Putting science into practice- evidence based well child care and the development of Child Public Health

Hong Kong Sept 2012

Prof.Mitch Blair
North West London Hospitals
Imperial College London and
Royal College of
Paediatrics and Child Health

Plan

1. What has been happening to children's health in the UK and other developed countries in the last century?

2. How has this been reflected in policy and service delivery?

3. What are some of the key bottom line messages from the scientific evidence ?

4. How has the latest evidence base been translated into policy and some of the challenges ?

5. Child Public Health as an emerging specialty

Life as a child in the 19th C

- High rates of infant and child mortality
- Child labour high, education variable

- Illness treated at home – much related to rickets, dental caries, hearing loss, crippled

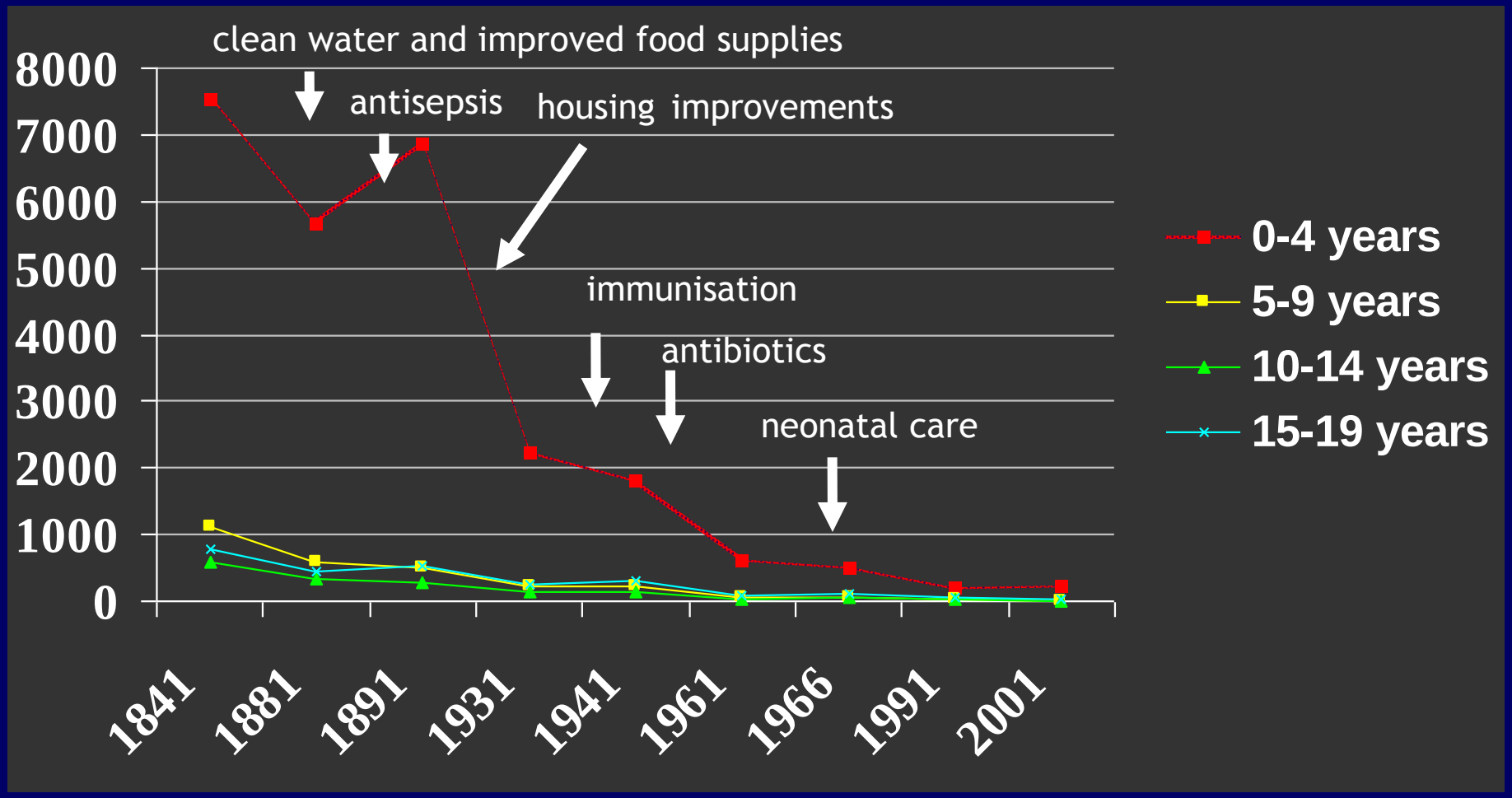
- Became evident/visible when
  - Schooling compulsory
  - at time of Boer War – 40% of recruits UNFIT for duty

Services?

- Paradigm science shifting from “miasma” to germ theory – “the sanitary era”
- Health visitors and medical officer of health appointed at beginning of 20th century
- Series of infant welfare and school reviews for the purpose of providing parental education, vaccination, and “defect detection”

SUCCESS-
19th and 20th Century

Mortality rates
(male, per 100,000)
1841-2001

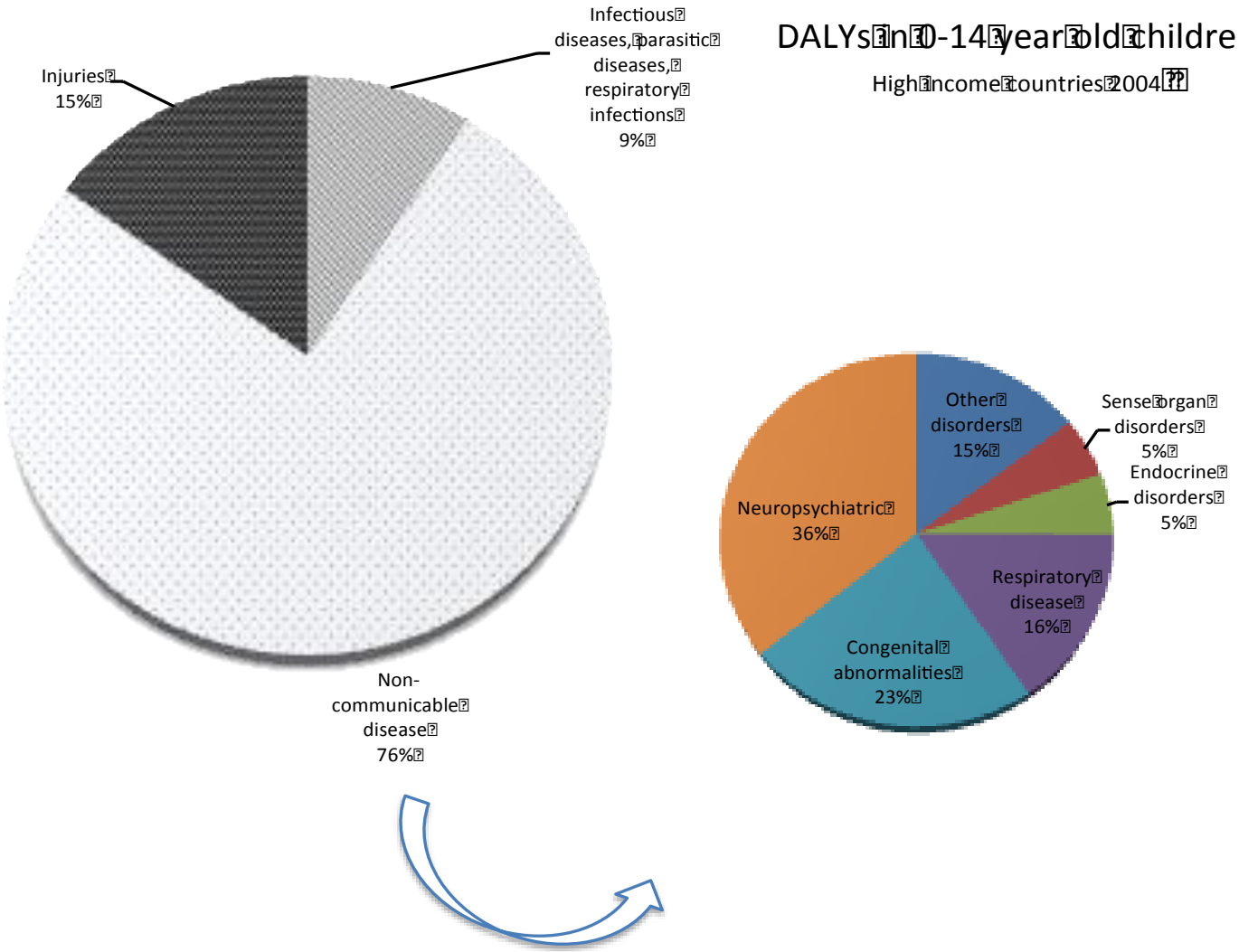


Life as a UK child in the 21st century

- Low mortality – high survival rates of chronic illnesses
- Play – parks and child friendly leisure
- Nutrition – fortified cereals
- Illness treated by GP free at point of access with full emergency hospital support

- HOWEVER……

Causes of disability-adjusted life years lost for children 0-14 years old in high income countries globally (2004)



Source: (World Health Organization 2008)

21st Century Millennial morbidities big challenges for practice

- Obesity and re emergence of nutritional deficiencies (Vit D, Iron and other micronutrients)
- Wellbeing /emotional health
- Speech,language,communication and cognition
- Keeping immunisation rates up
- Injury prevention/NAI (largest cause of A and E attendance)
- Adolescent Lifestyle behavioural change (violence, alcohol, drugs, smoking etc.)
- Health inequalities (cross cuts all)

What do children think threatens their health and wellbeing most?

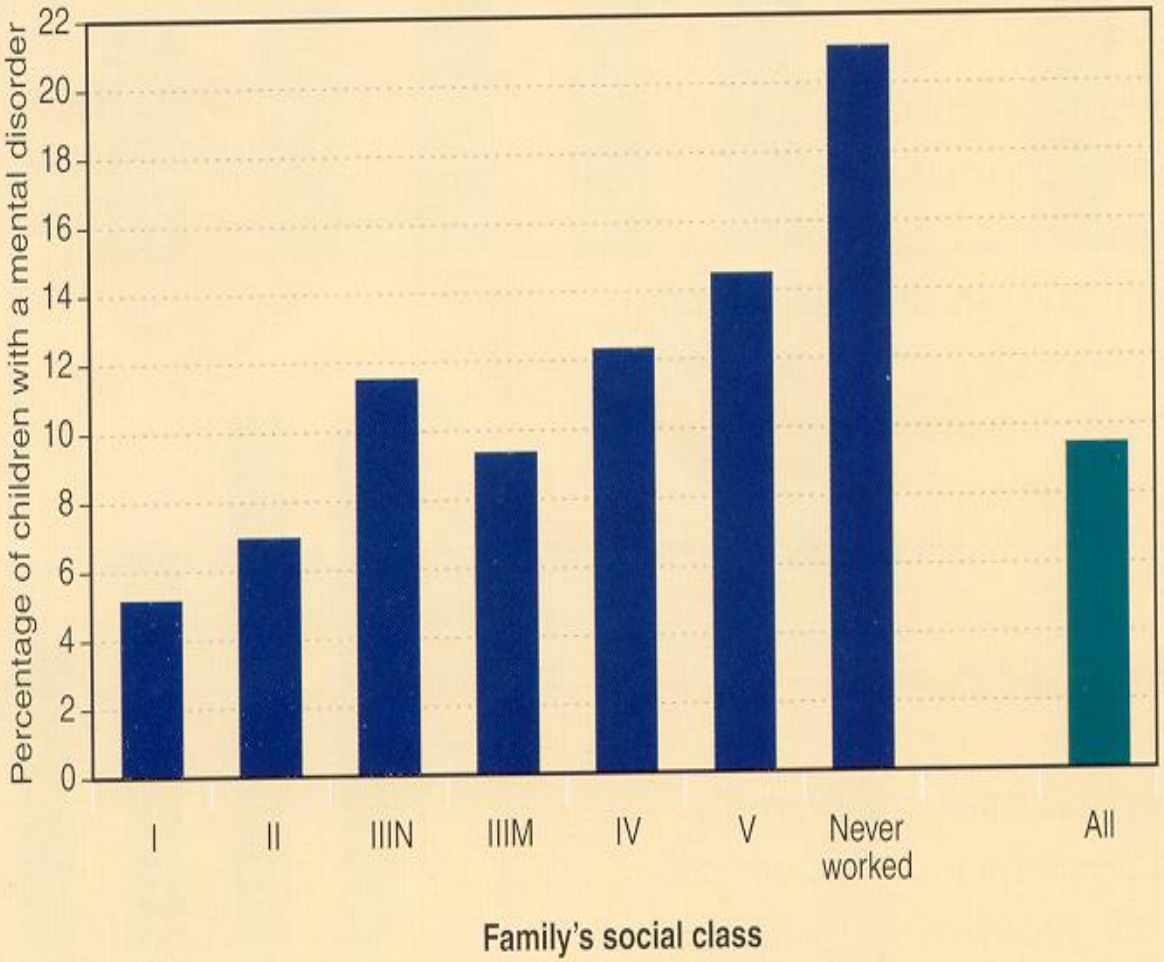
- TOP 5 Priorities for change
  - **1 Violence and safe streets**
  - 2 Child Abuse
  - 3 Drugs
  - 4 Bullying
  - 5 Racism
    - Survey of 2983 children Office of Childrens Rights Commissioner for London, 2001

Child health and social inequalities

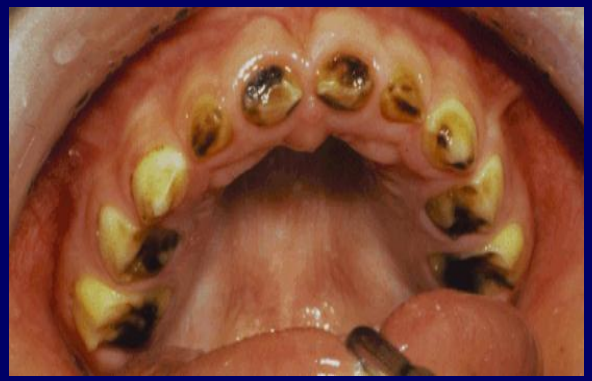
- For virtually any indicator of health there are social inequalities- children are particularly sensitive to these
- Some examples……

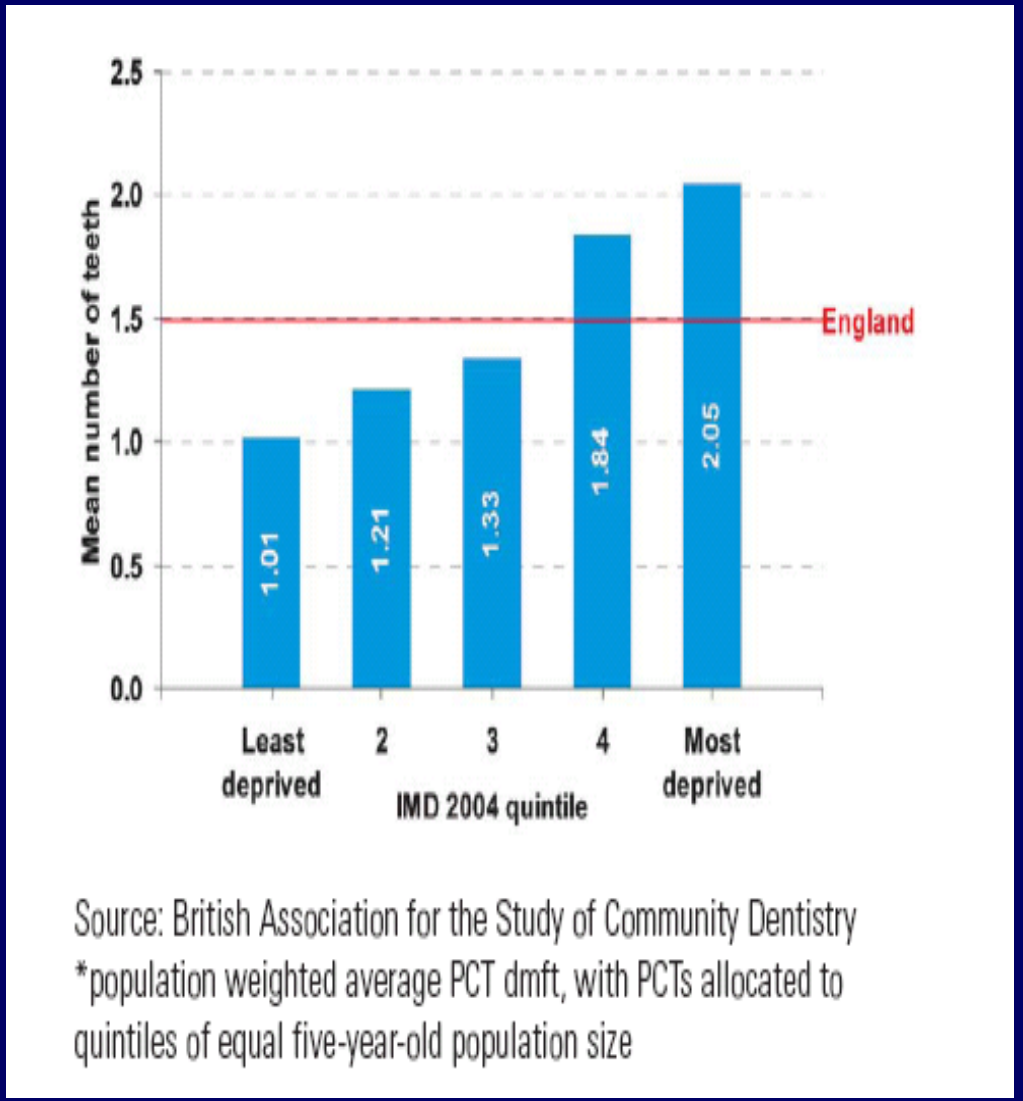
Effects of social disadvantage- Mental health (ONS survey of GB)

Figure 5.2 Prevalence of any mental disorder by social class



Effects of social disadvantage- dental caries (DMFT)

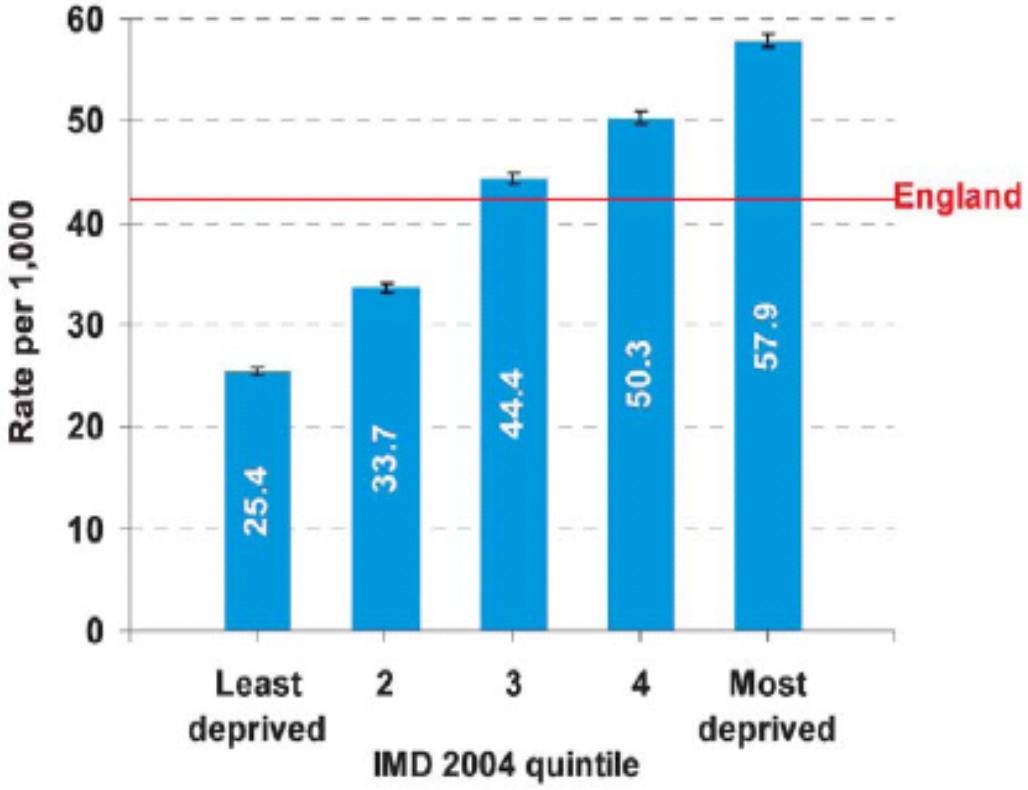




Source: British Association for the Study of Community Dentistry
*population weighted average PCT dmft, with PCTs allocated to quintiles of equal five-year-old population size

Effects of social disadvantage- teen pregnancy

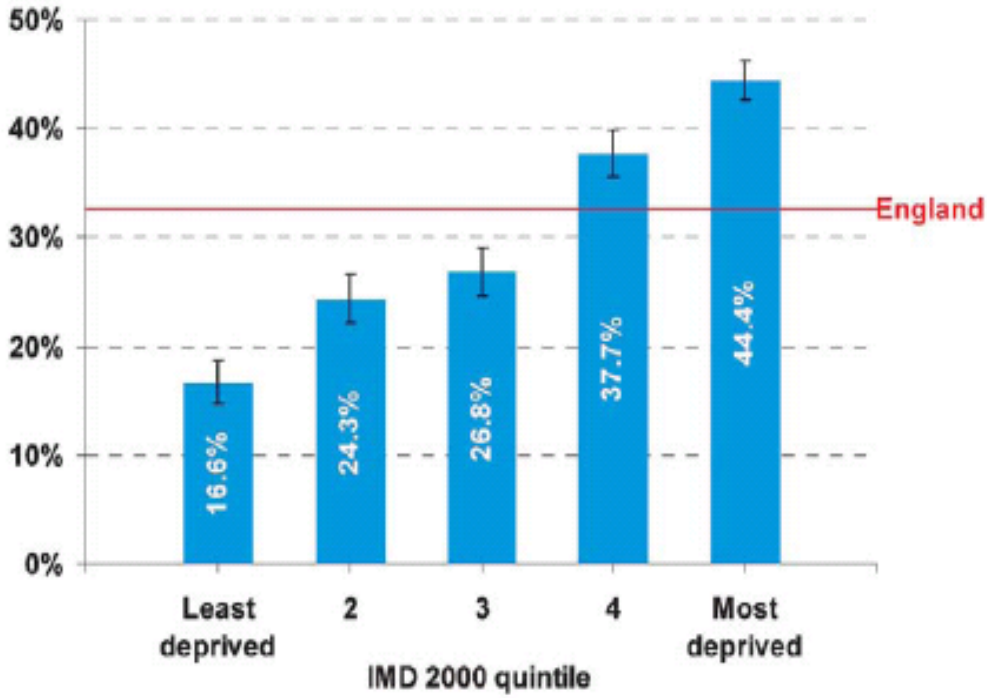
Figure 4.1.9b *Under 18 years conception rate per 1,000 women aged 15-17 years by deprivation quintile 2001-03*



Source: DfES Teenage Pregnancy Unit
LADs allocated to quintiles of equal 15-17 year old population

Effects of social disadvantage-tobacco smoke exposure

Figure 4.2.6d *% of children living in households where someone smokes on most days by deprivation quintile* 2002, (ages 0-15 years)*

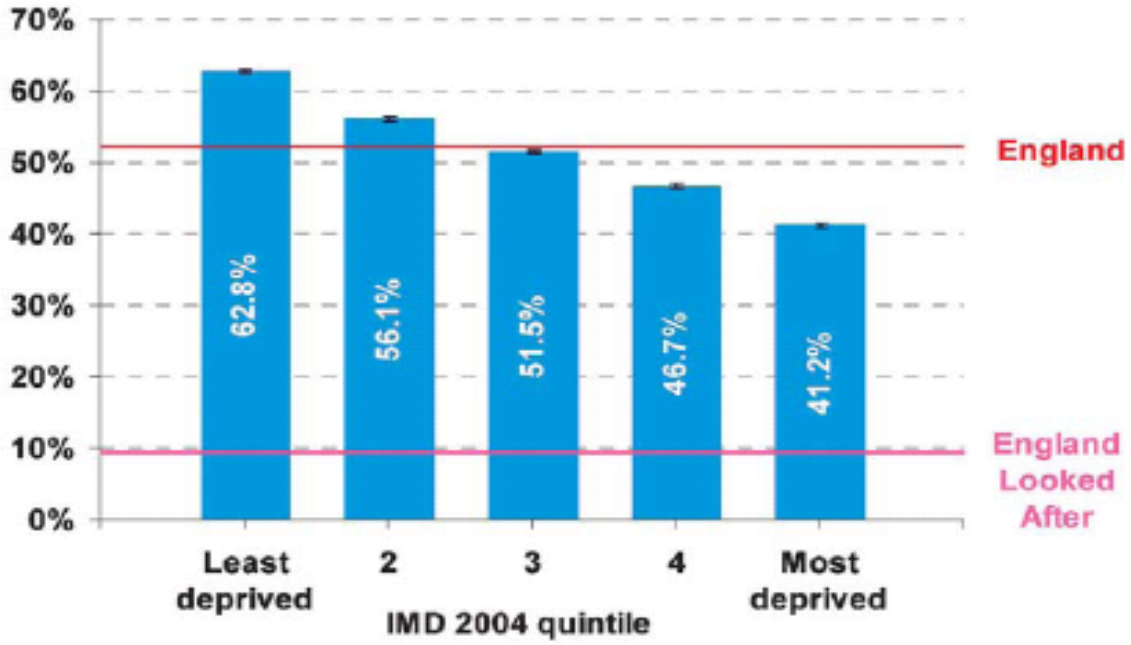


Source: HSE 2002

*IMD 2000, equal number of wards per quintile

Effects of social disadvantage-educational attainment

Figure 4.2.2c *% of children achieving 5+ A*-C grade GCSEs or equivalent by deprivation quintile 2003/04 (age 15 yrs)*



Source: Department for Education and Skills

* Schools allocated to quintiles of equal number of Super Output Areas

UNICEF
Innocenti Research Centre

Report Card 7

Child poverty in perspective:

An overview of child well-being in rich countries

A comprehensive assessment of the lives and well-being of children and adolescents in the economically advanced nations

For every child
Health, Education, Equality, Protection
ADVANCE HUMANITY

unicef

Dimension 1	Dimension 2	Dimension 3	Dimension 4	Dimension 5	Dimension 6
Material well-being	Health and safety	Educational well-being	Family and peer relationships	Behaviours and risks	Subjective well-being

FAILURE 21st Century– wellbeing

Correlation between income inequality and the Unicef index of child wellbeing in 23 rich countries

Pickett K Wilkinson R BMJ 2007 335 1080-5

How might we characterise 21st century child health challenges ?

- Causation more complex and multifactorial
- Paradigm –Science of fetal origins of adult disease and lifecourse epidemiology
- Increased awareness of social injustice and health inequalities despite several decades of welfare system
- Focus on wellbeing and measures

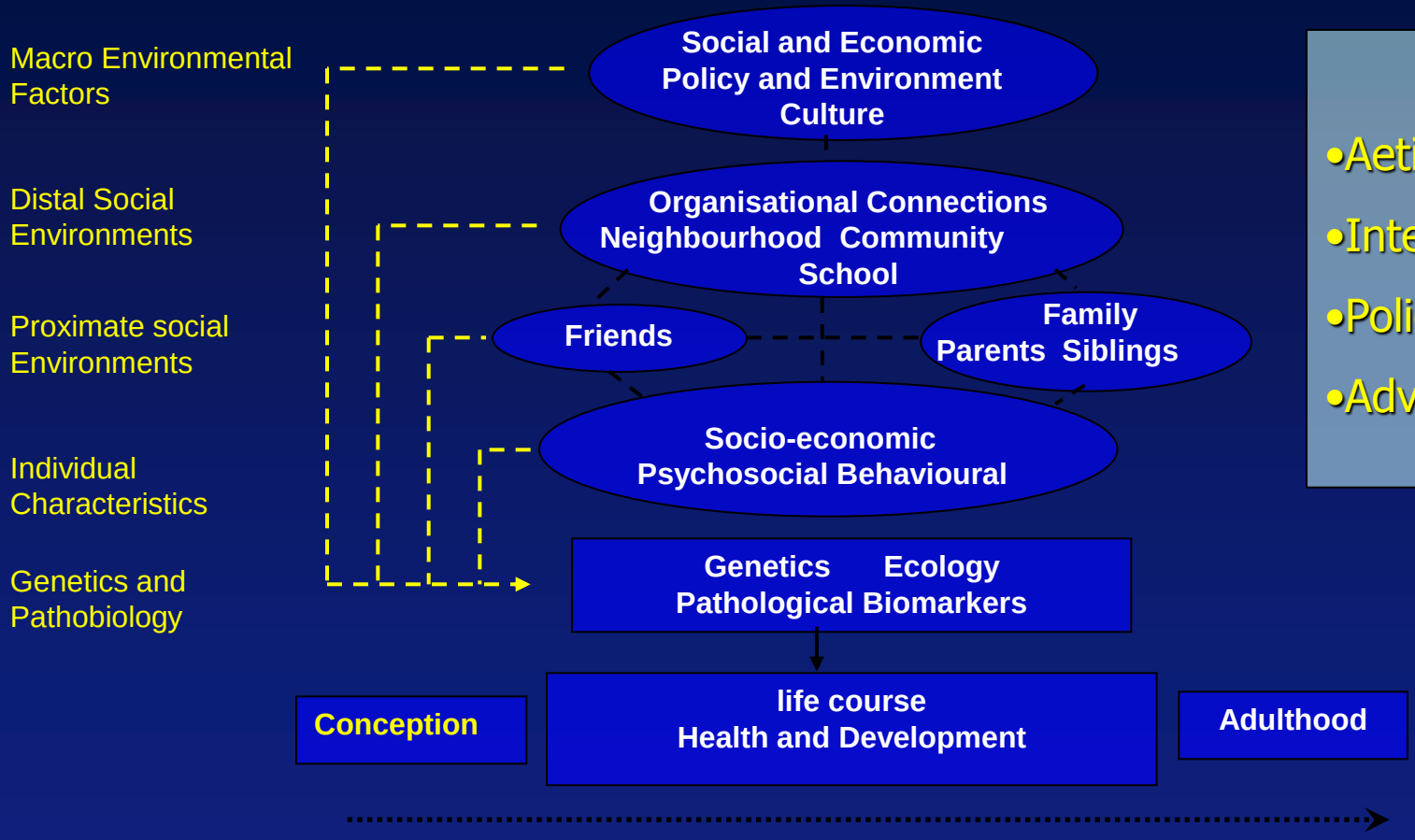
A different approach is required!

Basis:-

Social determinants framework

Advances in Neurosciences

Ecological model of health and development across the life course



Uses

- Aetiology
- Interventions
- Policy
- Advocacy

Lynch, J. 2000. Australasian Epidemiologist; 7: 7-15
adapted by Catherine Law


POV
FLAKES
The Kitchen - Jaime Vives Piqueres - POVCOMP 2004

JAMA®

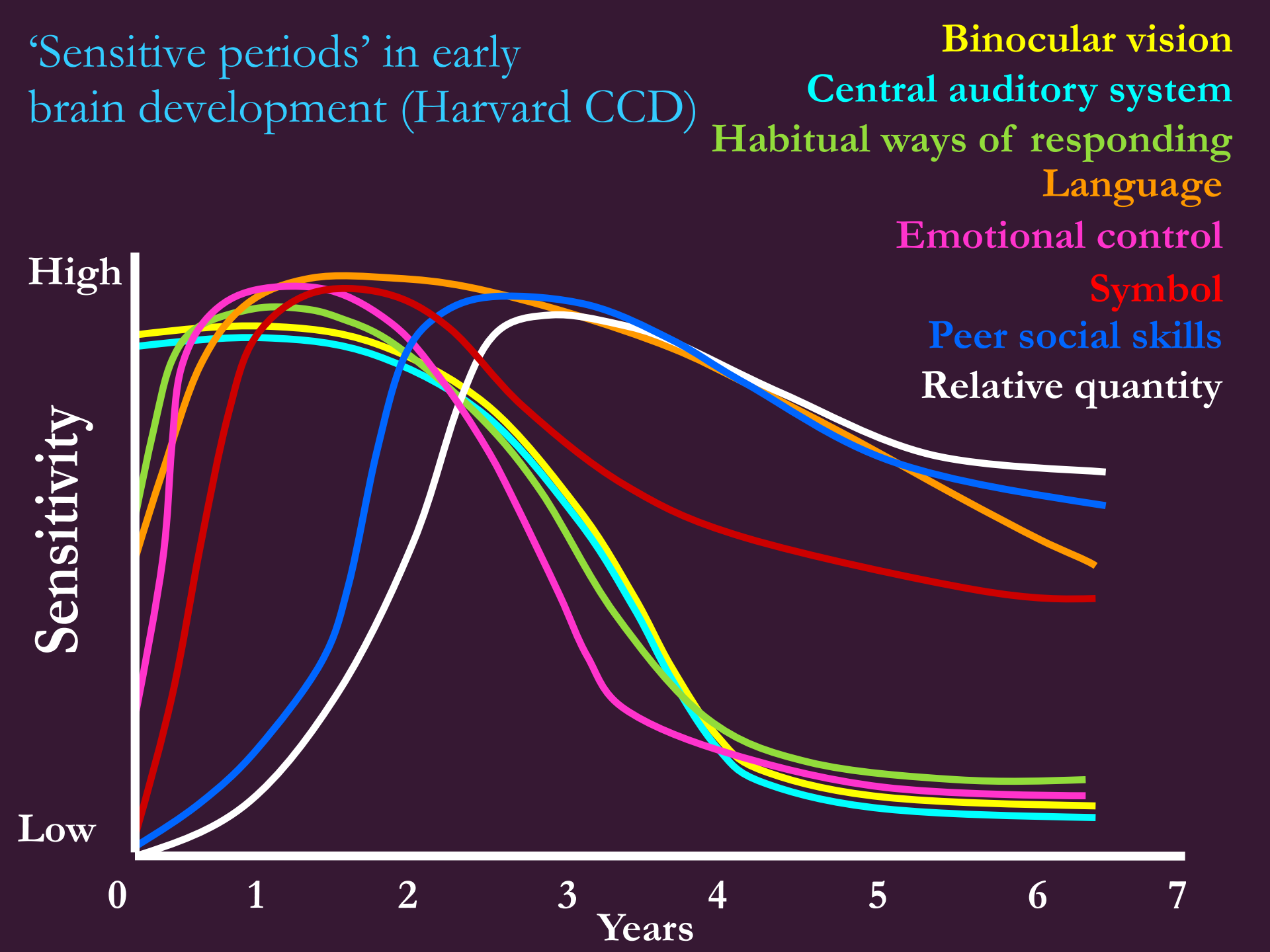
Online article and related content
current as of July 14, 2009.

Neuroscience, Molecular Biology, and the Childhood Roots of Health Disparities: Building a New Framework for Health Promotion and Disease Prevention

Jack P. Shonkoff; W. Thomas Boyce; Bruce S. McEwen

JAMA. 2009;301(21):2252-2259 (doi:10.1001/jama.2009.754)

http://jama.ama-assn.org/cgi/content/full/301/21/2252


'Sensitive periods' in early brain development (Harvard CCD)
Binocular vision
Central auditory system
Habitual ways of responding
Language
Emotional control
Symbol
Peer social skills
Relative quantity
High
Sensitivity
Low
0
1
2
3
4
5
6
7
Years

Brain and Mind **3:** 79–100, 2002.
© 2002 *Kluwer Academic Publishers. Printed in the Netherlands.*

Childhood Experience and the Expression of Genetic Potential: What Childhood Neglect Tells Us About Nature and Nurture

BRUCE D. PERRY
The ChildTrauma Academy, 5161 San Felipe, Suite 320, Houston, TX 77056, USA
(E-mail: ChildTrauma1@aol.com)

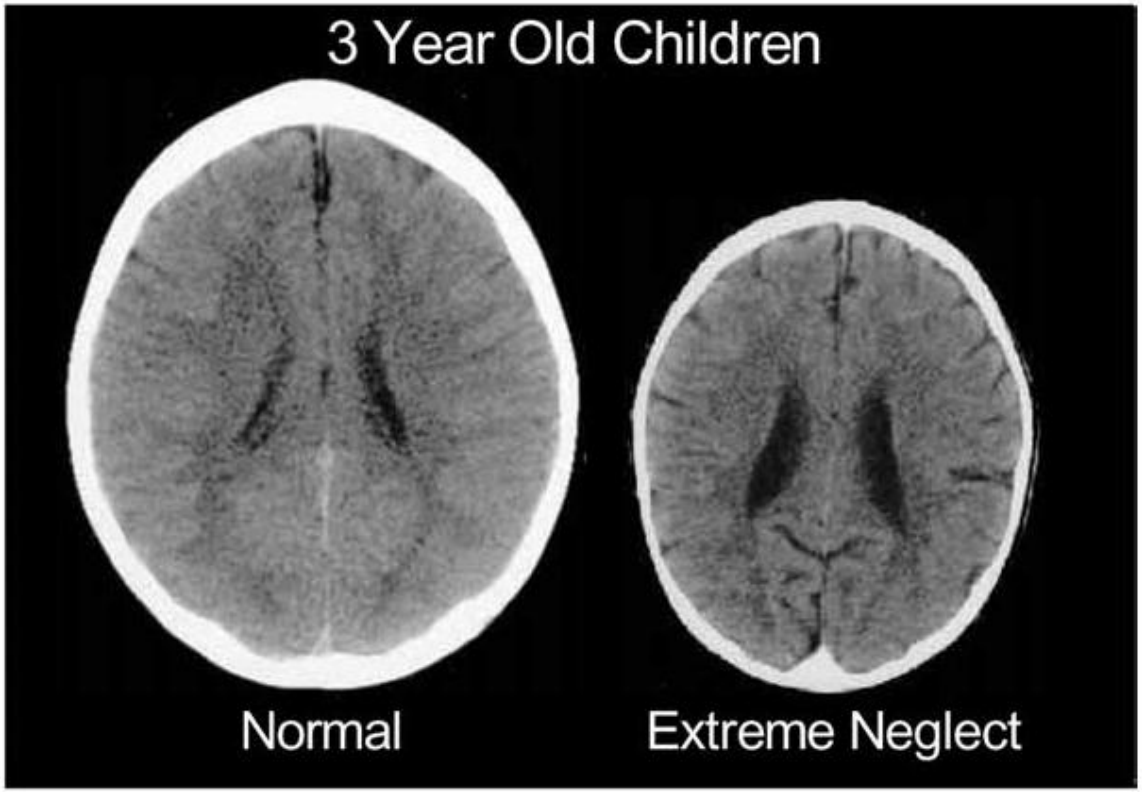
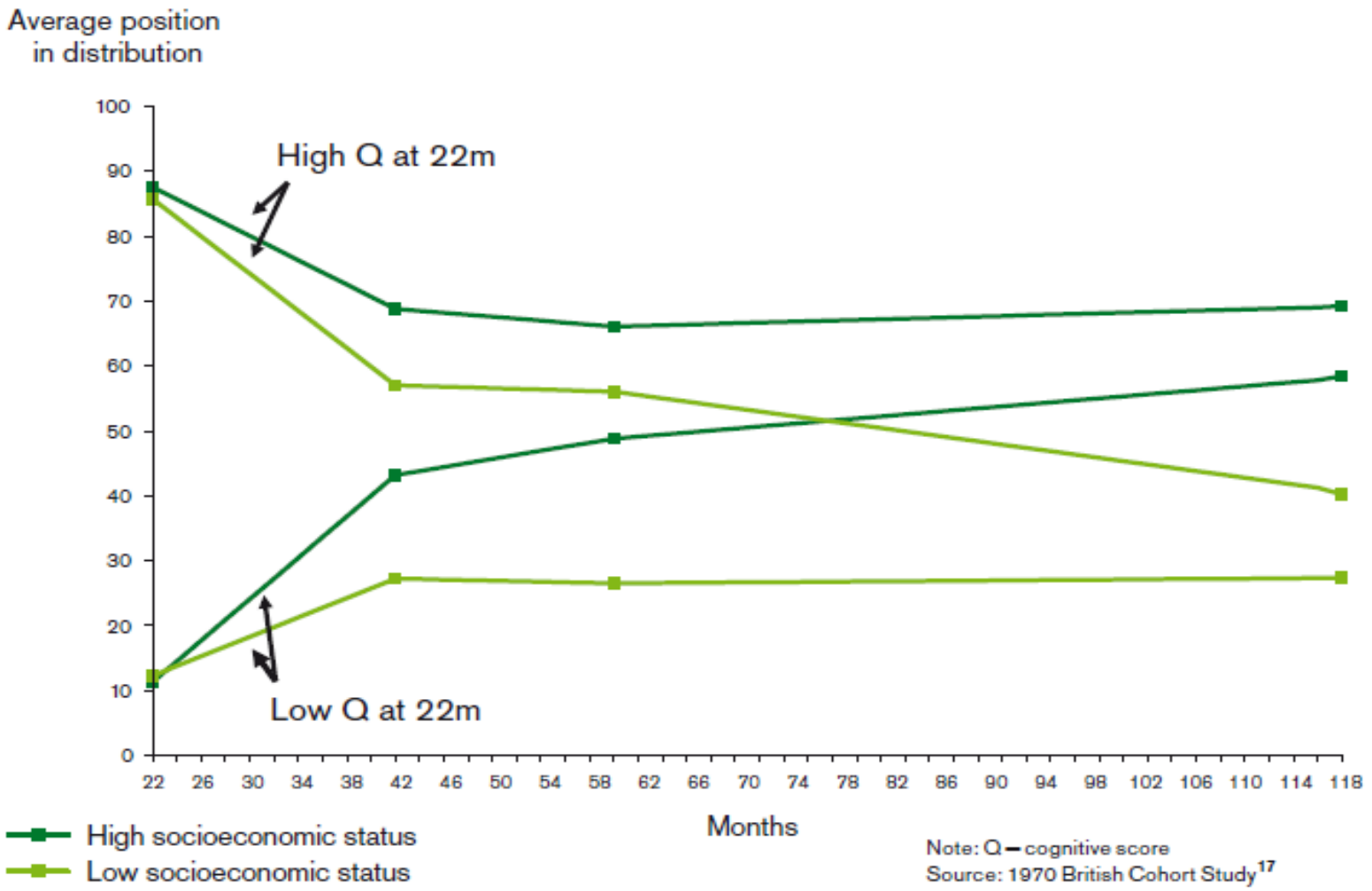


Figure 6 Inequality in early cognitive development of children in the 1970 British Cohort Study, at ages 22 months to 10 years



Source Feinstein L quoted inMarmot Report

SPEND

- 0-15 years Primary care £1.26 billion
  - Universal £ 43 per child
  - Targeted £38
  - Hospital £112

Social Services £5000 per child

Criminal justice £301,860 per child (£246m)

Source:- Modelling the Future RCPCH 2007

TRANSLATION !
Preventive care programmes for children

- Most countries have such a programme
- Activities very similar – timing and frequency often vary

Names given to the main preventive programme for infants and children in England

Child health surveillance

Child Health Promotion

Healthy Child Programme

Evidence base?- 1989-2010

DH Department of Health

Healthy Child Programme

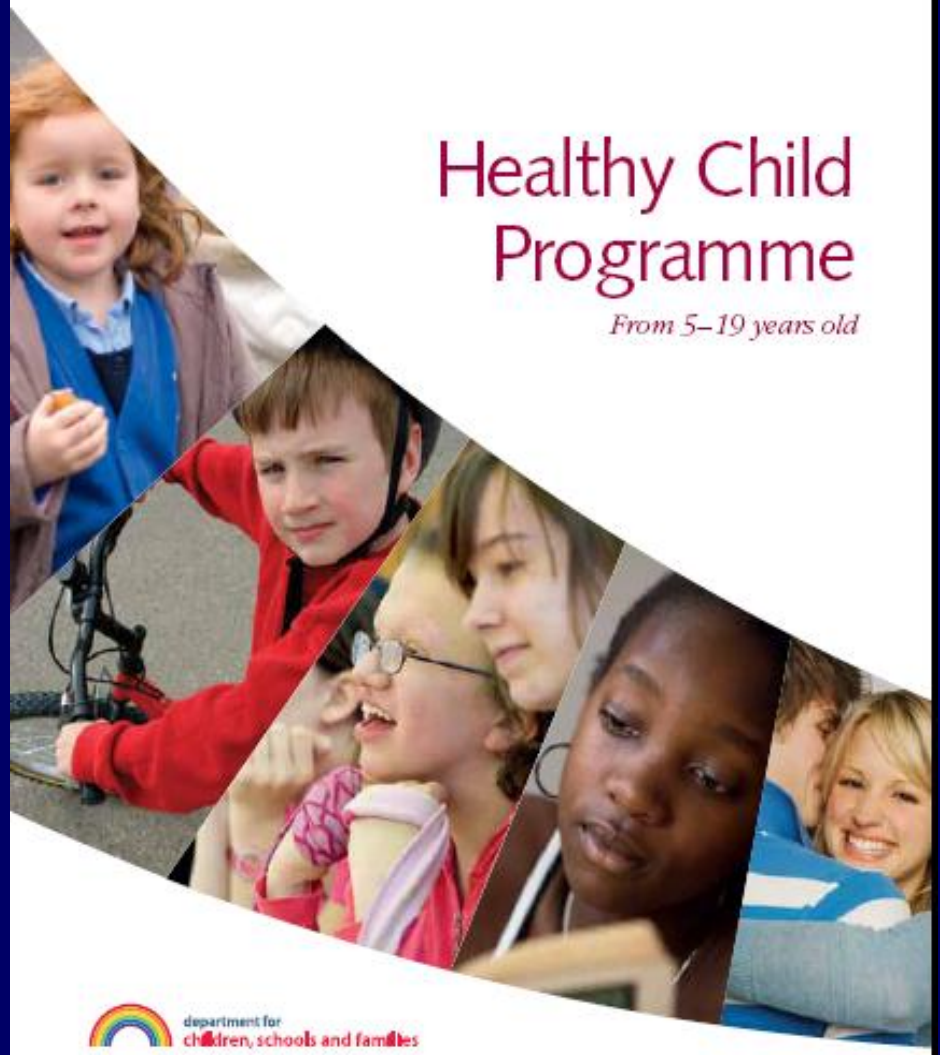
Pregnancy and the first five years of life

department for children, schools and families

DH Department of Health

Healthy Child Programme

From 5–19 years old

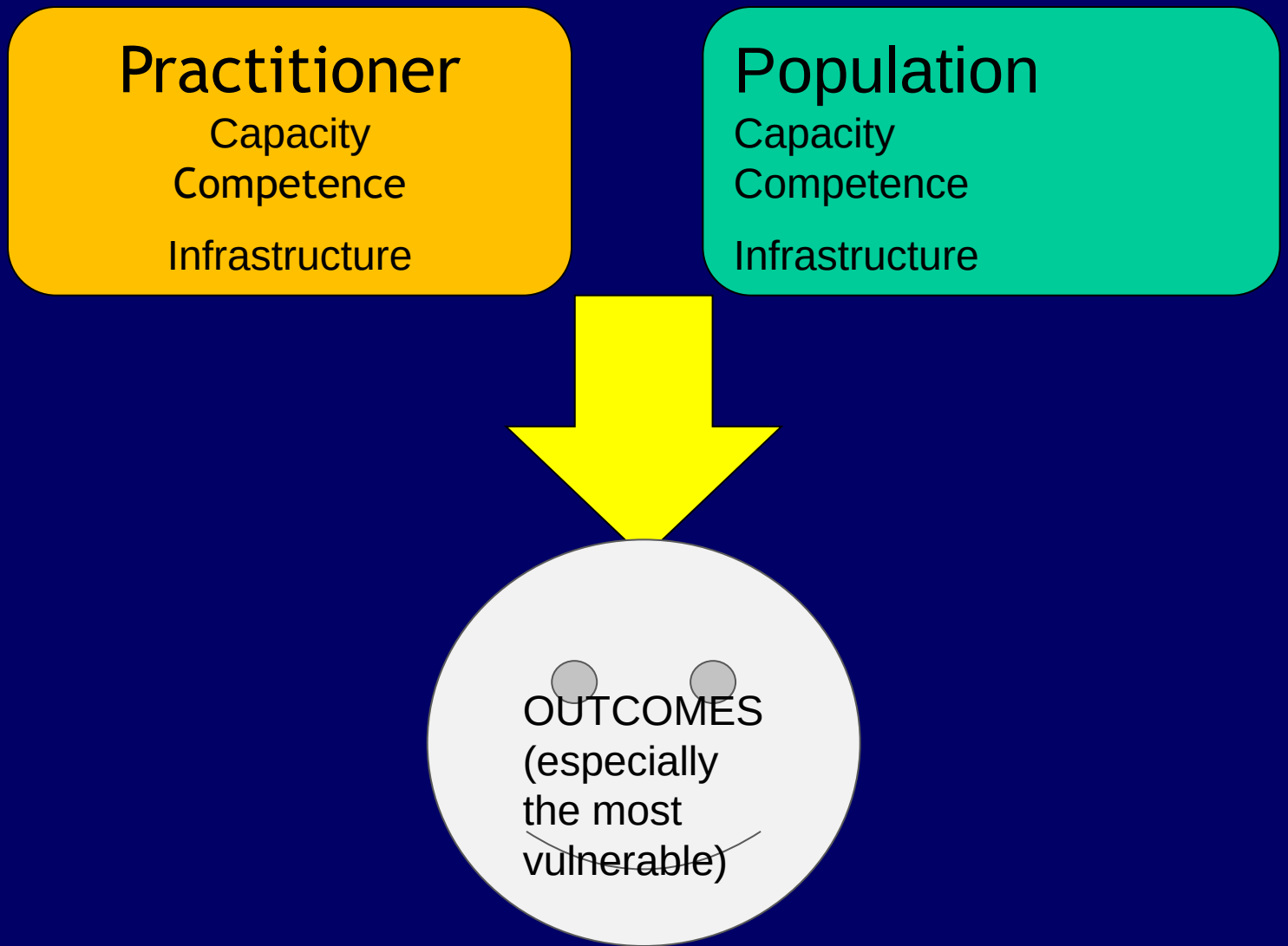


department for children, schools and families

Evidence base- two aspects to consider

- What works in preventing specific child health issues i.e. evidence of EFFICACY of preventive interventions?
- What works in translating the evidence in the field i.e. evidence of EFFECTIVENESS and EFFICIENCY?

Translation

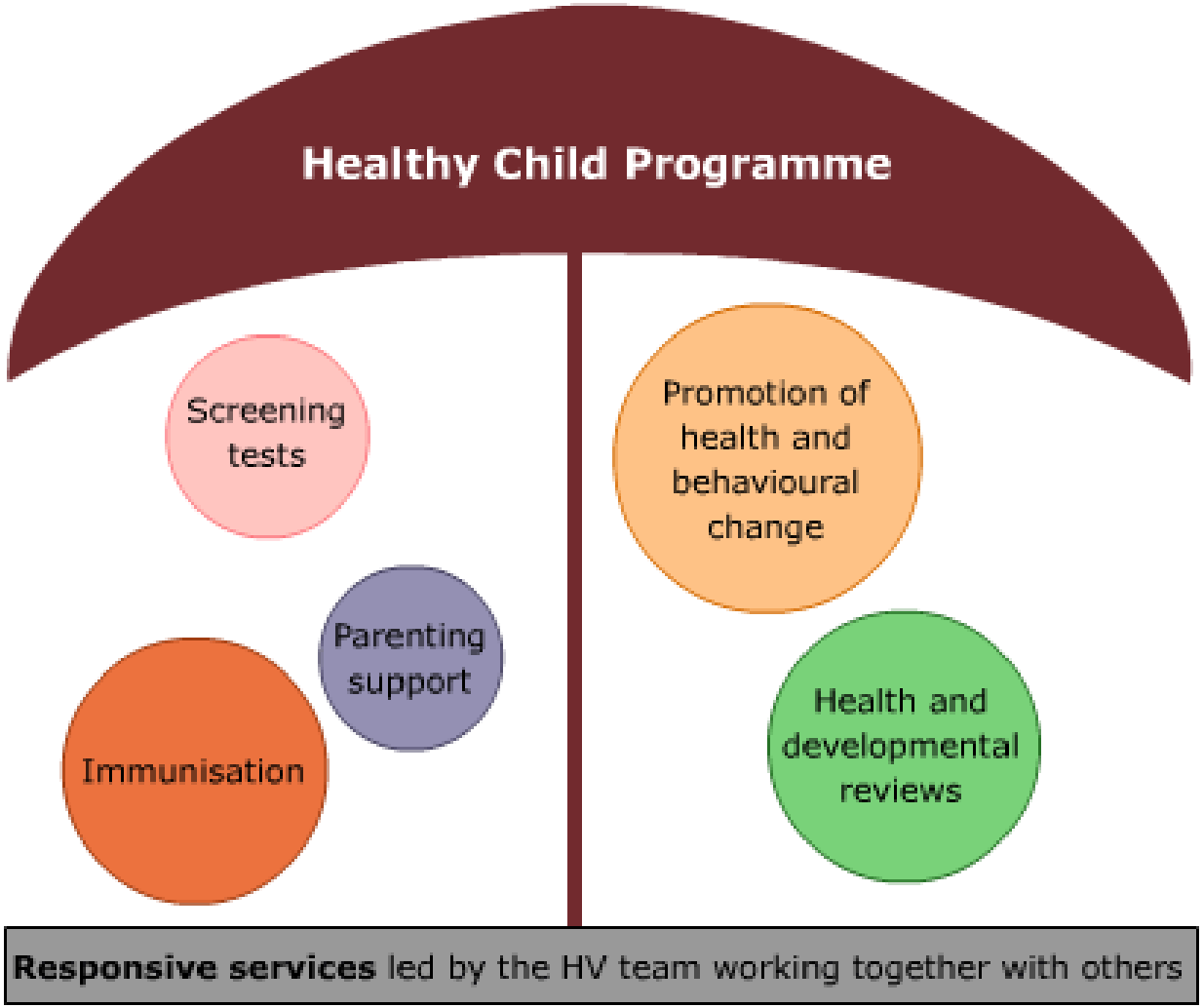


“ A man without a goal is like shooting a gun without a target”

Benjamin Franklin

The ten prime outcomes of the Healthy Child Programme are:

- Strong attachment
- Positive parenting
- Improved social/emotional well-being
- Care which promotes health and safety
- Increased breastfeeding
- Healthy nutrition and increased physical activity
- Prevention of communicable diseases
- Readiness for school and improved learning
- Early recognition of growth disorders and risk factors for obesity
- Early detection of deviations from normal physical and neurodevelopmental pathways



Blair M Two Year Review DH 2009

orking together with others

12 weeks pregnancy
Neonatal
2 weeks
6-8 weeks
8m-12m
2-2.5 years review
3- 5years
School entry

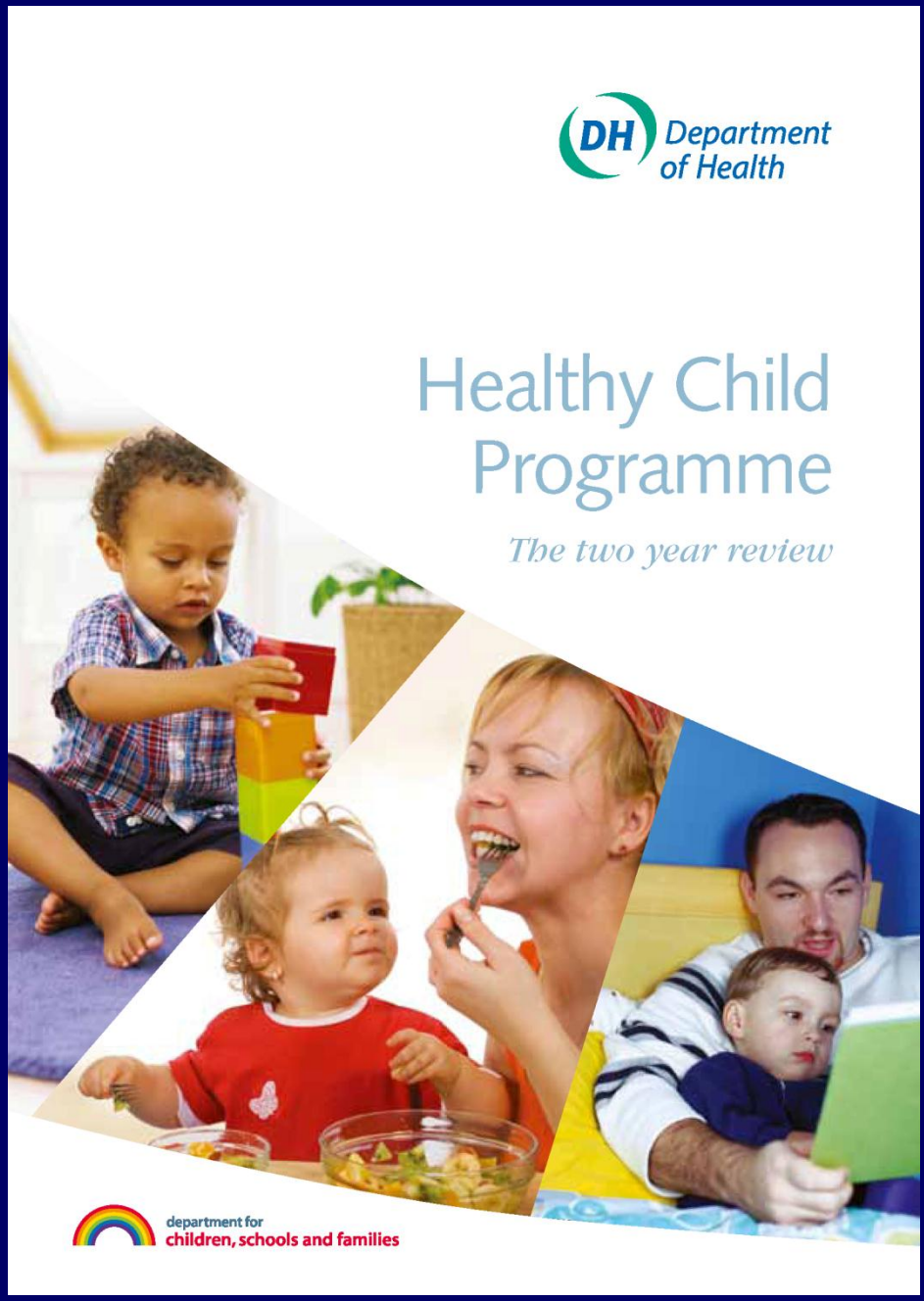
Who is in team?- most of programme delivered in primary care

- 11.8 m children
- GP and Health Visitor and Practice nurse
- School nurse

Who is in team?- most of programme delivered in primary care

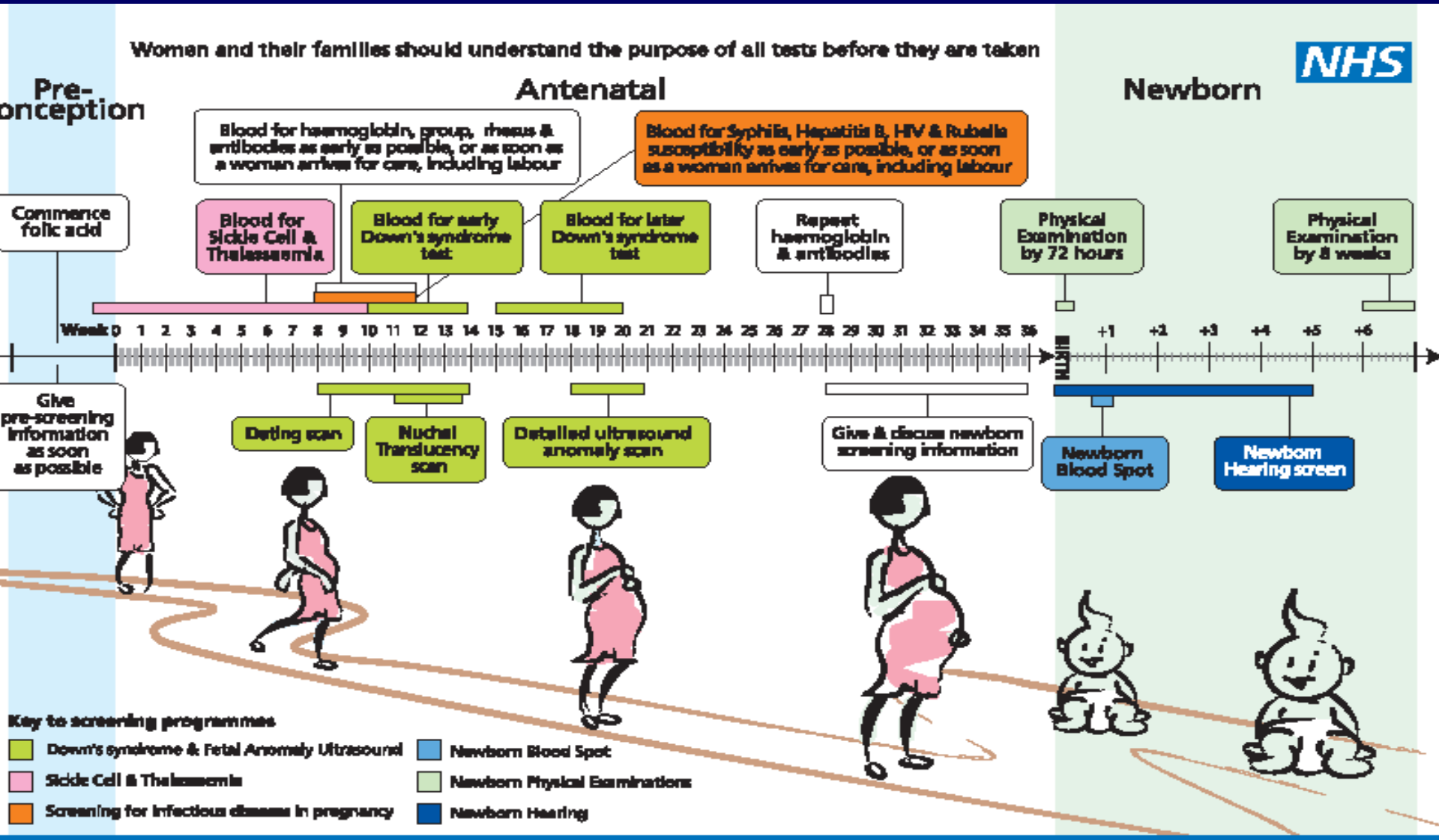
- Paediatrician is referred to as specialist in
  - neurodevelopment and disability,
  - child protection,
  - child mental health
  - and child public health

- Specific guidance for practitioners at key points



SPECIFIC TOPICS

- Screening
- Obesity
- Immunisation
- Injury prevention
- Speech Communication and Language
- Social and emotional development

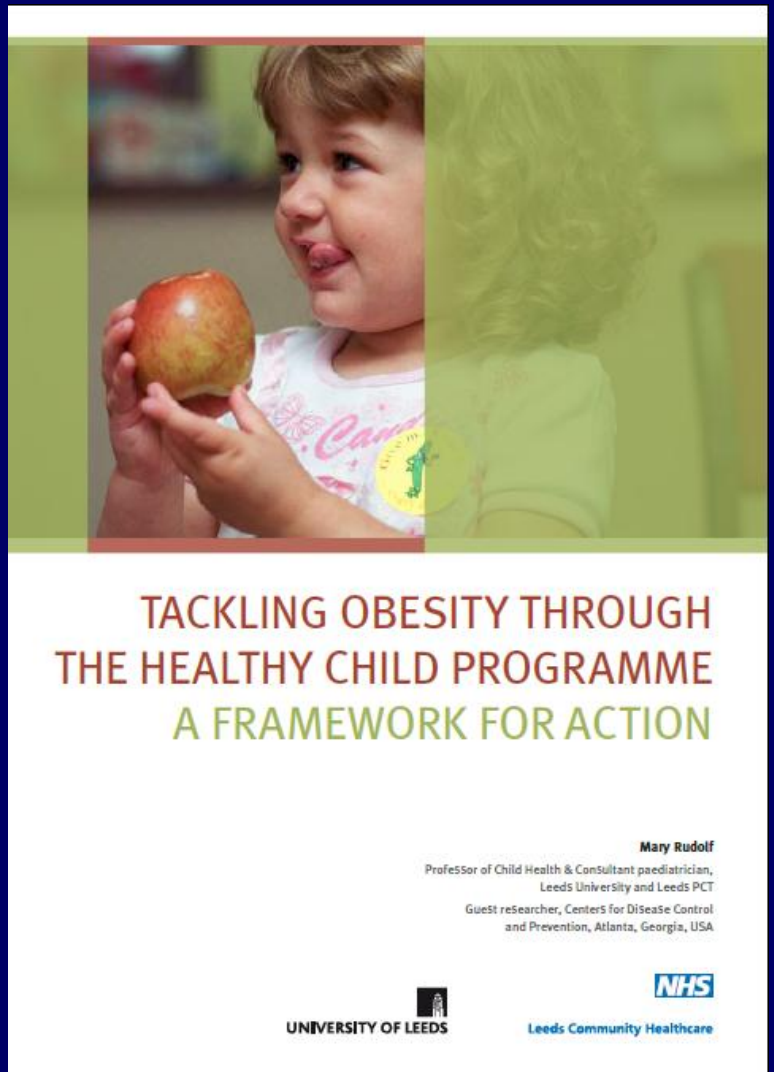


www.screening.nhs.uk

Screening Timeline Version 2, 2009

Screening Timeline - optimum times for testing

Obesity prevention www.noo.org.uk



- Framework for action
  - Developing healthy lifestyle
  - Enhance practitioner effectiveness

Immunisation www.nice.org.uk/guidance

- Dedicated local coordination of immunisation services for at risk groups and catch up campaignes
- Clear advice to parents
- Appropriate training of staff for consistent and authoratative advice
- Local immunisation data analysis
- Follow up of non attenders

Speech and language development

- Early exposure to books and reading
- Talk to your child- lots of statements and fewer questions
- Positive relationships that build and support communication
- Encourage nursery rhymes and songs

Social and emotional development

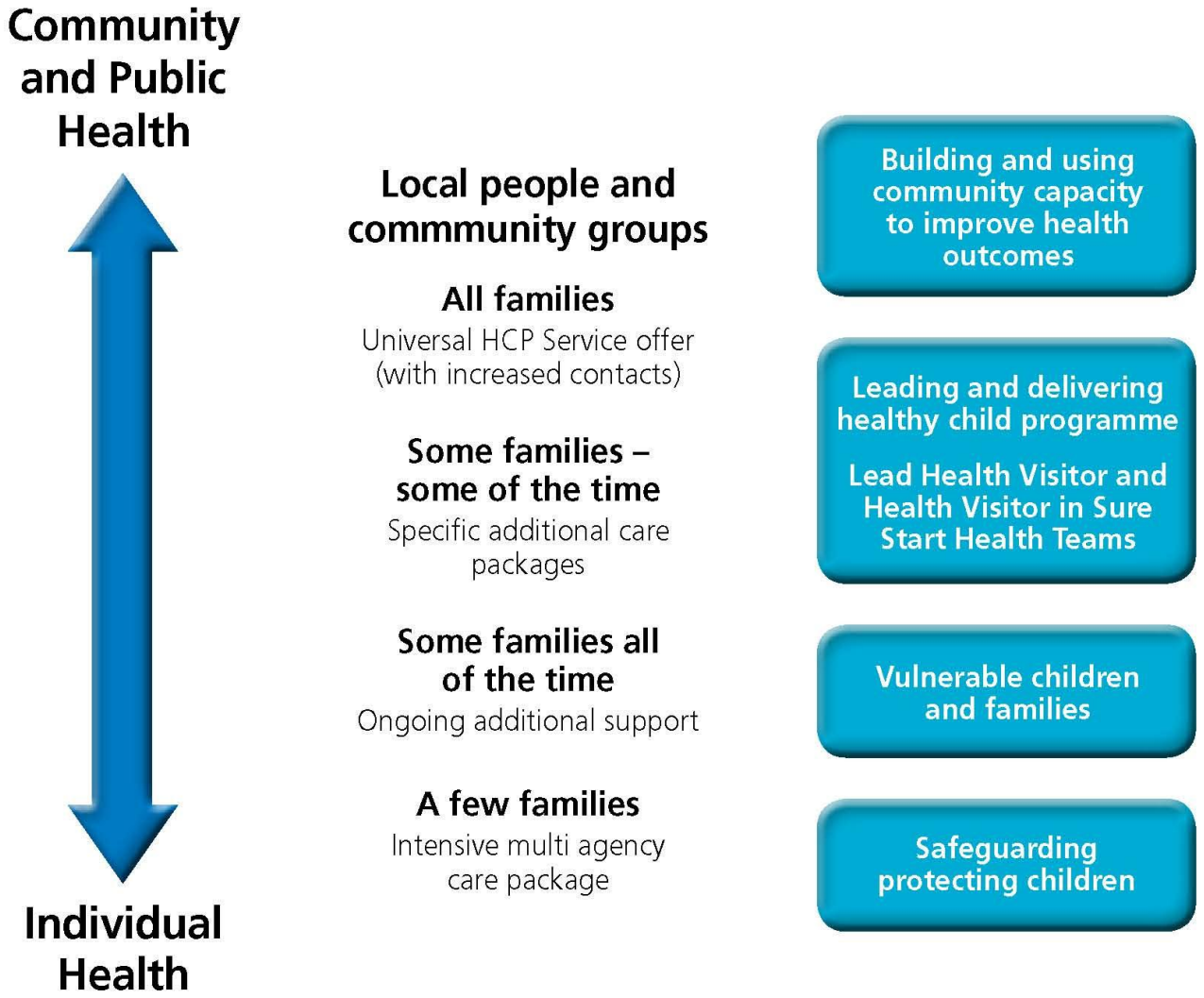
- Development of a secure and positive attachment between parent and child
- Involvement of fathers
- Authoritative and sensitive parenting
- Close relationships which lead to growth of self assurance
- Structure of environment and interaction
- Toilet training before two years

Proportionate (progressive) universalism

- Delivery which ensures scale and intensity of programme elements are modified according to needs of the target population

- .....NOT SAME SIZE FITS ALL !

Service vision for health visiting services in England



Sure Start Children's Centres

- Parent child centres in disadvantaged communities (3600 in England)
- Interface for health education and social care services to meet and work collaboratively
  - child care/parenting classes
  - speech and language promotion
  - midwifery
  - Dietitian
  - Parenting classes

Evaluation

- Children growing up in SSLP areas compared to children in non-SSLP areas.
  - had lower BMIs - this was due to their being less likely to be overweight with no difference for obesity.
  - better physical health than children in non-SSLP areas.

- Mothers in SSLP areas reported:
  - providing a more stimulating home learning environment for their children.
  - providing a less chaotic home environment for their children.
  - experiencing greater life satisfaction.
  - engaging in less harsh discipline.
  - experiencing more depressive symptoms.
  - Being less likely to visit their child's school for parent/teacher meetings or other arranged visits. Although the overall incidence was low generally.

Family Nurse Partnership programme

What it is:

An intensive preventive programme through pregnancy until child is aged 2

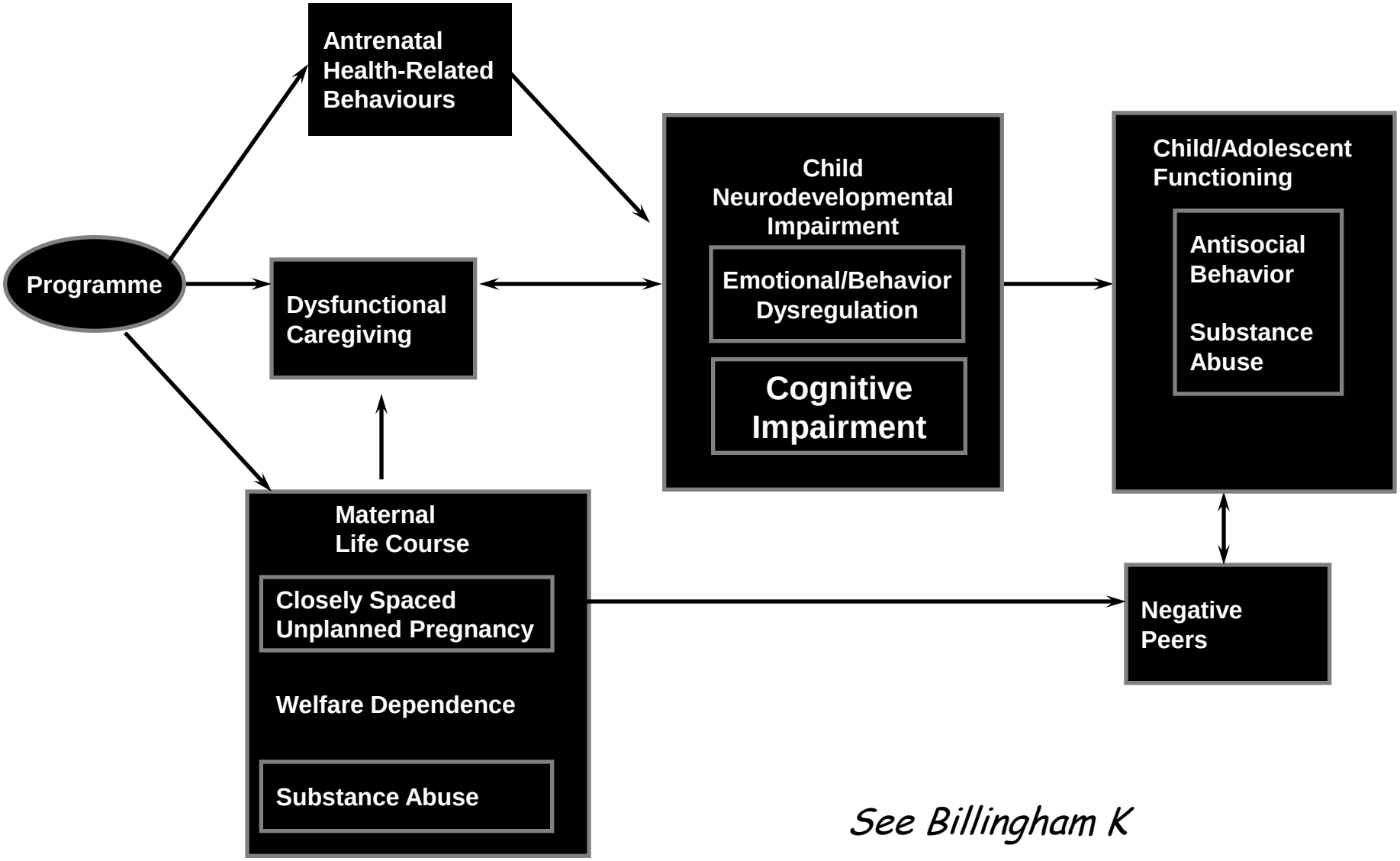
Benefits children and families who have the poorest outcomes

To improve antenatal heath, child health and development and parents economic self-sufficiency

What families get:

- Weekly, fortnightly, monthly home visits by Family Nurses
- Each visit includes structured conversations and activities to improve self efficacy, change behaviour and build attachment
- Based on nurse/client relationship
- *See Billingham K*

FNP is a preventive programme



See Billingham K

FNP in England – what we know about implementation

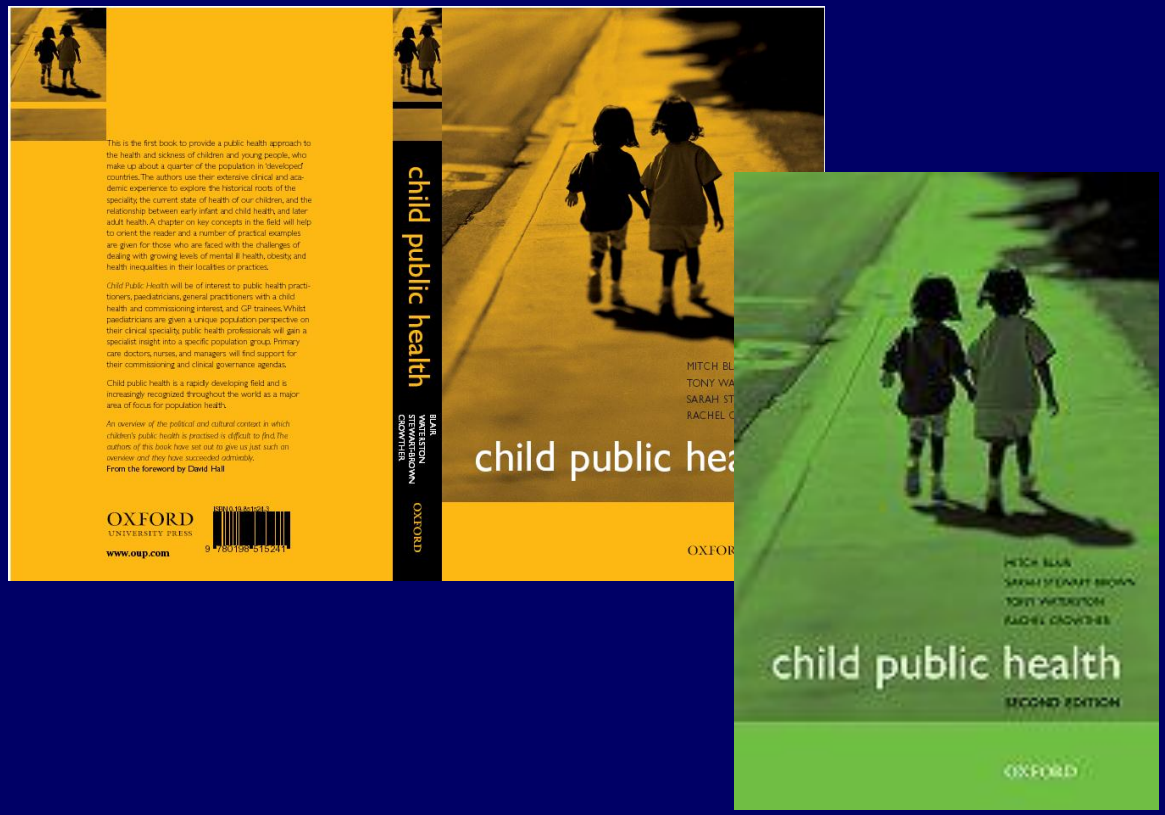
- **FNP can be implemented successfully in England -** many of the fidelity measures are being achieved or close to being achieved.
- The **materials work** in this country and are well received by families.
- The programme is **welcomed by hard to reach families** and reaches clients who are likely to benefit most.
- **Successfully engages** with hard to reach families from early in their pregnancy.
- **Clients value the programme** and have high regard for their family nurses.
- **Engagement with fathers is good**. Almost half the fathers and partners had been present for at least one FNP visit.
- The programme has the **enthusiastic support of the nurses** who are seeing changes take place in health behaviour, relationships, parental role and maternal well-being.

See Billingham K

What we know about impact of FNP

- Many clients reported **positive changes** in their understanding of pregnancy, labour, delivery and their infant
- Clients **more confident as parents**, doing activities with children likely to enhance cognitive and social development
- Clients had strong recall of the **nutritional advice** they had received
- Closer **involvement of fathers** with infants
- Many clients reported planning to **return to education**
- Feel **less judged and excluded**, thinking about the future with more optimism, gives them an expectation that formal services could be helpful
- There are early signs that **clients now have aspirations for the future** and cope better with pregnancy, labour and parenthood
- **Reduction in smoking** 40% to 32% during pregnancy (20% relative reduction)
- **Breast feeding initiation rate higher** than national rate for same age group (FNP = 63% UK under 20s=53%)
- *See Billingham K*

- “ the art and science of promotion and protection of health , prevention of illness in children and young people through the organised efforts of society”



Translation and evaluation requires leadership and a combining of clinical and public health competencies

A different way of working……..

collaborative

interagency

preventive and curative

evidence based interventions-

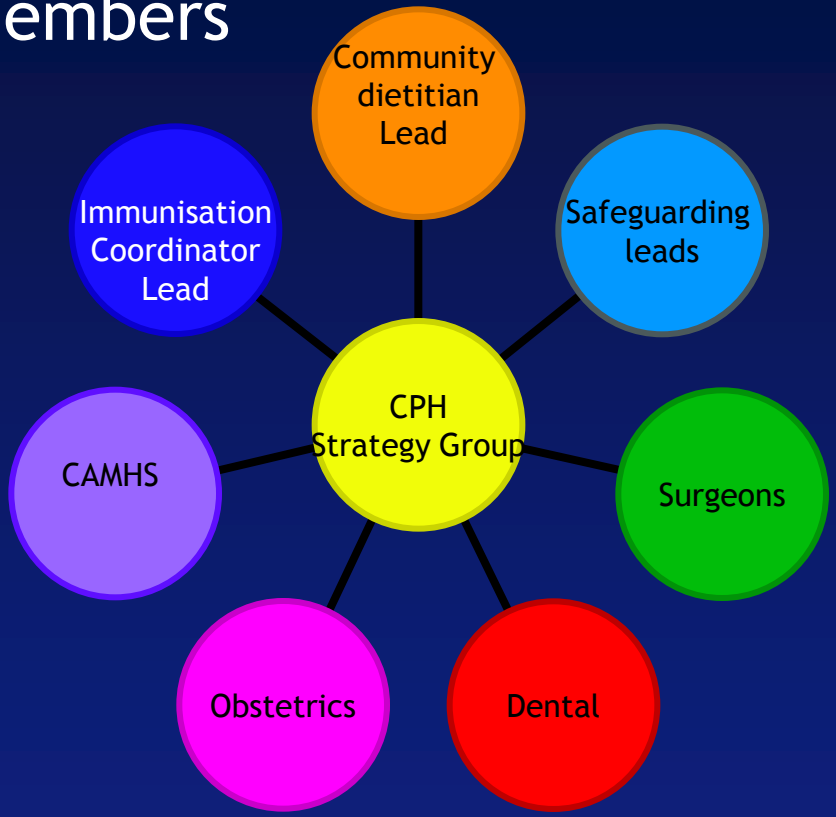
a *child public health* approach

Building Child Public Health Capacity for practice and research

- Core

CPH Strategy group

- Co-opted members



A new specialty- or reinvention of an old one?

- Faculty of Public Health and Royal College of paediatrics and Child Health competencies development
- Trainees support
- Further diploma/Masters
- Post consultant accreditation models

Examples of activity

- Using Accident and emergency admissions data to explore
  - Frequent attenders and modelling preventive services
  - Substance misuse pathways of referral for young people
  - Injury prevention activity – burns and scalds – home equipment loan

Common characteristics of repeat attenders - NWP & CMH

- **greater odds** of more frequent attendance
  - younger age
  - higher deprivation index
  - living closer to hospital
  - admitted on first attendance

At first attendance

- **lower odds** of more frequent attendance
  - Injury as first presenting complaint

- Unique to Hospital 1
  - **greater odds** of frequent attendance
    - First presenting complaint = “return”, “psychosocial”, “other”, “O&G”, “**diabetes related**”
- Unique to Hospital 2
  - **greater odds** of frequent attendance
    - male sex
    - first presenting complaint = “**difficulty in breathing**”, “ENT”, “othe
      “**seizures**”

No community diabetic service at CMH

No unified epilepsy service at NWP

Different asthma protocols used by A&E versus paeds

Examples of activity

- Vitamin D in pregnancy – low levels
  - BPSU survey
- Infant mortality
  - Shifting perceptions to optimising infant health

Quote from Elizabeth Blackwell (1821 – 1910) – the first woman doctor

- " We are not tinkers who merely patch and mend what is broken…. We must be watchmen, guardians of life and the health of our generation, so that stronger and more able generations may come after"