Child Health

Competition for Development Funding

August 2023

SBRI HEALTHCARE

Accelerated Access Collaborative

The AHSN Network

NHS

Contents

Executive Summary

Now more than ever, the UK has pride in the NHS's enduring success, and in the shared social commitment it represents. However, work remains to be done to meet the challenges of the NHS Long Term Plan, such as funding, staffing and increasing inequalities.

SBRI Healthcare provides a mechanism to signal the challenges that the NHS and the wider system face and invites ventures to deploy innovative solutions to deliver improved outcomes of care. Our individual competition themes are scoped by working in close collaboration with the Academic Health Science Networks (AHSNs) and frontline NHS and social care staff.

At early stage, the SBRI Healthcare programme offers a two-phased development approach; projects start with initial feasibility and can then move on to more detailed product development. Phase 1 contracts for technical and commercial feasibility testing are valued at up to £100,000 (NET) and last for six months. Phase 2 contracts for prototype development are worth up to £800,000 (NET), subject to budget availability, over one year.

The SBRI Healthcare Phase 1 funding competition invites breakthrough innovations to address challenges in **Child Health** in two key focus areas and aims to identify innovative solutions that can be adopted by the NHS:

1. Long term conditions
2. Prevention of ill-health

Applicants are asked to consider the impact of their innovation on the whole system and to be aware of the competitive environment, even considering working together with other companies and organisations to bring forward solutions that can make a real difference. Health inequality is a core component of this competition, and equity of access and experience should be a central pillar of any successful innovation.

SBRI: Phase 1 funding competition

Programme ambitions

The SBRI Healthcare Phase 1 funding competition invites outstanding entrepreneurs to put forward breakthrough innovations, which address a clearly articulated challenge faced by the NHS and/or the social care community. The aim of the open tender is to facilitate the development and validation of such innovations and build on the value proposition required by commissioners and regulators for NHS adoption and wider commercialisation.

Phase 1 proposals concentrate on activities which will significantly contribute to proving the technical and commercial feasibility of the proposed innovation. If successful at Phase 1, and subject to budget availability, projects are eligible to apply for further funding at Phase 2, which will allow teams to undertake prototype development and generate clinical evidence. At the end of Phase 2, it is intended that the proposed solution will be ready for the next stage of development (e.g., manufacturing, regulatory approvals, etc), NHS adoption and/or wider commercialisation.

Accelerated Access Collaborative's priorities

The Accelerated Access Collaborative (AAC) funds the SBRI Healthcare Programme and brings together industry, government, regulators, patients and the NHS. Its ambition is to help the NHS become stronger in supporting clinicians and patients to access new innovations at pace and scale. It does so by removing barriers and accelerating the introduction of ground-breaking innovations which will transform care and supporting the NHS to more quickly adopt clinically and cost-effective innovations, to ensure patients get access to the best new treatments and technologies. Innovations include medicines, diagnostics, devices and digital products.

The AAC ensures that research and innovation meet the needs of the public, patients and the NHS. This includes ensuring that all innovations that are adopted into the NHS can support the following targets:

- Reducing health inequalities and enhancing equity of access to care through the Core20PLUS5 initiative
- Supporting NHS ambitions to be a net zero health service through the 'Delivering a Net Zero NHS' initiative

CORE20PLUS5

NHS England launched the Core20PLUS5 initiative in 2021 and a bespoke Children and young people Core20PLUS5 in 2022 to reduce health inequalities at both the national and system level. The approach defines a target population cohort and five focus clinical areas requiring accelerated improvement. The Core20 are the most deprived 20% of the national population

as identified by the national index of multiple deprivation while PLUS are population groups experiencing poorer than average health access, experience or outcomes which are not captured in the Core20 alone.

Delivering a net zero NHS

The NHS strategy also includes ambitions to become the world's first net zero national health service. The "Delivering a Net Zero Health Service" report sets out the ambition and two evidence-based targets:

- To reduce direct emissions (NHS Carbon Footprint) and reach net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032
- To reduce influenced emissions (NHS Carbon Footprint Plus) and reach net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.

As outlined in the NHS Long Term Plan (LTP), sustainability commitments range from reducing single-use plastics and water consumption, through to improving air quality. The Greener NHS National Programme was formed to drive this transformation, while delivering against broader environmental health priorities.

Child Health

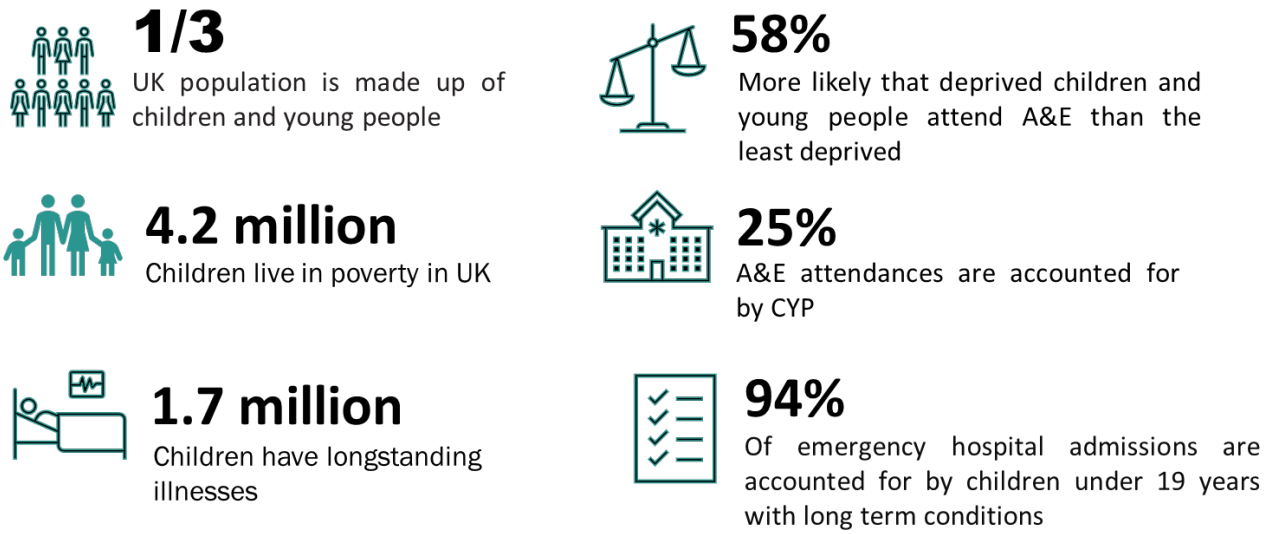
Background and introduction

Children and young people (CYP) represent almost a third of the UK population and their wellbeing will determine our future. How we support and manage their health and healthcare will have an impact for the next century. The worsening health of CYP living in low-income families or areas of social deprivation, and the avoidable and unfair systematic differences in health outcomes between these different groups of CYP, make it a priority for NHS England to respond to the challenges facing households across the UK and guarantee equitable access to care and reduce health inequalities at both national and system level.

CYP have been placed front and centre of the NHS Long Term Plan; the NHS has pledged to create a Children and Young People's Transformation Programme which will, in conjunction with the Maternity Transformation Programme, oversee the delivery of those commitments to CYP health in the LTP.

The 2020 State of Child Health report describes how data consistently shows that poverty and inequality impact a child's whole life, affecting their education, housing and social environment and in turn impacting their health outcomes. The State of Child Health indicators reveal a widening gap between the health of children from wealthy and deprived backgrounds. National interventions are required to tackle the causes of poverty and reduce variation to ensure all

children have the best start in life, wherever they are; to prioritise public health, prevention and early intervention by delivering appropriate services for parents, children and families which can in turn lead to economic savings for the NHS and wider public services, as well as lead children and young people to enjoy good health across their life. Interventions are also required to build and strengthen local, cross-sector services to reflect local need to ensure infants, children, young people and families have equitable access to cross-sector services, resources, advice and support within the local community to support their health and wellbeing.

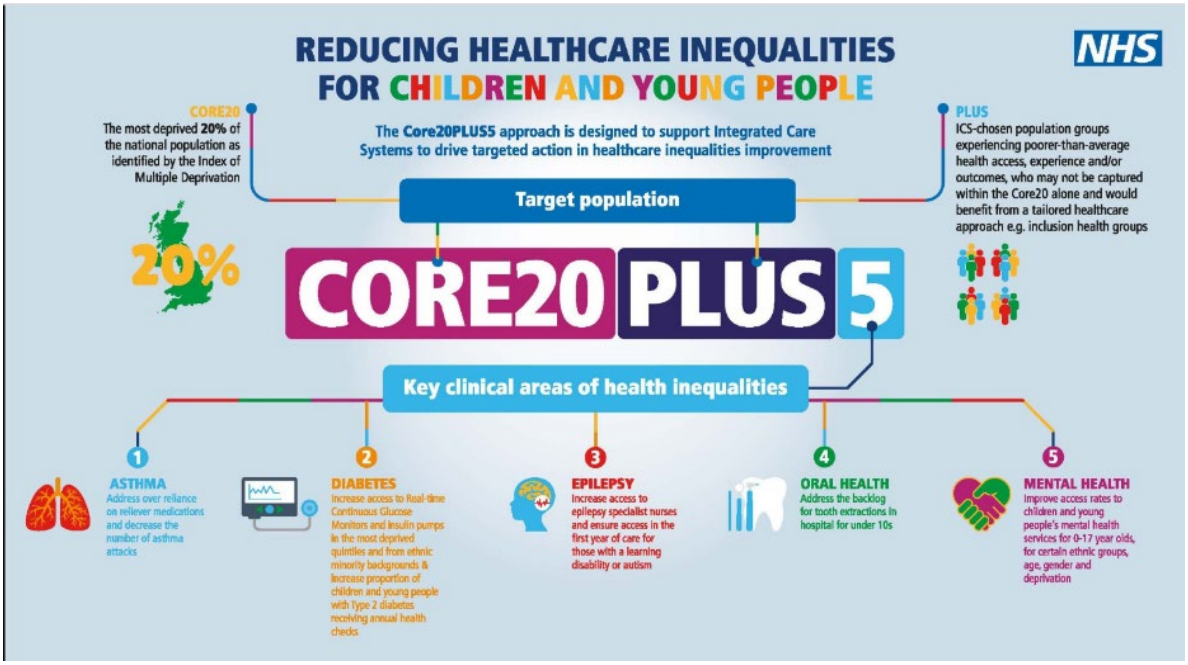


NHS England has launched the CYP Core20PLUS5 which is a national approach to support the reduction of health inequalities at both national and system level. The approach defines a target population cohort and identifies '5' focus clinical areas requiring accelerated improvement.

Core20: The most deprived 20% of the national population as identified by the national Index of multiple deprivation (IMD). The IMD has seven domains with indicators accounting for a wide range of social determinants of health. For children and young people wider sources of data may also be helpful including the National Child Mortality database and data available on the Fingertips platform.

PLUS: PLUS population groups include ethnic minority communities; inclusion health groups; people with a learning disability and autistic people; coastal communities with pockets of deprivation hidden amongst relative affluence; people with multi-morbidities; and protected characteristic groups; amongst others. Specific consideration should be given to the inclusion of young carers, looked after children/care leavers and those in contact with the justice system. Inclusion health groups include: people experiencing homelessness, drug and alcohol dependence, vulnerable migrants, Gypsy, Roma and Traveller communities, sex workers, people in contact with the justice system, victims of modern slavery and other socially excluded groups.

5: The final part sets out five clinical areas of focus: Asthma, Diabetes, Epilepsy, Oral Health, and Mental Health. The five areas of focus are part of wider actions for Integrated Care Board and Integrated Care Partnerships to achieve system change and improve care for children and young people. Governance for these five focus areas sits with national programmes and national and regional teams coordinate local systems to achieve its aims.



A call for Immediate action is required to improve CYP health outcomes on:

Long term conditions: Many long-term conditions develop during childhood. More children are presenting with multiple and complex morbidities requiring tailored management. *Asthma* is the most common long-term condition among children and young people and is among the top ten reasons for emergency hospital admission of children in the UK. *Epilepsy* is the most common long-term neurological condition of childhood, and *Diabetes* is becoming increasingly common among young people in the UK, the majority due to Type 1 but there are growing numbers of Type 2.

Prevention of ill-health: Promoting healthy lifestyles and preventing people from becoming ill is key to reducing the existing and future burden of disease and ensuring that everyone can live long and healthy lives. *Obesity* is a major area of concern, as obese children are highly likely to become obese adults, with an increased chance of developing a range of other health conditions such as heart disease, stroke, high blood pressure, diabetes and cancers. Early intervention in childhood fosters healthy behaviours for life, notably in areas such as *Oral health*. Tooth decay can lead to pain and time off school, resulting in loss of work for families, despite dental decay being almost always preventable.

Long Term conditions: Categories

Category 1 – Asthma

Asthma is the most common long-term medical condition in children and young people in the UK, with around 1.1 million children and young people living with asthma (Asthma UK, 2021). The UK has one of the highest prevalences of emergency admissions and death rates for childhood asthma in Europe (Nuffield Trust, 2019) and outcomes are worse for children and young people living in the most deprived areas (Asthma UK, 2018). Furthermore, the National Review of Asthma Deaths (NRAD) in 2014 identified avoidable factors in 65% deaths, suggesting that asthma education is lacking (Royal College of Physicians, 2014). The Children and Young People's (CYP) Transformation programme has committed, in the NHS Long Term Plan, to improve asthma outcomes for CYP and has developed a National bundle of care for children and young people with asthma to support local systems with the management of asthma care. Despite these initiatives, there remains a need to address challenges in CYP asthma care.

From infancy to teenage years there are age-specific challenges. These challenges include both underdiagnosis (where asthma is present but not diagnosed or treated), overdiagnosis (where asthma is diagnosed but the patient is unlikely to experience symptoms or problems) or misdiagnosis (where there is an alternative diagnosis for the child's symptoms). Formal diagnosis of the condition in under five-year-olds can be particularly challenging as the symptoms of asthma can be confused with those of other respiratory diseases and young children are usually unable to perform lung function tests. The effectiveness of asthma management can be particularly challenging in those patients whose care falls between hospital and general practice, where responsibility for monitoring the condition is not clearly defined and communication pathways and interfaces that share clinical information between care are inconsistent.

Asthma is more prevalent within more deprived communities and there is significant variation in access to basic care for asthma across geography, age group and ethnicity. A study, published in the journal *Thorax*, looking at the early life circumstances of thousands of UK children and their risk of persistent asthma as teenagers found that children experiencing social disadvantage in their first few years of life have a greatly increased risk of asthma persisting into adulthood. Comparing the relative impacts of a range of early life circumstances on asthma risk (such as birthweight, parental smoking, quality of housing and neighbourhood), it was found that being born into disadvantaged circumstances increased the likelihood of developing persistent asthma by 70%, with almost two-thirds (59%) of the risk attributable to early life exposures; before the children reached three years old. CYP emergency admissions for asthma are also strongly associated with deprivation.

Building on the CYP CORE20PLUS5 approach, the Programme encourages innovations that support the most deprived 20% of the national population as identified by the national Index of multiple deprivation (IMD) and population groups including ethnic minority communities; inclusion health groups; people with a learning disability and autistic people; coastal communities with pockets of deprivation hidden amongst relative affluence; people with multi-morbidities; and protected characteristic groups; amongst others. Specific consideration should be taken for the inclusion of young carers, looked after children/care leavers and those in contact with the justice system.

Potential solutions sought include (but are not limited to):

- Tools that can identify patients at increased risk of an asthma attack, for example by flagging risk markers such as the number of times a patient has sought emergency treatment, lack of improvement of symptoms and insufficient inhaled corticosteroid prescriptions and/or can provide easy and efficient diagnosis.
- Technologies to improve CYP remote self-management, identifying exacerbations and either preventing escalation or supporting emergency admission, whilst encouraging lifestyle changes through promoting physical activity to reduce asthma attacks and lead a life free of symptoms.
- Solutions to support patients to reduce the use of short acting bronchodilator inhalers and/or support switching to dry powder inhalers where clinically appropriate to contribute to NHS net zero ambitions and/or encourage use of new smart inhalers.
- Technologies that can monitor environmental factors for acute asthmatic episodes and support tailored therapy to help exacerbation, such as technologies that investigate and/or improve the relationship between air pollution and asthma.
- Tools and technologies that can support ways to reduce over reliance on reliever medications where possible.
- Tools that can provide co-ordinated care, including better access to asthma management and action plans and sharing of clinical information and medicine management between patients/families and clinical professionals across primary care, secondary care, community services, the child's school, and the family.
- Access to trusted information in formats that work for young people whilst providing information and management plans to monitor symptoms and educating parents/carers regarding symptoms to manage their child's condition.
- Youth friendly services and care in non-clinical settings that young people can access easily with the opportunity to build relationships with key staff.
- Technologies that can better support seamless transition of asthma care from child services to adult services.

Category 2 – Epilepsy

Epilepsy is one of the common major long-term conditions (LTCs) affecting CYP and affects an estimated 112,000 CYP in the UK (RCPCH Epilepsy Audit 2022). Between 40-80 children die every year as a result of their epilepsy.

Misdiagnosis has been, and remains, a major concern of CYP epilepsy. Epilepsy is a difficult condition to accurately diagnose, and unlike some conditions, there is not any one test by which epilepsy can be diagnosed. Nonetheless, the rate of overdiagnosis is high. One study found that up to 40% of CYP referred to specialist clinics were found not to have the condition, resulting in unnecessary treatment with anti-epileptic drugs (London Epilepsy Standards for CYP, 2018). Undertreatment is also a significant problem, with estimates that up to 70% of people with epilepsy could be free of seizures if appropriately managed (Epilepsy Society, 2022). Furthermore, poor communication between professionals caring for CYP with epilepsy and, importantly, between professionals and families has been identified as a major contributory factor to challenges of epilepsy care.

Finally, variation in care is and continues to be an issue. Specific issues have been highlighted with access to appropriate care and utilisation of resources. Fragmentation of services plays a big role in perpetuating poor care. Many sectors provide important care for CYP, including health, mental health, social care and education, which means that professionals looking after the same child or young person often work in separate organisations, resulting in often uncoordinated plans for individual young people.

A national audit, carried out by the Healthcare Quality Improvement Partnership, showed that in 2020 fewer than one in five children and young people with epilepsy could access certain specialised diagnostic and treatment procedures locally. Accessing services further from home might not be feasible for those from deprived backgrounds owing to financial or logistical barriers, thus exacerbating unwarranted inequalities.

Epilepsy is associated with a higher risk of mental health problems. 37% of children with epilepsy have a co-existing mental health disorder, a higher prevalence than found in other long term childhood conditions. Prevalence increases with increasing level of intellectual disability. Evidence suggests that people with learning disabilities and epilepsy have a substantially increased risk of mortality, particularly where seizures are ongoing. In the general population, there is some evidence that socio-economic factors (such as deprivation and occupation) are associated with both the development of epilepsy and the health outcomes of people with epilepsy (Epilepsy: Health Inequalities, PHE).

Building from the CYP CORE20PLUS5 approach, the Programme encourages innovations that support the most deprived 20% of the national population as identified by the national Index of multiple deprivation (IMD) and population groups including ethnic minority communities; inclusion health groups; people with a learning disability and autistic people; coastal

communities with pockets of deprivation hidden amongst relative affluence; people with multi-morbidities; and protected characteristic groups; amongst others. Specific consideration should be taken for the inclusion of young carers, looked after children/care leavers and those in contact with the justice system.

Potential solutions include (but are not limited to):

- Interventions to enhance access to epilepsy specialist nurses and ensure access in the first year of care for those with a learning disability.
- Tools and technologies that can assist CYP with suspected seizures to be seen promptly and investigated appropriately, in accordance with current NICE guidance.
- Solutions that facilitate the detection of seizures to support earlier intervention to prevent seizures, to shorten seizure duration and to reduce sudden death in epilepsy (SUDEP).
- Tools that can provide easy access to advice from trained clinical professionals and offer opportunities for appropriate mental health, behavioural and cognitive assessment.
- Technologies that can support better management of medication prescriptions and alleviate avoidable over-/under-treatment with anti-epileptic drugs.
- Tools and technologies that can support better management of epilepsy, including individualised care plans drawn up in conjunction with patients/family, and input from any other relevant professionals providing care.
- Tools that support the remote monitoring of children and young people with epilepsy, including those with mental health and/or learning disabilities to facilitate care, prevent admission and escalation of symptoms and to direct admission when appropriate.

Category 3 – Diabetes

Diabetes is increasingly common among children and young people in the UK. In 2019 there were an estimated 36,000 children in the UK with diabetes under the age of 19, up from 31,500 in 2015 (State of Child Health, 2020). The latest National Paediatric Diabetes Audit (NPDA) Report on Care and Outcomes 2021/22 reveals a continuous rise in Type 1 diabetes incidence since the onset of the COVID-19 pandemic. The number of newly diagnosed cases has increased since 2020. Common co-morbidities of Type 1 Diabetes include obesity or being overweight (in 42.3% of cases) and having hypertensive blood pressure levels (in 29.9% of cases). The report found that 39% of children and young people with Type 1 diabetes and 48.3% of those with Type 2 diabetes required additional psychological support to that already provided.

The report highlighted disparities among different ethnic and socioeconomic groups. Children and young people with type 1 diabetes from ethnic minority backgrounds as well as those living in the most deprived areas are more likely to have higher average blood sugar levels (HbA1c) compared to White children and those in less deprived areas. A high HbA1c increases the risk of developing serious complications including eye problems, foot problems and gum disease to

name a few. Continuous Glucose Monitors (CGMs) and insulin pumps support diabetes management, improve health and lower HbA1c. However, despite recent improvements, equitable access and usage of diabetes-related technologies remains a challenge. The report shows that in 2021/2022 the percentage of children of Black ethnicity with type 1 diabetes using CGMs was 22.2% whereas for White children and those of Mixed ethnicity these percentages were 30.8% and 31.3% respectively.

While 90% of diabetes cases in CYP are Type 1, Type 2 is increasing in prevalence. Type 2 diabetes in the young is a more aggressive disease than Type 2 diabetes in adults, with more rapid onset of complications, most alarmingly kidney damage, at a younger age, threatening long-term health and quality of life in adulthood. A major co-morbidity of childhood Type 2 diabetes is non-alcoholic fatty liver disease (NAFLD). Despite this, audits have shown that health checks are not being performed as well as they should and where health checks were completed, appropriate treatment based on the result was not commonly provided. NICE guidance recommends the provision of liver ultrasound to test children and young people with Type 2 diabetes for NAFLD but rates of ultrasound were found to be low, with fewer than a quarter of patients being screened within a year of Type 2 diabetes diagnosis.

Most notably, NPDA reports have shown wide variation in the quality of care for Type 2 diabetes and outcomes achieved by specialist Paediatric Diabetes Units PDUs for CYP from deprived quintile areas of the country and from minority ethnic backgrounds. The report showed that nearly two thirds of CYP with Type 2 diabetes were female (64.3%), most were from a minority ethnic background with Asian children having the highest representation (38.6%), and there was an over representation amongst those living in the most deprived areas of England and Wales (45.2%).

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- Technologies and solutions that can increase access to real-time continuous glucose monitors and insulin pumps across the most deprived quintiles and from ethnic minority backgrounds for those with Type 1 Diabetes.
- Technologies and solutions that can increase the proportion of those with Type 2 diabetes receiving recommended NICE care processes.
- Technologies that can ensure that children and young people with Type 2 diabetes are screened routinely for complications such as fatty liver disease, hypertension, and albuminuria, and that can help manage these conditions.

- Technologies and solutions that can support preventative and management measures for obesity associated with Type 2 diabetes that align with NICE guidelines.
- Tools that can help raise awareness of prevention measures to reduce the prevalence of Type 2 diabetes by educating children and young people in high-risk groups of developing Type 2 diabetes, such as those with a strong family history, particularly those living in deprived areas and those who have ethnic minority status.

Prevention of ill-health: Categories

Category 1 – Obesity

Obesity affects one in four children in the UK and can increase the likelihood of a child developing serious health issues such as Type 2 diabetes, liver conditions and early heart disease. There is the biggest increase in childhood obesity levels recorded to date, with those from the most deprived backgrounds impacted most.

Early action can prevent the onset of obesity and associated long-term health problems which is beneficial for the health outcomes of patients and the sustainability of the NHS. As such, the government has pledged to halve childhood obesity and significantly reduce the gap in obesity prevalence between children from the most and least deprived areas by 2030. Despite efforts to address this through the setup of Complication of Excess Weight (CEW) clinics across the country to manage children with complications from being overweight, prevalence of obesity in childhood remains high.

Effectively promoting healthy living and nutrition remains one of the biggest challenges to combating childhood obesity. Children are heavily exposed to television advertising for food and drinks high in salt, fat or sugar. In addition, fast food shops are a growing presence on high streets and increasingly cluster around schools. As a result, a third of children leaving primary school are overweight or obese and, on average, consume up to 500 extra calories per day. Furthermore, the burden of obesity isn't experienced equally across society. Therefore, there exists significant challenges in ensuring that local health systems are equipped to address inequality of access to nutritional resources and specialist support. Data from NHS Digital 2022 shows that children living in the most deprived areas of the country are more than twice as likely to be living with obesity. Data also shows that boys are more likely to be living with obesity than girls and that ethnicity is also shown to be linked to body weight, with Black children most likely to be living with obesity.

The 2021 Life Sciences Vision report highlighted that there has been little progress in recent years in demonstrating the efficacy of interventions, both behavioural and medical, that have been designed to prevent obesity and/or support individuals to sustainably reduce their Body Mass Index (BMI). Thus, there are significant opportunities for innovative solutions to combat this growing burden.

Obesity is not strictly one of the priorities of the CYP CORE20PLUS5, nonetheless the SBRI Healthcare Programme encourages innovations that support the most deprived 20% of the national population as identified by the national Index of multiple deprivation (IMD) and population groups including ethnic minority communities; inclusion health groups; people with a learning disability and autistic people; coastal communities with pockets of deprivation hidden amongst relative affluence; people with multi-morbidities; and protected characteristic groups; amongst others. Specific consideration should be taken for the inclusion of young carers,

looked after children/care leavers and those in contact with the justice system. Potential solutions include (but are not limited to):

- Tools and technologies that can educate and support CYP and their families/carers to understand the importance of nutritious food, particularly for those who do not have access to school resources and live in deprived areas.
- Tools to support children and families in making healthy food choices and change consumer and family preferences away from obesogenic choices.
- Digital tools to engage children and young people with physical activity to reduce time spent in sedentary behaviours, whilst monitoring activity impact through patient engagement.
- Tools and technologies to help CYP and their families to track and manage their weight and provide personalised coaching to help change unhealthy habits.
- Solutions that can support prevent and/or manage severe complications related to obesity, such as diabetes, sleep apnoea, fatty liver disease and poor mental health, and that can prevent children from needing more invasive treatment.

Category 2 – Oral Health

Tooth decay is the most common oral disease affecting children and young people in England, resulting in at least 60,000 days being missed from school during the year for hospital extractions alone (Office for Health Improvement and Disparities (OHID)). Yet it is largely preventable by reducing consumption of sugar in food and drink (The UKHSA reported that children are consuming the equivalent of around eight sugar cubes more than the recommended daily limit), adequate exposure to fluoride, and routine visits to the dentist. Although all young children should be guaranteed equitable access to services that focus on dental health improvement, NHS Digital showed that only 46% of children living in England saw a dentist in the 12 months to June 2022, falling to 24% of children under four (NHS Digital).

Tooth extraction is the most common hospital procedure in 6-to 10-year-olds and for the financial year 2019/20 the estimated costs of hospital admissions in 0- to 19-year-olds for extractions due to tooth decay was £33 million (UKHSA). Despite OHID and NHS England initiatives to improve the oral health of children, such as the Children's Oral Health Improvement Programme Board and Starting Well 13: A SMILE4LIFE initiative, data from the Oral Health Survey of 3-year-old Children indicates that the numbers experiencing dental decay had changed little between 2013 and 2020.

Significant inequalities in oral health continue to exist with children living in the most deprived communities experiencing poorer oral health than those living in more affluent areas. A survey reported that children from deprived areas of the country are almost three times as likely to have experience of dental decay (16.6%) as those living in the least deprived areas (5.9%) (Oral health survey of 3-year-old children 2020 and 2013). Whilst deprivation is a strong predictor of poor oral health, ethnicity can also play a part, with the last 5-year-old dental survey showing

that Chinese and Eastern European children are more at risk. Moreover, inequalities are exacerbated for those children living with disabilities and vulnerable children.

Building from the CYP CORE20PLUS5 approach, the Programme encourages innovations that support the most deprived 20% of the national population as identified by the national Index of multiple deprivation (IMD) and population groups including ethnic minority communities; inclusion health groups; people with a learning disability and autistic people; coastal communities with pockets of deprivation hidden amongst relative affluence; people with multi-morbidities; and protected characteristic groups; amongst others. Specific consideration should be taken for the inclusion of young carers, looked after children/care leavers and those in contact with the justice system. Solution can include (but not be limited to):

- Simple, accessible and transformative interventions and/or oral health educational programmes for children and their families that have the potential of augmenting the impact of available initiatives to improve CYP oral health with a strong focus on co-design and high potential for impact.
- Tools that can identify those at risk of experiencing health inequalities, taking into account various factors including age, gender, socioeconomic standings, and ethnic backgrounds.
- Tools that provide support to children and their families and carers living in remote and rural settings that may experience reduced access to services and suffer from poor digital health literacy.
- Interventions to ensure more equitable and timely access to dental care services for prevention, diagnosis and treatment of poor oral health.
- Solutions to improve services of tooth extractions due to decay for children admitted as inpatients in hospital, aged 10 years and under.

Useful Information for Applicants

Eligibility

The competition is open to single organisations (contracts are executed with individual legal entities) based in the UK or EU from the private, public, and third sectors, including companies (large corporates and small and medium enterprises), charities, universities and NHS providers, as long as a strong commercial strategy is provided. Organisations based outside the UK or EU with innovations in remit for this call can apply as subcontractors of a lead UK/EU based organisation or via a UK or EU subsidiary.

Collaborations are encouraged in the form of subcontracted services as appropriate.

Technologies excluded from this competition

There are a number of technologies or types of solutions which are already available or will not make a significant impact on the challenges addressed in this brief. These are listed below.

- Any technologies that negatively impact staff workloads and do not support the workforce pressure, and that require high upfront capital investment by clinical services will be excluded.
- Technologies that will not easily integrate or communicate with NHS systems.
- Apps that provide for general dietary advice if not linked to GPs, primary and/or secondary care systems.

Desirable exit points

At the end of Phase 1, projects are expected to have established the technical merit, feasibility, and commercial potential of the proposed technology.

Examples of exit points include:

- Feasibility technical study
- Market validation
- Business plan developed
- Clinical partners identified
- Evidence generation plan for adoption
- Development of PPIE strategy
- Health inequalities impact assessment

Following successful completion of Phase 1, projects can apply for further funding at Phase 2 to continue development, subject to budget availability. It is expected that at the end of Phase 2, some of the following will be achieved:

- Minimum viable product developed
- Early clinical evidence gathered to demonstrate safety and accuracy
- Developed commercialisation strategy
- Health economics
- Evidence gathered towards regulatory approval
- Implementation plan for adoption
- Strong involvement and engagement with patients and the public
- Next stream of funding identified / investment readiness

Additional considerations

The programme supports innovations that plan to meet relevant regulatory standards and generate a strong evidence base. For this reason, innovators are encouraged to make sure that they are aware of the specific compliance requirements for their innovation (e.g. CE marking, UKCA, relevant ISO certifications, etc.). For any digital intervention, the NICE Digital Health Technology Framework should be consulted and your application should evidence your plan to meet the appropriate evidence guidelines. This comprises both clinical effectiveness and economic evaluation with a particular focus on patient outcomes and use within the NHS. Evidence that the Digital Technology Assessment Criteria (DTAC) has been considered should be demonstrated in your proposal.

Particular emphasis is placed on how the proposed solution will contribute to addressing health inequalities, such as demographic and geographic disparities, and it is expected that applicants provide details on how they will address these, e.g. provide details on the care pathway, the population that the intervention will affect and how it can improve equity; how they will ensure that the innovation enhances equity of access (e.g. taking account of underserved ethnic or economic groups) and also serve vulnerable groups such as those with disabilities and/or learning disabilities; how accessibility of digital solutions will be overcome to guarantee reach in deprived populations, those living in remote or rural areas and those that have learning disabilities and/or mental health conditions.

Those submitting applications are also asked to consider:

- How will the proposed solution impact the care system and how will the system need to be changed (including people, processes and culture) in order to deliver system-wide benefits?
- How will it be ensured that the innovation will be acceptable to patients (and their families and wider support network) and to health and social care workers? How could these groups be involved in the design of a solution and its development? There are expectations that individual bids show a strong element of co-creation with children and young people, their families and their carers.

- How will it be ensured that the innovation is affordable to the NHS and wider systems such as Integrated Care Systems (ICSs) both immediately and throughout the life of the product? What evidence, both health economics and delivery of true impact will the NHS and wider system require before the technology can be adopted?
- How will the innovation support the NHS's commitment to reach net zero carbon? Applicants will be asked to provide information on the steps they have taken to identify the carbon pathway and the consequences of the proposed solution on carbon emissions.
- All proposed technologies should take into consideration appropriate integration with electronic patient records (EPR).

SBRI Healthcare Programme

This national SBRI Healthcare competition is being launched by the Accelerated Access Collaborative (AAC) in partnership with the Academic Health Science Networks (AHSNs) to identify innovative new products and services. The projects will be selected primarily on their potential value to the health service and social care system and on the improved outcomes delivered for those in receipt of care.

The competition runs in two phases (subject to availability of budget in 2024/25):

- Phase 1 is intended to show the technical and commercial feasibility of the proposed concept. The development contracts placed will be for a maximum of 6 months and up to £100,000 (excl. VAT) per project.
- Phase 2 contracts are intended to develop and evaluate prototypes or demonstration units over a maximum of 12 months. Only those projects that have completed Phase 1 successfully will be eligible for Phase 2.

Developments will be 100% funded and suppliers for each project will be selected by an open competition process and retain the intellectual property rights (IPR) generated from the project, with certain rights of use retained by the NHS.

SBRI Healthcare application process

This competition is part of the Small Business Research Initiative (SBRI) programme which aims to bring novel solutions to issues faced by Government departments by engaging with innovative companies that would not be reached in other ways:

- It enables Government departments and public sector agencies to procure new technologies faster and with managed risk;
- It provides vital funding for a critical stage of technology development through demonstration and trial – especially for early-stage companies.

The SBRI scheme is particularly suited to small and medium-sized businesses, as the contracts are of relatively small value and operate on short timescales for Government departments. It is an opportunity for new companies to engage a public sector customer pre-procurement.

The application process is managed on behalf of NHS England by LGC Group. All applications should be made using the application portal which can be accessed through the Research Management System. Applicants are invited to consult the Invitation to Tender and the How to Apply and FAQ pages on the SBRI Healthcare website to help prepare their proposal.

A briefing event for businesses interested in finding out more about the competition will be held on 09 August 2023, 9:30 – 11:30 BST. An additional webinar event will be organised to respond to potential applicants' questions. Please check the SBRI Healthcare website for confirmation of dates, information on how to register, and details of the competition.

Key dates

Competition launch	09 August 2023
Deadline for applications	13 September 2023 (13:00 BST)
Selection Panels	12 December 2023
Project start	01 February 2024

More information

For more information on this competition, visit: https://sbrihealthcare.co.uk/

For any enquiries email: sbri@LGCGroup.com

For more information about the SBRI programme, visit:

https://www.ukri.org/what-we-do/our-main-funds-and-areas-of-support/browse-our-areas-of-investment-and-support/small-business-research-initiative-sbri/