

Optimising Health in the Early Years

The implementation of the national policy “Change for Children” is gathering pace. Children’s Centres and Extended Schools have developed across England and Wales creating an imperative for different sectors to work closely together. Colleagues in health, education and social care as well as the voluntary sector need to grasp this opportunity to enhance and optimise children’s health in these settings. This paper describes the changing context and nature of child health in the UK, the rationale for focussing on investment in the early years (0-8 years), a holistic framework to describe the determinants of child health and wellbeing, and how a child public health orientation and way of working can support the achievement of these goals. Its aim is to stimulate discussion and debate in early years settings with a view to strengthening the focus on children’s health issues.

Dr Mitch Blair

**British Association of Community Child Health (BACCH)
Child Public Health Interest Group (CPHIG)
Community Practitioners and Health Visitors Association (CPHVA)
Early Childhood Forum, National Children’s Bureau, London**

1 Background and Context

There have been substantial reductions in child mortality in the UK over the last 150 years. An average 5 year old child in 1858 would have had a 40% chance of surviving until adult age. 6 out of 10 infants born at this time didn't survive their first year of life and often died of severe infections and malnutrition. Now 99.5% survive their first year of life and the vast majority of young children reach adulthood. As survival has increased, there has been a relative increase in focus on ameliorating children's morbidity (illness). Many physical illnesses have been prevented through improved nutrition, sanitation, immunisation and education; many are curable because of the considerable advances in health technology. Quality-of-life, emotional well-being and lifestyle issues have generally become the predominant issues when considering children's health.

In the 18th and 19th centuries, children and army recruits became increasingly visible by being brought together within a specific physical (schools) or organisational space (armed forces) and with this came a realisation that those sitting or standing in front of the teacher or sergeant were in no fit state to be taught or to be moulded into a fighting force.¹ The current issues affecting children have been brought to our attention yet again "seeing" and listening more closely to what is troubling them through surveys (e.g. TellUS or WHO HBSC) and enquiries (e.g. Good Childhood Enquiry)

It has been long known that healthy children make healthy learners and subsequently healthy (and economically productive) adults and parents. However children's health is good relative to adults, so the vast majority of NHS funding (96%) is spent on the adult and elderly population. Comparatively inadequate amounts are allocated to promote and sustain health in children and young people.

It is sometimes difficult to fight the corner for a group who do not by virtue of their age, have a vote or political voice in the development of the health services which would be most beneficial for them. Thus it is important for organisations and individuals (such as the Children's Ombudsmen) who work with children, to speak out and highlight the issues of importance for both this and future generations.

The next section of this paper goes on to describe why we should focus especially on children in their early years.

2 Why focus on early years?

a) Cost Benefit

It is estimated that one dollar spent on the early years repays seven dollars eight years later.² In other words, there are big returns, with early investment. The key questions are: how much is spent of children's services and what do we spend it on?

The table below indicates national spending on children in England in the health, social and justice systems compared³

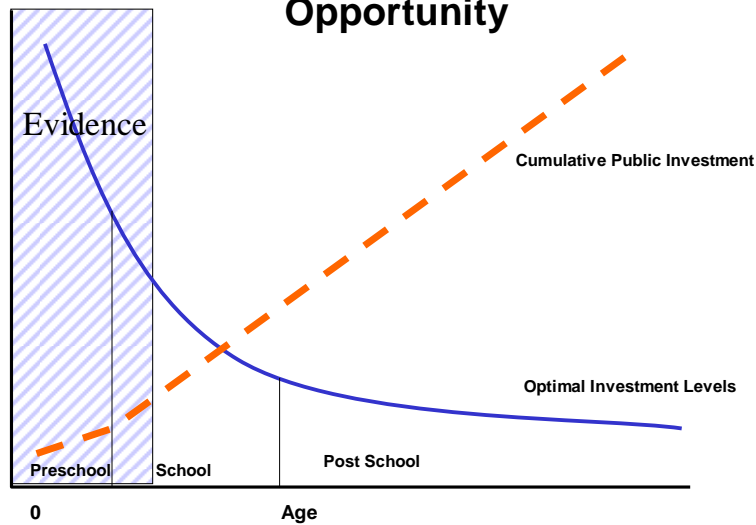
	Spend £ per child
Universal health services	43
Targeted	38
Hospital	112
Social Services	5000
Criminal justice	301,860

The total spend on criminal justice services for children is £246m)

£1.26 billion is spent on primary care (mainly GP services) in England for 0-15 year old children.

The graph below represents the economic benefits of early years intervention.

Mismatch between Investment and Opportunity



Source: Carneiro & Heckman, Human Social Policy (2003)

Education is one of the most important predictors of health. A recent study in the USA, demonstrated that if everyone had a comparable standard of education i.e. all had mean levels, 1,369,335 lives could be saved. This compares with 178,193 lives saved by medical advances over the same time period. (1996-2002). Those working with young children can be highly instrumental in supporting parents to break cycles of disadvantage, which might have occurred for many generations before.⁴

b) Childrens Rights

Investment in early years is not a means to an end (in this case an economically productive member of society) in itself. It is essential for us to value children at all stages of their development. Indeed this is enshrined in the UNICEF Rights of the Child. Several articles are

relevant in this context but especially Article 24 which lays down the imperative to strive for the highest achievable levels of health for all children. Article 17 Children have the right to reliable information from the mass media. Television, radio, and newspapers should provide information that children can understand, and should not promote materials that could harm children.

Article 18 Both parents share responsibility for bringing up their children, and should always consider what is best for each child. Governments should help parents by providing services to support them, especially if both parents work. Article 23 Children who have any kind of disability should have special care and support, so that they can lead full and independent lives. It follows that this requires early identification, referral and treatment. Article 31 All children have a right to relax and play, and to join in a wide range of activities. Article 36 Children should be protected from any activities that could harm their development.

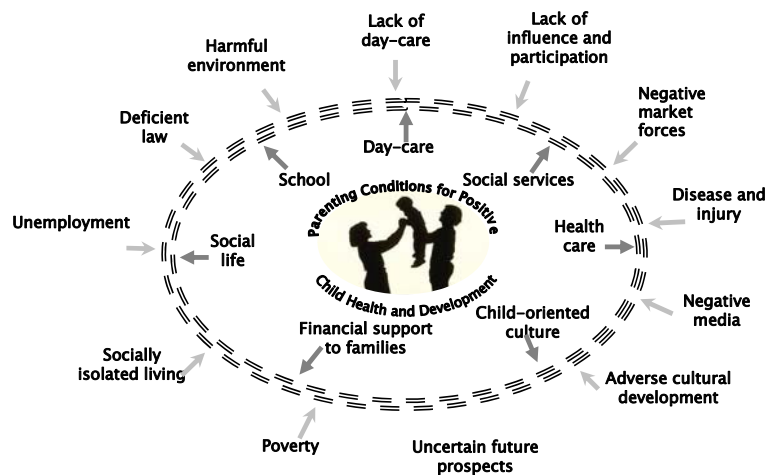
c) Neurobiological window of opportunity

There is a growing body of evidence showing that pregnancy and the first three years of life are critical in terms of later public health outcomes and emotional health.⁵ The brain is a rapidly developing organ, which can be literally “shaped” considerably by the physical and emotional environment. These biochemical changes lead to new neurological branches (synapses) and connections and these in turn can set the child’s emotional “thermometer” for the future as well as effect the hormone systems in the body throughout childhood and into adult life. Research following groups of children over many years (longitudinal cohort studies) have demonstrated these interactions very clearly and it has become evident that we need to intervene at an early stage if we are to optimise health.⁵ Early years settings provide an ideal opportunity to improve health and give an opportunity to monitor progress over time. There is the scope to detect deviations from the expected pathway. This is much more likely with a highly motivated and appropriately qualified workforce. The National Child Health Promotion Programme, National Service Framework and Every Child Matters are key policies that provide essential levers for change.

3 A holistic Bio-psycho-social framework

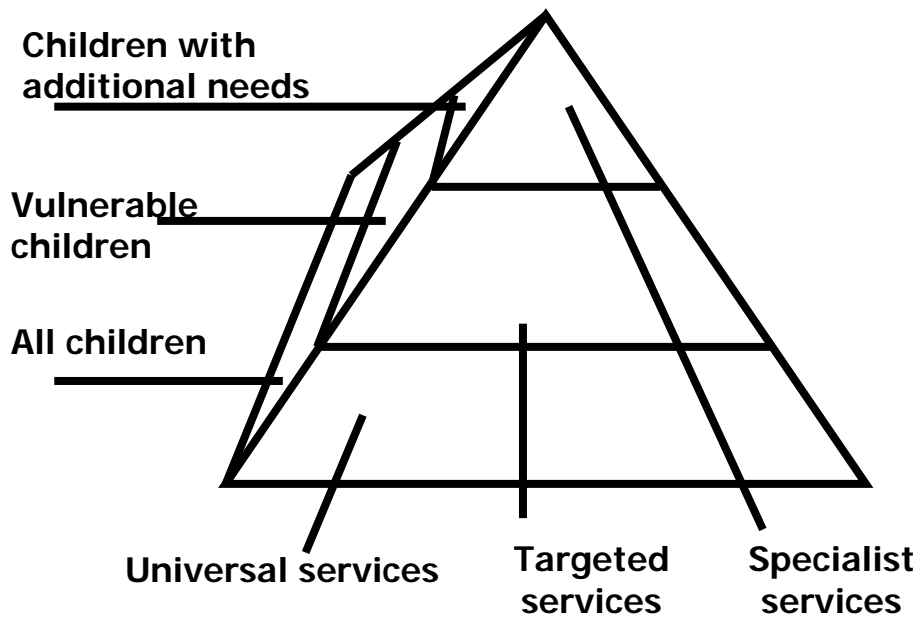
Children's health and development should be considered within a holistic framework, which includes economic, social and psychological determinants of health and well-being. This includes threats to that status through malnutrition, infection, and other illnesses. But there are just as real threats from economic and societal forces e.g. recession or increased levels of violence. There is immense scope for supporting children and families to become more resilient against these threats. The diagram below represents a child and parents/carers in the centre of a circle. The integrity of this unit is constantly under threat for its survival and development. Over millions of years we have evolved ways of improving our resilience to any threat to that integrity. Services are put into place to help support the main carers of the child and to optimise that child's health and wellbeing now and in the future. These opposing forces meet at the boundary circle which surrounds the family. If the protective forces are equal or greater to those which threaten the integrity of the unit then the child and family can develop healthily.^{6, 7}

Breadth of Determinants



Adapted by Gunnlaugsson G and Rigby M from Skolhälsovården 1998. Underlag för egen kontroll och tillsyn. Stockholm: Socialstyrelsen, 1998.

Another useful framework to consider is the “pyramid approach of need”. This is used in many circumstances such as the child health promotion programme, child mental health services, tiered levels of service, speech and language therapy, social services and education, e.g. action plus, statement of special educational needs etc. This is a useful framework for considering the levels of care and support that a particular family may need. There is no doubt that current health services and social services are primarily focussed on the top of the pyramid which requires the most intense and skilled interventions. However, if the universal services are strong and supportive, then the individual child and family are protected from rising too high or staying too long at these higher tiers. Most services need to have a balanced *combination* of universal and targeted services.^{8, 9}



4 A child public health approach

Child public health is defined as the *“the science and art of preventing disease, protecting and promoting the health of the population of children and young people through the organised efforts of society”*¹⁰. Thus, **health promotion, health protection and prevention of disease and ill-health are the key activities** which will help us to move children from the higher layers of the pyramid of poor health and wellbeing to the healthier levels below. This approach by its very nature relies on the development of relationships between “practitioners” who can work in synergy to enhance the effectiveness of these activities. Early years settings are opportune “spaces” for those practitioners to come together so they can learn about and from each other. The opportunity is created to use their collective skills to support a shared vision of optimising child health and wellbeing informed by a holistic child public health framework.

5 What are the priorities for children's health in the early years and what can be done?

Priorities are constantly changing and will not necessarily be given the same weighting in different settings. Below are listed a number of widely agreed priorities and a brief overview of how they might be tackled using the previously discussed framework of health promotion, health protection and prevention of illness

- **Child mental health issues**
- **Developmental disorders**
- **Injury and the physical environment**
- **Immunisation**
- **Malnutrition and low levels of physical activity**

a) Child mental health issues ; emotional and behavioural disturbance, conduct disorder, oppositional defiance, hyperactivity, attachment disorder and moral development.

It is estimated that one in 10 children have a mental health disorder and that the rates are increasing over time with a disproportionately high rates in the most disadvantaged communities. In a UNICEF report on the wellbeing of children, the UK was rated as one of the worst countries. A number of children with significant difficulties go on to be truants and young offenders and enter the criminal justice system at a great cost to the community and State as a whole. Recent neurophysiological research (brain chemicals) has shown that patterns of these conditions can be established at a very young age and that early identification and treatment can be very effective^{11, 12}

Health Promotion

Antenatal:- There is evidence of effectiveness with antenatal parenting preparation using promotional interviewing techniques with high risk women

Postnatal :- debriefing of birth, skin to skin bonding, use of Brazleton Neonatal behavioural Scale, use of soft infant carriers and infant massage , parenting programmes using media and brief therapist intervention and one to one intervention for parents with learning difficulties have all been shown to be effective. Early years settings based interventions designed for disadvantaged mothers have shown increased mother infant interaction, improvements in the home environment , child cognitive function and maternal knowledge and attitudes about childrearing.

The Family Nurse Partnership programme is being extensively piloted in England as an example of an enhanced health visitor programme for especially vulnerable families.¹³

Health Protection

- improving parental social circumstances,
- early identification for the prevention of domestic violence, parental mental health disorders and substance abuse,
- supportive peer relationships
- development of parenting promotion competencies in child care professionals.
- use of the Common Assessment Framework CAF¹⁴ to aid early identification of vulnerable cases where a joint interagency case management approach is likely to benefit.

Prevention

- early identification and management of antenatal and postnatal depression and other mental health disorders during pregnancy;
- early identification and treatment of common issues such as sleep, eating and toileting difficulties and oppositional behaviour;
- attention to antenatal, infant and childhood nutrition and micronutrients.

b) Developmental delays and disorders: impaired speech and language development, learning impairments

These affect approximately 20% of the child population. Most impairments are delays in normal developmental trajectories which may be linked with poor nurturing and result in suboptimal brain development. In other cases there are more obvious insults to the developing brain such as infection, poor nutrition or injury.¹⁵

Health promotion

- Early Talk programmes in early years settings - there is good evidence that speech and language development can be enhanced by these programmes.
- introduce other programmes such as the Reach out and Read, Bookstart , baby massage¹⁶ and play activities, for which there is some evidence of effectiveness

Health Protection

- supporting the groups at highest risk – e.g. teenage parents and parents with learning difficulties.
- provision of mobile libraries and reduction of excessive TV viewing.¹⁷

Prevention

- establish effective methods of early identification: promising work from Canada , USA, Australia and the UK, using the Parental Evaluation of Developmental Status (PEDS) has demonstrated the value of raising carer awareness about child development and using this to enhance diagnostic assessment.¹⁸
- ensure good nutrition, especially iron intake, reducing excess milk intake,
- reducing the use of bottles and teats after first year of life and promote breast feeding,
- early identification of high risk infants who were premature, in special care¹⁹ or requiring prolonged respiratory support
- identify those with hearing loss due to glue ear or in need of hearing aids
- optimise visual acuity by early identification of impairment.

c) Suboptimal uptake of immunisation

Currently the child population has a less than optimal uptake of immunisation. To increase the herd immunity of the population and avoid disease outbreaks, we need to reach an uptake of at least 90%^{20, 21}

Health Promotion

- education in schools and children's centres, using a health literacy approach, about the seriousness of disease and the importance of infectious disease eradication, especially in the context of adverse and usually erroneous publicity about vaccine safety.
- regular updates for Health visitors, GPs, paediatricians and practice nurses as they continue to be important and influential sources of authoritative information about immunisations.

Health protection

- Agree a clear immunisation policy and its translation in children's centres and other settings to ensure a consistent and sustained approach locally.
- ensure that staff in children's centres are knowledgeable about infectious disease and the incubation and isolation policy. Ensuring all staff are appropriately immunised.

Prevention

- Employ outreach workers to support families and encourage families with immunisation.

- Include domiciliary immunisation by health visitors a valued practice for over 25 years in some parts of the country²².
- Improve opportunistic immunisation in accident and emergency and also in ward and hospital settings²³ which has been shown to be beneficial.
- Improve effective hand washing in both children and staff will minimise of cross infection in early years setting.

d) Injuries especially falls, accidental poisoning, burns from scalds in under fives

Health Promotion

- Accidents/unintentional injury in the home is one of the major causes of avoidable morbidity and death to the under 5's . Focused parent education and injury prevention messages given during routine visits to the home are important as are health education messages which focus on specific injuries and risks to the under fives in particular.
- Community practitioners are able to see the risks in the home at first hand and a number of specific projects have demonstrated that health visitors are very able at hazard surveillance and in encouraging the use of home safety equipment.^{24, 25}

Protection

- The provision of safe play areas in children's centres and local parks, injury risk assessment of children's settings and adherence to health and safety legislation, particularly in kitchen areas and the use of plug socket covers.

- Increased vigilance of car seat usage by the local population.

A recent study, demonstrated a considerable reduction in seatbelt usage by children in the rear seats of cars, particularly in deprived areas²⁶. Car seat loan schemes in some areas have led to increased use in at risk families. Schools are increasing their use of "park and walk" schemes.

Prevention

Encourage the uptake of safety equipment such as safety gates, door locks, window locks, corner covers, use of safety glass in windows, and kettle flexes. Use of cycle helmets.

e) Malnutrition and low levels of physical activity

Micronutrient deficiencies such as iron deficiency and vitamin D deficiency are still a lot commoner than the general public are aware and tend to be more common in children from socially disadvantaged and black and ethnic minority backgrounds.

We are in the grips of an obesity epidemic where even the under fives have increased levels of overweight and obesity. It is estimated that there are at least 20% of the preschool population are overweight and /or obese²⁷

Health Promotion

- The skilling up parents and carers with cook and eat projects, and increasing the availability of food cooperatives at local level can help reverse the reliance on pre - prepared, processed foods or more costly corner shop pricing.
- Promotion of breast feeding, dental health promotion schemes and "Bottle to cup" schemes (where bottles are exchanged for cups in children's centres) have been very successful in reducing the dependence on bottle use and consequent dental caries.
- Promoting exercise and joining forces with local leisure centres to encourage family participations in leisure activities.

Health Protection

- Healthy Start programme and ensuring uptake of this in pregnancy and early years settings.

- Encouraging physical exercise as part of lesson planning and outdoor play policy.
- Encouraging the development of food co-operatives, in order to drive down the cost of healthy options.
- Ensuring that vending machines in schools, children centres and leisure centres have healthy options. Scotland has banned the use of vending machines in schools.

Prevention

- Important to prevent infants and children from becoming obese through promotion of breast-feeding, judicious snack policies in settings, normalisation of eating behaviour and regular taking of vitamins in the first five years.

6 Health inequalities

–the areas above as well as many others are very sensitive to conditions of social disadvantage and poverty with higher prevalence rates of key health outcomes in poorer communities. For example, infant mortality may vary four fold within a single Borough with significant differences between electoral wards.^{28, 29} There is a strong relationship between the degree of social inequality and the effect that this relative value has on health outcomes.

A useful framework to consider here is that of Children’s Rights and the UNICEF Charter which has been used very successfully in Wales. By considering health inequalities as a Rights issue we are encouraged to look at tackling these in the context of a social justice system. In other words it is simply not fair for a child in one part of the country to have a 5 times risk of death from injury than if he had lived in a different area. Our response to this is to look at ways in which society can alter to address these injustices whether through legislation, resource redistribution or other means.

Health Promotion

Targeted education by appropriately trained outreach workers and others. Health visitors have a major leadership role and many years of experience to contribute to efforts to reduce health inequalities and promote “health literacy”

Protection

- Maximising the uptake of state benefits.
- Improving the neighbourhood infrastructure and housing policy to ensure that there are appropriately mixed social units i.e. avoiding concentration of high risk individuals with mental health or drug and alcohol addictions in areas where young families reside.
- Including equity targets in Local Area Agreements.³⁰

Prevention

- Optimising educational attainment, for all, but in particular, girls will have a disproportionately greater effect on addressing health inequalities than virtually any other measure³¹.
- The use of interpreters and advocates to break down language and cultural barriers aids take up of services.
- Encouragement of parents and carers to learn and become proficient in the majority language and for health carers to become proficient in migrant health^{32, 33}.
- Early identification and support of parents with mental health issues.

Measuring success

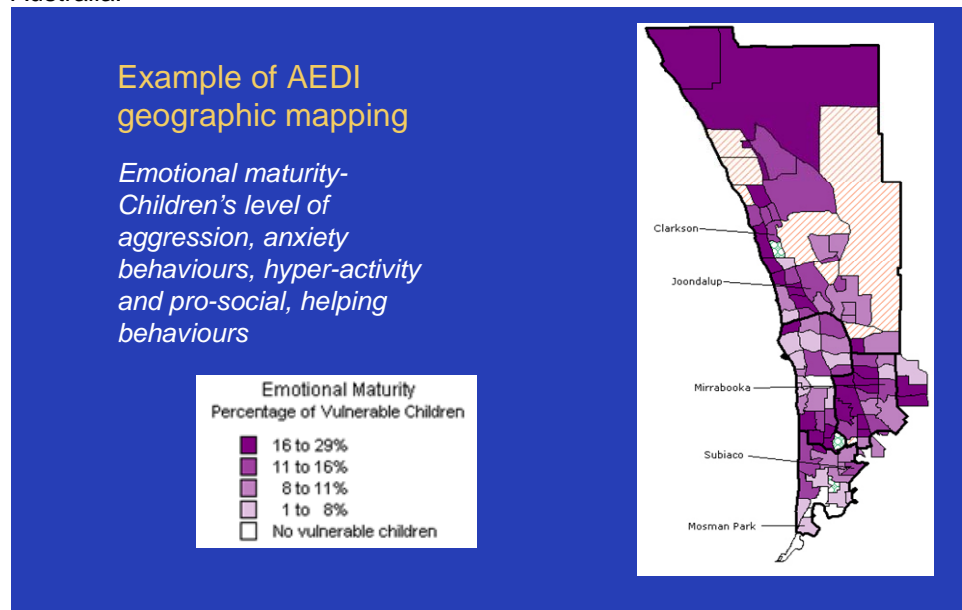
How would we know that we have succeeded in optimising child health and development over time? Clyde Hertzman and colleagues in Canada has developed the Early Development Instrument (EDI) system as a method of measuring the status and changes to that status over time. The EDI is a community measure of young children’s development, based on the scores from a teacher-completed checklist (EDI Checklist)

The EDI Checklist consists of over 100 questions and measures five areas of child development:

- Language and cognitive skills
- Emotional maturity
- Physical health and wellbeing
- Communication skills and general knowledge and
- Social Competence

Results from Canada indicate that where appropriate and accessible early child development and parenting programs have been implemented, community efforts appear to ameliorate

socio-economic risks. The EDI acts as a surrogate measure of how well a community is performing in raising their children and has shown to act as a catalyst for community mobilisation and inter-agency collaboration. The figure below gives an example of a geographical map of EDI scores for the domain of emotional maturity as used in Western Australia.



www.australianedi.org.au

The table below is from British Columbia and indicates how different localities can show changes in scores (% of children who are vulnerable as defined by the lowest 10% scoring for each domain) of the different domains over time. (wave 1 and 2 are two different time periods, the arrows give an indication of direction of change))

School District Name	Phys			Soc			Emo			Lang			Com			Ever		
	Wave 1	Wave 2	Change	Wave 1	Wave 2	Change	Wave 1	Wave 2	Change	Wave 1	Wave 2	Change	Wave 1	Wave 2	Change	Wave 1	Wave 2	Change
Revelstoke 19	4.5	4.0	-0.47	5.6	4.7	-0.95	5.6	4.0	-1.62	12.4	4.0	-8.36	7.9	4.0	-3.87	19.1	12.0	-7.10
West Vancouver 45	6.8	6.7	-0.14	4.7	7.3	2.62	9.3	8.3	-1.04	3.2	2.5	-0.72	5.4	5.4	-0.03	14.3	18.9	4.59
Arrow Lakes 10	17.9	6.3	-11.62	17.9	12.7	-5.29	10.3	12.7	2.40	15.4	11.4	-3.99	17.9	15.2	-2.76	25.6	19.0	-6.65
Boundary 51	5.5	6.8	1.30	8.8	7.9	-0.91	8.2	8.9	0.69	11.5	9.6	-1.98	4.4	7.2	2.77	20.3	19.5	-0.88
Gulf Islands 64	10.0	6.3	-3.75	12.6	5.6	-6.97	8.6	8.1	-0.50	10.1	8.8	-1.25	8.0	3.7	-4.31	24.5	20.5	-4.00
Kootenay - Columbia 20	5.9	7.9	1.96	8.3	7.9	-0.47	6.7	11.3	4.56	5.6	5.6	0.01	7.0	7.1	0.12	16.7	21.0	4.31
Vancouver Island North 85	18.3	7.7	-10.60	18.0	11.1	-6.85	18.5	6.7	-11.85	17.6	12.2	-5.40	11.4	7.7	-3.69	35.4	22.0	-13.39

8 Conclusion

Children's Centre areas provide an important focus for activity to optimise health in young children. This should be done with full knowledge of evidence-based interventions to ensure efficient use of resources. There is a clear need to scale up the workforce in child public health competences; the Skills for Health framework would be a very suitable tool to help develop and monitor progress in this area.³⁴

Strengthening the relationships between health visitors and children centres with the use of skill mixed teams is likely to be beneficial, particularly in ensuring the delivery of the Child Health Promotion Programme. The new National Child Health Promotion Programme is more likely to be delivered effectively with appropriate resourcing and skilling up of existing and trainee members of the workforce, and creating new types of skilled workers. Currently the levels of health visiting are at their lowest for 14 years.

The Children and Young Person's Strategic Partnership and local children's trust arrangement or equivalent must become the vehicle to promote child public health activity and ensure appropriate accountability.

REFERENCES

- ¹ Foucault, M. (1973). *The Birth of the clinic: An Archeology of Medical Perception*. (A. M. Sheridan-Smith trans). London: Tavistock, 1970.
- ² Heckman, J.J and Masterov, D.V. (2004). The Productivity Argument for investing in Young Children. Invest in Kids Working Group, working Paper No. 5, September, 2004. Washington, DC: Committee on Economic Development.
http://www.ced.org/docs/report/report_ivk_heckman_2004.pdf;
- ³ Modelling the Future – a consultation paper on the future of child health services Royal College of Paediatrics and Child Health, September 2007
- ⁴ The Health of the Children: A Review of Research on the Place of Health in Cycles of Disadvantage M Blaxter, Great Britain- 1981 - Heinemann Educational
- ⁵ From Neurons to Neighbourhoods: The Science of Early Childhood J Shonkoff, D Phillips - 2000 - New York: National Academies Press
- ⁶ Child health indicators for Europe: a priority for a caring society. Rigby M, Kohler L, Blair M, Mechtler R
Eur J Public Health. 2003 Sep;13(3 Suppl):38-46
- ⁷ Association of Public Health Observatories Report on child health in the English Regions
<http://www.apho.org.uk/resource/item.aspx?RID=39371>
- ⁸ Starfield B, Hyde J, Gervas J, Heath I.
The concept of prevention: a good idea gone astray?
J Epidemiol Community Health. 2008 Jul;62(7):580-3.
- ⁹ Rose G Strategies for Prevention 1994, OUP
- ¹⁰ Child Public Health
Blair M, Crowther R Waterston T, Stewart Brown S, Oxford University Press, 2003
- ¹¹ The Science of Parenting by Margot Sunderland Dorland Kingersley 2008
- ¹² From Neurons to Neighbourhoods *ibid*
- ¹³ <http://www.everychildmatters.gov.uk/parents/healthledsupport/>
- ¹⁴ <http://www.everychildmatters.gov.uk/deliveringservices/ca/>
- ¹⁵ Health for All Children D.M.B. Hall, David Elliman 2006 OUP
- ¹⁶ Glover V et al Benefits of infant massage for mothers with postnatal depression.
Semin Neonatol. 2002 Dec;7(6):495-500.
- ¹⁷ Children, Adolescents and Advertising *PEDIATRICS* Vol. 118 No. 6 December 2006, pp. 2563-2569
- ¹⁸ Glascoe FP Parents' evaluation of developmental status: how well do parents' concerns identify children with behavioral and emotional problems?
Clin Pediatr (Phila). 2003 Mar;42(2):133-8.
- ¹⁹ Health for All Children *ibid*.
- ²⁰ Pearce A, Law C, Elliman D, Cole TJ, Bedford H; Millennium Cohort Study Child Health Group. Factors associated with uptake of measles, mumps, and rubella vaccine (MMR) and use of single antigen vaccines in a contemporary UK cohort: prospective cohort study.
BMJ. 2008 Apr 5;336(7647):754-7. Epub 2008 Feb 28.
- ²¹ <http://www.immunisation.nhs.uk/>
- ²² Jefferson N, Sleight G, Macfarlane A. Immunisation of children by a nurse without a doctor present. *Br Med J (Clin Res Ed)*. 1987 Feb 14;294(6569):423-4.
- ²³ Vaccination services: reducing inequalities in uptake March 2005 DH
- ²⁴ <http://www.rospea.com/index.htm>
- ²⁵ Kendrick D, Mulvaney C, Watson M .Does targeting injury prevention towards families in disadvantaged areas reduce inequalities in safety practices? *Health Educ Res*. 2008 Jan 17
- ²⁶ Raykundalia A Should we tailor car safety education according to actual observation?
RCPCH ASM York April 2008
- ²⁷ Foresight report Tackling Obesities:Future Choices – Modelling
Future Trends in Obesity & Their Impact on Health
2nd Edition
Government Office for Science 2007 <http://www.foresight.gov.uk/Obesity/14.pdf>
- ²⁸ Choosing health. Born equal? A report on inequalities in infant mortality in London. A technical report. July 2007
DH <http://www.lho.org.uk/viewResource.aspx?id=12375>
- ²⁹ Implementation plan for reducing health inequalities in infant mortality: a good practice guide Dec 2007 DH
- ³⁰ <http://www.everychildmatters.gov.uk/strategy/laas/>
- ³¹ UNICEF Report State of the World's Children 2004 <http://www.unicef.org/sowc04/>
- ³² Flores G Language Barriers to Health Care in the United States *NEJM* 2006 , 355:229-231
- ³³ Globalization, migration health, and educational preparation for transnational medical encounters
Peter H Koehn *Globalization and Health* 2006, 2:2
- ³⁴ <http://www.skillsforhealth.org.uk/page/career-frameworks/public-health-skills-and-career-framework>