**[8] gives useful guidance on interventions through the life course, detailing interventions at different levels of focus (community, universal, targeted and specialist) in the following age categories.

- **Preconception and pregnancy**
- **Birth to 1 year**
- **1 to 5 years**
- **5 to 11 years**
- **11 to 16 years**
- **16 to 24 years**

Local priorities will depend on multiple factors. Using the steps outlined in the next section will allow an ICS to identify the core issues for its population. This may focus attention on:

- Individuals and groups at highest risk or with greatest need
- Areas of greatest inequality
- Interventions with the most significant impact on improving health outcomes and reducing inequality

Key measures across the development stages:

What Good Children and Young People's Public Health Looks like[9].

Wider determinants: Children in low income families (all dependent children aged under 20)

Preconception: Low birth weight of term babies

First 1001 days: Breastfeeding prevalence at 6-8 weeks after birth

Preschool: Children achieving a good level of development at the end of reception

Primary school age: Children living with obesity (10-11 years)

Secondary school age: School pupils with social, emotional and mental health needs

Young adults: Hospital admissions caused by unintentional and deliberate injuries in young people aged 15-24 years

Local public health systems will want to use additional measures to demonstrate local progress - these can be found in the National Child Health profiles Fingertips: Child Health Profiles[10].

This document has considered some of the key priorities and measures across the development stages for babies, children and young people. It is not an exhaustive list of priorities.

Four steps to population health management for babies, children, and young people

This section outlines a stepwise approach to population health management as it relates to babies, children and young people. However, before embarking on these four steps, it is important to clarify the focus of your project. A specific issue affecting the health and wellbeing of babies, children and young people may have been identified through a Joint Strategic Needs Assessment or a report at local or national level. Alternatively, an organisation may have decided to prioritise the needs of babies, children and young people but without a particular area of focus. Defining a broad problem and then refining the scope to clarify a specific question that needs an answer will allow a more streamlined, systematic approach to the process.

Step 1: Focus: Define the broad problem; refine the scope to clarify a specific question.

For example, surveillance data may have identified low vaccine uptake in certain geographical areas. This is the broad problem. You may then choose to look in more detail at links between vaccine uptake and area deprivation; barriers to vaccination uptake in particular communities; or whether specific age groups are affected. These decisions will inform choice of data sources; identification of stakeholders; assessment of how babies, children and young people are affected; and selection of relevant interventions.

Step 2: Consider the issues

How is the health and wellbeing of babies, children and young people affected? Are they dependent on others to bring them into contact with services? Have you asked them about their experiences or are you relying on the opinions of others?

1. Access
2. Uptake
3. Experience
4. outcomes

Step 3: Ensure key ingredients are included

Who else needs to know? What do they need to know and what should they do with the information?

Stakeholder mapping or RACI exercise: identify who needs to be responsible, accountable, consulted or informed.

Step 4: Co-design the intervention

1. Consider the evidence- what has been done before? What would be the best thing to do here?
2. Consult widely- including the voices or representatives of babies, children and young people in the process
3. Plan evaluation and monitoring

Step 1: Define group
(including data sources for clinical, service and population)

Which group(s) will you focus on? Where are they? What information will give us an accurate picture of their needs? Who holds that information?

Having decided to focus on babies, children and young people, a further decision is required about which group(s) are included, which in turn will guide data selection. This choice will depend on the question to be answered and the purpose of the intervention.

1. Define the question
2. What is the purpose?
3. Decide what approach is appropriate

It may be helpful to think about where the babies, children and young people are in your area. Some will be obvious such as those attending paediatric clinics. Others may be relatively unseen, for example children of incarcerated parents. For many issues, you will be able to identify both 'seen' and 'unseen' children. For instance, in seeking to address low uptake of childhood vaccinations, data will be available on children being brought to clinics but not on those not registered with a GP.

Where are the children?

★ **Seen** e.g. paediatric clinics, ED, schools, insecure housing

★ **Unseen** e.g. households with domestic abuse, parents in drug and alcohol services, incarcerated parents, parents in precarious work, young carers of adults with disability, women's refuges, homeless services, children with parents in military service, parents who are socially isolated or have low grade Mental Health conditions.

Next, determine whether you will target by age group, clinical condition, or some other category. Some suggestions are listed below.

Which children are you targeting?

☐ **All babies, children and young people**

☐ **By deprivation**

- NB always consider differential impacts on the most deprived populations

☐ **Age group** e.g. refer to the life course: Healthy child programme[11].

☐ **By setting** e.g. schools, paediatric outpatient clinic, youth justice facility

☐ **By condition** e.g. asthma

☐ **In relation to another individual** e.g. parental substance use, young carer, domestic abuse

☐ **By potential impact** e.g. largest differential outcomes

Once the target population is identified and the question defined, the next step is to gather data.

It is important to clarify what data will best answer your question, remembering that different sectors will hold different information. It may be necessary to collect additional data if there are gaps.

Triangulating data from multiple sources will help to build up a fuller picture. Some sources provide data on the general population, and some are specific to babies, children, and young people:

> ***Example:*** *looking at children attending emergency departments with respiratory illness, consider households with children, houses in areas of high air pollution, children who live with a smoker and have been admitted to hospital with respiratory symptoms.*

General sources	Specific to babies, children, and young people
Joint Strategic Needs Assessment; Fingertips public health outcomes framework and GP practice profiles[10]. Poverty indicators (household income, receipt of benefits); housing sector (tenure' housing quality' homelessness); air quality monitoring; healthcare activity.	Child health systems; maternity and neonatal systems (birth weight, neonatal unit admissions); education systems (free school meals, school absence, educational attainment)

Step 2: Consider the issues (access, uptake, experience, outcomes)

How is the health and wellbeing of babies, children and young people affected? Are they dependent on others to bring them into contact with services? Have you asked them about their experiences or are you relying on the opinions of others? (Which others might be relevant e.g. parents, carers, teachers, paediatricians?)

When considering the health and wellbeing issues affecting babies, children, and young people, ask whether the following aspects are relevant:

- Access
- Uptake
- Experience
- Outcomes

Remember that in most cases they are reliant on other people to make decisions for them and bring them into contact with services. Their access to and uptake of services depends on multiple factors influencing them, their families, and communities. The views of children and young people themselves about their experiences should be sought as well as those of the adults who care for them professionally or personally. One model for this is the Lundy model of child participation[12]. Local organisations may have guidance for involvement of children and young people.

Step 3: Ensure key ingredients are included

Who else needs to know? What do they need to know and what should they do with the information?

A. The third step is to identify relevant stakeholders and clarify roles and responsibilities.

B. This will differ depending on the type of intervention.

C. It may be useful to carry out a RACI exercise or similar to keep track of which individuals are responsible for tasks.

Task	Role (individual)	Role (individual)
Task 1	accountable	informed
Task 2	responsible	accountable
Task 3	consulted	responsible

Step 4: Co-design the intervention

What do people want us to do? Who can benefit the most? What do we want to achieve and how will we know whether we have succeeded? What can we do? What will we do?

1. Consider the evidence

What has been done before?

- Previous evaluations
- Case studies
- Future NHS examples
- Place-based local activity

What worked and what didn't? Is our situation similar or are there other factors that might lead to a different outcome?

2. Consult widely, ensuring that children and young people are included

SPACE: provide a safe and inclusive space for children and young people to express their views

VOICE: Provide appropriate information and facilitate the expression of children's views:

- What consultations have already happened?
- Tap into professional insights

AUDIENCE: Ensure that the views of children and young people are communicated to someone with the responsibility to listen

INFLUENCE: Ensure that the views of children and young people are taken seriously and acted upon, where appropriate

3. Plan evaluation and monitoring for your intervention

Why does quality improvement matter?[13]

Consider intended and unintended outcomes. Appropriate measures will depend on the purpose of the intervention e.g.

- Targeting the worst off: measure improvement in targeted group only
- Reducing the gap between groups: measure difference between intervention and comparator groups
- Process measures for inequality e.g demonstrating change resulting from health inequalities impact assessment

Checklist:

Name of ICS:	Click or tap here to enter text.
Question to be answered:	Click or tap here to enter text.
Purpose of intervention:	Click or tap here to enter text.

Step 1: Define group (including data sources)

What priority are you aiming to address?

☐ **CORE20PLUS5**

- ☐ **20% most deprived by IMD**
- ☐ **PLUS group** (poor access/experience/outcomes). **Specify below:**

Click or tap here to enter text.

Area of focus:

☐ **Asthma**
☐ **Diabetes**
☐ **Epilepsy**
☐ **Oral Health**
☐ **Mental Health**
☐ **Wider determinants of health** *e.g. food insecurity*
☐ **Other priority defined by ICS. Specify below:**

Click or tap here to enter text.

Which group of children are you targeting?

By age group:

- ☐ Up to 1 year
- ☐ 1 to 5 years
- ☐ 5 to 11 years
- ☐ 11 to 16 years
- ☐ 16 to 24 years

☐ **By setting** e.g. schools, paediatric outpatient clinic, youth justice facility. **Specify below:**

Click or tap here to enter text.

☐ **By condition** e.g. Asthma. **Specify below:**

Click or tap here to enter text.

☐ **In relation to another individual** e.g. parental substance use, young carer, domestic abuse. **Specify below:**

Click or tap here to enter text.

Where are the children?

☐ **Seen** e.g. paediatric clinics, ED, schools, insecure housing. **Specify below:**

Click or tap here to enter text.

☐ **Unseen** e.g. maternity services, domestic abuse, parents in drug and alcohol services, incarcerate parents, young carers of adults with disability, women's refuges, homeless services, children with parents in the military service, parents who are socially isolated or have low grade Mental Health conditions. **Specify below:**

Click or tap here to enter text.

What information will give us an accurate picture of their needs?

☐ **Joint Strategic Needs Assessment**
☐ **Education:** *e.g school absence, standardised tests, entry to higher education*
☐ **Poverty:** *e.g household income; proxies e.g. free school meals; receipt of benefits*
☐ **Housing quality**
☐ **Air quality**
☐ **Health data:** *service use e.g. hospital admissions; other health data e.g. maternal and child health systems.*
☐ **Other** (list below):

Click or tap here to enter text.

Who holds that information?

☐ **Fingertips public health data** [14] *e.g. Public Health outcomes framework; child and maternal health; GP practice profiles.*
☐ **Census data: Office for National Statistics**
☐ **Local authority education contact**
☐ **Local authority housing department**
☐ **Charities** *e.g. mental health, drug and alcohol, food banks*
☐ **Health sector** *e.g. GP quality outcomes framework*
☐ **Other** (list other possible data sources identified below):

Click or tap here to enter text.

Step 2: Consider the issues (access, uptake, experience, outcomes)

How are babies, children and young people affected? Are they dependent on others to bring them into contact with services? Have you asked them about their experiences or are you relying on the opinions of others? Which others might be relevant e.g. parents, carers, teachers, paediatricians?

ACCESS

Are there barriers to attending?

Click or tap here to enter text.

UPTAKE

Is the service used by everyone it's aimed at?

Click or tap here to enter text.

EXPERIENCE

How do users experience the service?

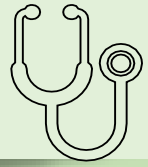
Click or tap here to enter text.

OUTCOMES

What is the impact?

Click or tap here to enter text.

Step 3: Ensure key ingredients are included (e.g. stakeholder mapping, RACI exercise – who is responsible, accountable, consulted, informed)



Who else needs to know? What do they need to know and what should they do with the information?

Complete the below power and interest matrix.

HIGH POWER, LOW INTEREST
Keep interested

Click or tap here to enter text.

HIGH POWER, HIGH INTEREST
Manage closely

Click or tap here to enter text.

LOW POWER, LOW INTEREST
Monitor

Click or tap here to enter text.

LOW POWER, HIGH INTEREST
Keep informed

Click or tap here to enter text.

POWER

INTEREST

Complete the RACI Matrix table below.

Stakeholder	Project / Job title	Consulted or informed?	Engagement plan (Power and Interest)
Click or tap here to enter text.	Click or tap here to enter text.	☐ **Consulted** ☐ **Informed**	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	☐ **Consulted** ☐ **Informed**	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	☐ **Consulted** ☐ **Informed**	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	☐ **Consulted** ☐ **Informed**	Click or tap here to enter text.

Step 4: Co-design the intervention

What do people want us to do? Who can benefit the most? What do we want to achieve and how will we know whether we have succeeded? What can we do? What will we do?

Consider the evidence.

- *What has been done before?*
- *Previous evaluations*
- *Case studies*
- *Future NHS examples*

Click or tap here to enter text.

What worked and what did not? Is our situation similar or are there other factors that might lead to a different outcome?

Click or tap here to enter text.

Identify possible interventions:

Click or tap here to enter text.

How will children and young people have their voice heard during the process?
SPACE, VOICE, AUDIENCE and INFLUENCE.

SPACE: Click or tap here to enter text.

VOICE: Click or tap here to enter text.

AUDIENCE: Click or tap here to enter text.

INFLUENCE: Click or tap here to enter text.

Plan evaluation and monitoring for your intervention:

Click or tap here to enter text.

How will we know we are succeeding?

- *Targeting the worst off e.g. measure improvement in the targeted group only*
- *Reducing the gap between groups e.g. measure the difference between intervention and comparator groups.*
- *Process measures for inequality e.g. demonstrating change resulting from health inequalities impact assessment.*

Use the table below for further guidance.

Hints and Tips	Answer
Aims and objectives	Click or tap here to enter text.
What will you measure to show you are meeting these?	Click or tap here to enter text.
What indicators (data) will demonstrate those measures?	Click or tap here to enter text.
What are the outcomes? Intended/Unintended	Click or tap here to enter text.

CASE STUDY 1: LOW UPTAKE OF INFANT VACCINATIONS

Issue: Media reports of increased levels of pertussis prompted queries about levels of vaccination uptake in your population. Vaccination management systems/public health surveillance has identified low uptake in certain areas compared to others.

Step 1: Define group:

Why is uptake of infant vaccinations low in certain areas?

Which group will you focus on? Where are they? Who and where are the seen and unseen children?

Focus: Infants (aged under 1) and their families in areas with low vaccination uptake

Purpose of intervention: To identify factors affecting vaccination uptake (both positive and negative) and develop interventions to remove barriers and improve uptake levels.

Seen: Babies attending vaccination clinics; babies in nurseries; Surestart families.

Unseen: Families not registered with a GP; those with English as an additional language; families in refuge or hostel accommodation.

What information will give us an accurate picture and who holds that information?

- Child health system vaccination records - local health protection team
- Primary care patient registers - GP practices
- Surestart registers?
- Views and experience of parents

Click or tap here to enter text.

Step 2: Consider the issues (access uptake, experience, outcomes)

How are babies, children and young people affected?
How are wider families and communities affected?

Access
Is it possible for all eligible babies to be brought for vaccination?

Where are vaccination clinics held?
Are there transport issues?
Are clinics held at convenient times?

Click or tap here to enter text.

Uptake
Why do some parents bring their babies for vaccination and others don't?

What are the beliefs about vaccination?
Vaccine hesitancy - general or specific vaccines
Unfamiliarity with the system - are families concerned there will be a cost for vaccines?
Are employers accommodating?

Click or tap here to enter text.

Experience

What is the experience of families bringing their babies for vaccination?
What is the experience of those who haven't brought their babies for vaccination?

Click or tap here to enter text.

Outcomes

What are the rates of vaccine-preventable illnesses in different areas?
Are babies being admitted to hospital with vaccine-preventable diseases?

Click or tap here to enter text.

Step 3: Ensure key stakeholders are included

Who to involve? Complete the stakeholder map.

Who else needs to know?

- *Local health protection team re: cases of vaccine-preventable diseases*
- *Parent groups*
- *Registered childcare settings*
- *Primary care teams - GPs, health visitors, community pharmacists*
- *Surestart groups*
- *Paediatricians*
- *Council may have information on transport routes*
- *Community hubs*

Click or tap here to enter text.

Complete stakeholder map.

Step 4: Co-design the intervention

- ***Compare areas with good vaccination uptake - are they doing anything differently?***
- ***Look at examples of other areas with the same issue - what worked? What didn't? Is our population similar?***
- ***Ask families and communities about views on vaccination and barriers to uptake***

Another ICS had a similar issue. GP data showed pockets of low uptake in certain postcodes. Through engagement with local community groups, they identified that several of their residents were new to the UK and unfamiliar with the healthcare system - they thought that there was a charge for vaccinations. Working with health visitors and local parent and baby groups, they developed a graphic about vaccination and a brief intervention for health visitors to use when visiting families. Following the implementation of the programme, vaccination rates increased in these areas but remained low in similar areas where it was not implemented.

Plan:

- Visits to Surestart groups and childcare facilities in areas with low uptake to discuss vaccination with parents/carers.
- Meet with health visitors.
- Develop a brief intervention for health visitors to use with families.

Click or tap here to enter text.

Monitoring / evaluation:

What do we want to achieve and how will we know whether we have succeeded?
Our purpose is to increase uptake in areas where it is low; we want to measure

1. Change in uptake following the intervention compared with similar areas where it is not implemented.
2. Changes in knowledge and attitudes around vaccination

Possible unintended outcomes may include:

Positive	Negative
Increased vaccination uptake in areas outside the intervention due to increased awarness	Challenges for GP services if demand increases
	Workforce capacity issues for health visiting teams

Click or tap here to enter text.

Choose indicators:

- Rates of eligible babies vaccinated
- Incidence of vaccine-preventable diseases
- Parental awareness of vaccination programme
- Parent and community attitudes and beliefs around vaccination

Click or tap here to enter text.

CASE STUDY 2: HIGH LEVELS OF PRIMARY SCHOOL ABSENCE IN THE WINTER MONTHS

Issue: Recently reported school attendance figures have highlighted high levels of sickness absence in primary school children in the winter months. Conversations with local school leaders have revealed that there are a number of reasons for this including norovirus and flu, but teachers have commented that they are seeing a lot of children with chesty coughs.

Step 1: Define group

What are the factors contributing to respiratory symptoms in primary school children?

Which group will you focus on? Where are they? Who and where are the seen and unseen children?

Focus: **Primary school children**

Purpose of intervention: To reduce sickness absence in primary school children by identifying and addressing the factors contributing to respiratory symptoms

Seen: Children attending healthcare settings (ED; GP general or asthma clinic, paeds outpatient clinic); Children reported to schools as being absent due to respiratory symptoms

Unseen: Children off school but not attending healthcare settings***;*** Home-schooled children

Click or tap here to enter text.

What information will give us an accurate picture and who holds that information?

School attendance figures: education authority

Health information:
ED attendance diagnosis asthma or other respiratory illness
Hospital activity data - paediatric inpatients and respiratory outpatients
GP prescribing data - inhalers for 5-11 year olds

Housing: mould; cold homes - housing associations, councils, census data

Air quality: environmental health

Smoking: smoking prevalence and uptake of smoking cessation services - population surveys, provider reports

Click or tap here to enter text.

Step 2: Consider the issues (access, uptake, experience, outcomes)

How are babies, children and young people affected?
How are the wider family and community affected?

- If children miss school, it may affect their learning and test scores.
- They also miss out on the social aspects of school, as well as physical activity and extracurricular activities.
- For some children school may be the only place they eat a hot meal.
- Persistent symptoms impact quality of life, sleep, growth and development.
- Parents may have to take time off work to care for children when not at school or pay for additional childcare.
- Other siblings may be kept off too if one child is sick.

Access
Do primary school children have access to appropriate healthcare advice for respiratory symptoms?

Click or tap here to enter text.

Uptake
Are carers seeking appropriate support? (smoking cessation; asthma clinic; GP)

Click or tap here to enter text.

Experience
What is the air quality (indoor/outdoor) in areas where primary school children live?

Are there issues with housing quality contributing to respiratory symptoms?

How do children with respiratory symptoms experience education?

Click or tap here to enter text.

Outcomes
What percentage of school days are missed?

Is there a difference in standardised test scores for children with repeated absence?

What is the quality of life for children with respiratory symptoms, their parents/carers, and the wider family?

Click or tap here to enter text.

Step 3: Ensure key ingredients are included

Who else needs to know?

- School leaders
- Local education authority
- Parents/carers
- Housing associations and councils
- Community pharmacy teams
- Smoking cessation services
- GPs
- Paediatricians

Click or tap here to enter text.

Step 4: Co-design the intervention

What do we want to achieve and how will we know whether we have succeeded?

Our purpose is to reduce sickness absence in primary school children by identifying factors that contribute to respiratory symptoms; we want to reduce the number of days missed due to sickness.

Plan:

- Ask parents/carers and children about their experiences of respiratory symptoms, the effects on school life and use of healthcare.
- Gather data on hospital attendance and admissions for children with respiratory symptoms.
- Gather data on housing quality and triangulate with proportion and location of households with children of primary school age.
- Investigate whether smoking cessation services collect information on children's exposure to tobacco smoke.
- Compare air quality reports for different areas and examine whether absence rates are higher in areas with poor air quality.

Click or tap here to enter text.

Monitoring / evaluation:

The overall aim is to reduce the number of school days missed due to sickness absence for children of primary school age.

Possible unintended outcomes include:

- Increase in days missed if parents keep children off school when symptomatic.
- Increased workload for GPs and pharmacists if more people seek advice.
- Anxiety for families in poor quality housing who cannot afford to move.
- Increased costs to councils and housing associations for remedial measures to poor housing
- Families may be asked to move out of their homes if they are deemed poor quality.
- Reluctance of people to engage with smoking cessation services if asked about children's exposure - may feel guilty. Alternatively, may see increased engagement with smoking cessation services if parents consider the effect on their children's health.

Click or tap here to enter text.

Choose indicators:

- Proportion of school days missed due to sickness.
- Number of children attending GP/pharmacy/hospital with respiratory symptoms.
- Uptake and engagement figures for smoking cessation clinics.
- Housing quality measures.
- Proportion of households with young children in areas of poor air quality.
- Knowledge amongst parents and carers of respiratory symptoms in children and sources of advice.
- Number of smoking cessation providers asking about children's exposure to tobacco smoke.

Click or tap here to enter text.

CASE STUDY 3: LONG WAITING LISTS AND HIGH DNA RATES FOR MENTAL HEALTH APPOINTMENTS

Issue: Mental Health Service data highlights that waiting lists are up to a year for routine referrals and there is a high DNA rate for adolescent males.

Step 1: Define group

Why is the DNA rate high for adolescent males?

Which group will you focus on? Where are they? Who and where are the seen and unseen children?

Purpose of intervention: To identify issues that prevent attendance/accessibility of mental health services for adolescent males, and to develop interventions to reduce DNA rates.

Seen: Those who have been referred into CAMHS and are on the waiting list.

Unseen: Those with mental health issues who have not sought healthcare support, are not registered with a GP; homeless populations; those with English as an additional language; young men in refuge or hostel accommodation.

Click or tap here to enter text.

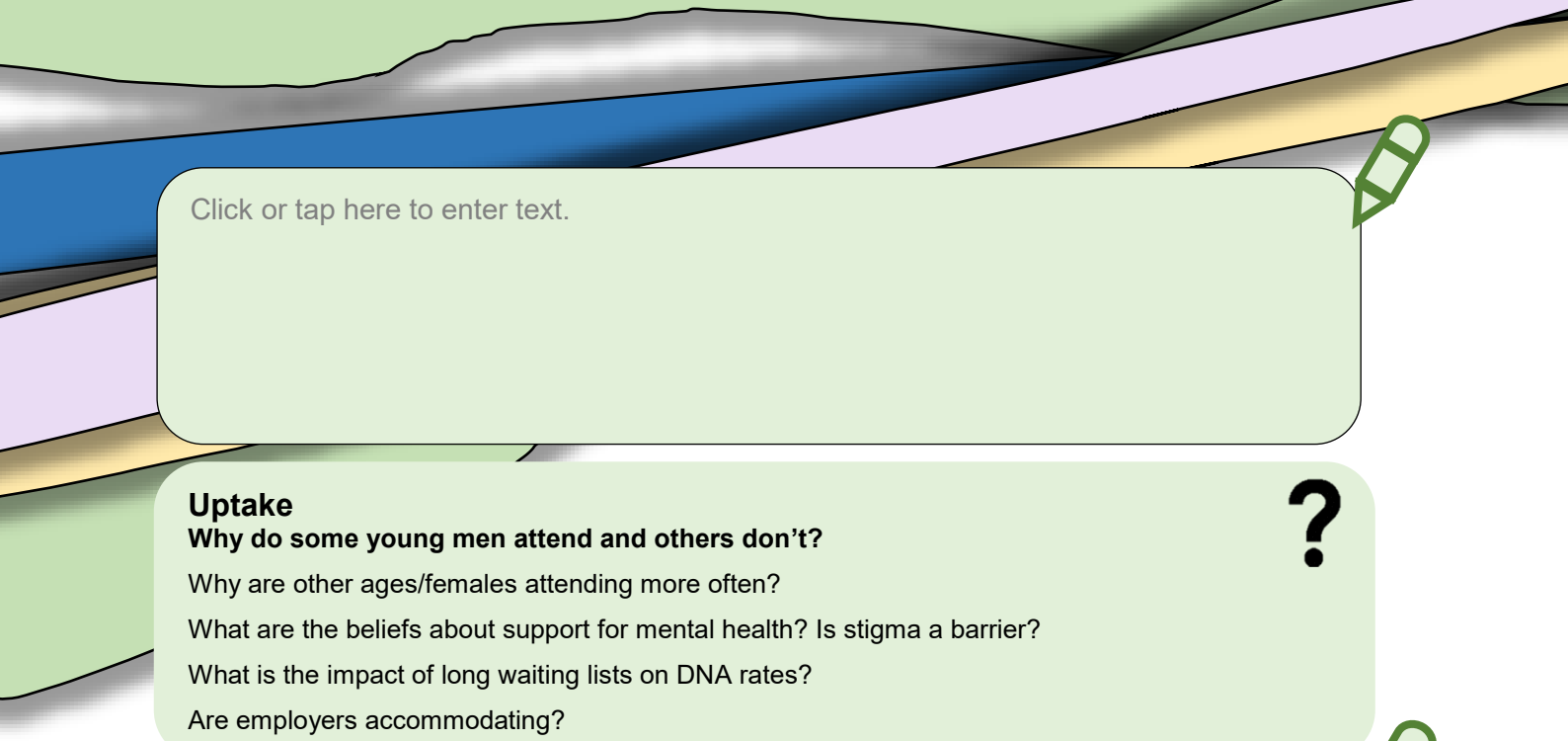
Step 2: Consider the issues (access, uptake, experience, outcomes)

Access
Is it possible for all eligible young men to access the service and appointments?

Where are mental health appointments held?

Are there transport issues?

Are clinics held at convenient times?



Click or tap here to enter text.

Uptake

Why do some young men attend and others don't?

Why are other ages/females attending more often?

What are the beliefs about support for mental health? Is stigma a barrier?

What is the impact of long waiting lists on DNA rates?

Are employers accommodating?

Click or tap here to enter text.

Experience

What is the experience of young men attending mental health appointments?

What is the experience of those who haven't sought help for mental health issues?

Click or tap here to enter text.

Outcomes

What are the outcomes for young men accessing CAMHS for mental health support?

Click or tap here to enter text.

Step 3: Ensure key stakeholders are included

Who else needs to know?

- CAMHS/Mental Health Services
- Primary care teams - GPs
- A and E
- Parent/school groups
- School nursing team
- Paediatricians
- Social care - Looked after children, SEND children
- Community hubs

Click or tap here to enter text.

Step 4: Co-design the intervention

Plan

- Ask young men about their views of mental health appointments/clinics.
- Look at examples of other areas with the same issue.
- Compare DNA rates for young men over time in relation to length of waiting list to be seen.
- Consider trends in hospital admissions for suicide and self-harm.
- Look at the areas with low DNA rates for young males and see what they are doing differently.

Click or tap here to enter text.

Monitoring / evaluation:

What do we want to achieve and how will we know whether we have succeeded?

- Our purpose is to reduce the DNA rate for young males accessing Mental Health support; we want to improve the attendance rate in this group.
- Possible unintended outcomes may include:
    - An increase in waiting lists for CAMHS if there is an increase in engagement.

Click or tap here to enter text.

Choose indicators:

- Number of CYP referred to CYP Mental Health services.
- Percentage of CYP who had their referrals closed before treatment in CYP Mental Health services
- Average waiting time between being referred to CYP Mental Health Services and starting treatment (defined as 2 contacts)
- Number of CYP admitted to inpatient mental health wards, and number of detentions of CYP under the Mental Health Act
- Hospital admissions as a result of self-harm (10-24 years)
- School nurse data for referrals/DNAs in this group
- Views of young males about the barriers to attending MH appointments

Click or tap here to enter text.

CASE STUDY 4: LOW BREASTFEEDING RATES IN TEENAGE PREGNANCY / MOTHERS

Issue: Rates of breastfeeding in teenage mothers are considerably lower than the regional and national average.

Step 1: Define group

Why are breastfeeding rates lower in teenage mothers than in other groups?

Which group will you focus on? Where are they? Who and where are the seen and unseen children?

Purpose of intervention: To reduce the gap in breastfeeding rates between teenage mothers and other-aged mothers to reduce associated health inequalities.

Seen: Teenage mothers attending GP and health visitor appointments.

Unseen: Those without a registered GP, homeless, unaware teenage mother.

Click or tap here to enter text.

Step 2: Consider the issues (access, uptake, experience, outcomes)

Access

Are there any barriers to accessing services that can support with how to breastfeed or to overcome barriers in breastfeeding? (this may be in hospital, midwives, health visitors, community champions).

Are there any barriers to accessing educational support/information around breastfeeding whilst pregnant?

Click or tap here to enter text.

Uptake

Why do some teenage mothers breastfeed and others do not?

Why do less teenage mothers breastfeed than older women?

What are the views and beliefs around breastfeeding?

Click or tap here to enter text.

Experience

How do teenage mothers experience breastfeeding support services?

(e.g. health visitors, community support)

Click or tap here to enter text.

Outcomes

What is the impact of lower rates of breastfeeding on babies' outcomes?

What is the impact of lower rates of breastfeeding on the mother?

Click or tap here to enter text.

Step 3: Ensure key stakeholders are included

Who else needs to know?

- Primary care teams - GPs, health visitors
- Maternity units - hospital and community - midwives
- Breastfeeding teams through NHS or community (are there champions?)
- Barnardos (Gold standard for breastfeeding awards)
- Community hubs and breastfeeding support groups
- Local Authority - 0-19 services

Click or tap here to enter text.

Step 4: Co-design the intervention

Plan

- Ask teenage mothers about their views on breastfeeding, their experience within services and any barriers they face to breastfeeding.
- Look at examples of other areas with the same issue.
- Look at the areas with good breastfeeding uptake and see what they are doing differently.

Click or tap here to enter text.

Monitoring / evaluation

What do we want to achieve and how will we know whether we have succeeded?

- Our purpose is to reduce the gap between groups; we want to measure the difference between intervention and comparator groups.
- Possible unintended outcomes may include:
    - Teenage mothers feeling shamed or guilty for not breastfeeding. Additional stress associated with this and negatively affecting their rapport with associated services.

Click or tap here to enter text.

Choose indicators:

- Breastfeeding rates at 6-8 weeks post birth in the region and LSOA broken down by age groups to compare breastfeeding rates amongst teenage mothers in different areas across the region and to consider deprivation.
- Identify within the data when rates are lower than within other groups - e.g. initial breastfeed, at 6-8 weeks, 6 months etc to consider where an intervention is best placed (is it support to continue breastfeeding or support to initiate?)
- Community offer of breastfeeding support/classes and uptake across age groups

Click or tap here to enter text.

Glossary

Babies, children and young people: Individuals up to the age of 24 years, including fetuses in utero.

Population Health Management: a way of working built around three key pillars: Know, Connect, Prevent. It is a systems approach based on need, driven by data and focused on outcomes. It considers the whole life course, addresses the wider determinants of health and incorporates prevention at all levels. It considers the distribution of health across a population to address inequalities. The aims are to enhance the experience of care for patients and staff, improve population health and wellbeing, address inequalities in health and care in terms of access, experience and outcomes, and reduce the cost of healthcare and ensure value for money.

Integrated care system: statutory local partnership bringing health and care organisations - including the NHS, local authorities, voluntary and charity groups, and independent care providers - together, to plan, buy, and provide health and care services in their geographical area. In England there are 42 ICSs, established in July 2022 and building on pre-existing partnerships. They aim to improve outcomes in population health and healthcare; tackle inequalities; enhance productivity and value for money; and help the NHS support broader social and economic development.

Health inequalities: systematic, unfair and avoidable differences in health across the population, and between different groups in society. They are caused by the conditions in which we are born, live, work and grow.

Wider determinants of health: also known as social determinants of health, these are the social, economic and environmental factors that impact people's physical and mental health and wellbeing. These factors are influenced by the local, national and international distribution of power and resources which shape the conditions of daily life. The World Health Organization (WHO) defines social determinants of health as "the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life".

Life course approach: an approach to health and wellbeing that considers individuals and populations in relation to time and society, recognising that physical and mental health and wellbeing are influenced throughout life by the wider determinants of health. This approach acknowledges the connections between the stages of an individual's life, and with the lives of other contemporaries, as well as those of past and future generations. It requires action early in life and during phases of transition to achieve fairer life chances throughout the life course and across generations, and incorporates the coordinated efforts of society working together.

Healthy Child Programme: the national evidence based universal government programme for children aged 0-19. The programme provides the bedrock for health improvement, public health and supporting families.

CORE 20 PLUS 5: a national NHS England approach to support the reduction of health inequalities. The approach defines a target population cohort based on deprivation and additional need, and identifies five clinical areas of focus requiring accelerated improvement. It has been adapted at national level to apply to children and young people, and at a regional level for a maternity population.

Co-design: a design approach that actively involves users and other stakeholders at all stages of a project, from development to implementation and evaluation.

Acknowledgements

This framework was developed by Suzy Cooke and Lisa Cromey, Public Health Registrars on placement with BACAPH

Thank you to David Gardiner, Lorraine Hughes and Becca Scott for their support in scoping and reviewing the framework as part of a BCYP stakeholder group.

Thank you to Harvy Kaur for support with creating and formatting the document.

References

1. NHSE e-learning for health: Intro to PHM[1]
2. *Fig x: The five aims of population health management*[2]
3. CHILDS framework[3]
4. Index of Multiple Deprivation (IMD)[4]
5. (PHE (2015) Reducing infant mortality in London[5]
6. Reference children's network doc: file:///C:/Users/susan/OneDrive/Documents/Public%20Health/NationalBACAPH/ICP%20Framework/heather/core20plus5frameworkcypNENC_childhealthwellbeingnetwork.pdf[6].
7. The Best Start for Life[7]
8. DHSC Healthy Child Programme[8]
9. *What-Good-Children-and-Young-Peoples-Public-Health-Looks-Like.pdf (adph.org.uk)*[9].
10. https://fingertips.phe.org.uk/profile/child-health-profiles[10]
11. Healthy child programme - GOV.UK (www.gov.uk)[11]
12. Lundy model of child participation[12].
13. Quality improvement made simple[13]
14. Public health profiles - OHID (phe.org.uk)[14]