Addressing inequities in child health and development – towards social justice

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On behalf of ISSOP

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Acknowledgements: The following colleagues in the Inequity Working Group contributed references and suggestions to early drafts of the statement:

David Taylor-Robinson, Tony Waterston, Takonda Chimowa, Marion Drew, Hafsat Rufai Ahmad, Rosie Kyeremateng, Craig Nyathi , Isa Abdulkadir

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Abbreviations:

95% CI – 95% Confidence Interval

DALYs – Disability Adjusted Life Years

DHS – Demographic and Health Surveys

ECD – Early Child Development

GDP/capita – Gross Domestic Product/capita

HICs – High Income Countries

IMF – International Monetary Fund

IMR – Infant Mortality Rate

ITN – Insecticide-treated Bed Nets

IYCN – Infant and Young Child Nutrition

LBW – Low Birth Weight

LMICs – Low and Middle Income Countries

MICs – Multiple Indicator Cluster Surveys

SAPs – Structural Adjustment Programs

SDGs- Sustainability Development Goals

SDH – Social Determinants of Health

SGA – Small for Gestational Age

SSA – Sub-Saharan Africa

U5MR – under-5 Mortality Rate

UHC – Universal Health Care

UNICEF – United Nations Children's Emergency Fund

UN-MDG – United Nations Millennium Development Goals

WHO – World Health Organization

Table of contents

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Executive Summary

Inequities, socially unjust inequalities, have a profound impact on the health and development of children across the world. Inequities are greatest in the world's poorest countries; however, even in the richest nations, poorer children have poorer health and developmental outcomes. From birth through early childhood to adolescence, mortality, acute and chronic illness, and poor growth and development are socially patterned such that the most disadvantaged have the highest risk and the most advantaged the lowest risk. Inequities arise where children are deprived of the essential determinants of health and development such as clean water, adequate nutrition, access to education and affordable healthcare. Inequities in childhood have an impact across the whole life course.

Policies and interventions that promote equity

Whitehead identifies four categories of actions to promote equity: strengthening individuals; strengthening communities; improving living and working conditions; and promoting healthy macro-policies. Countries that have successfully reduced inequities have enacted policies and interventions across these categories scaling them up to fundamentally change systems. Good evidence from successful initiatives that inequities can be reduced exists but political will is needed to enact them.

Recommendations

ISSOP calls on governments, policy-makers and paediatricians and child health professionals and their organisations to act to reduce child health inequity as an urgent public health priority. We recommend:

Governments: act to reduce child poverty which is detrimental to health and well-being across the life course ; ensure that the rights of ALL children, to healthcare, education and social protection are fully protected; ensure basic determinants of health such as adequate nutrition, education, clean water and sanitation are available to ALL children

Paediatric and Child Health Professional Organisations: ensure their members and constituent bodies are made aware of the impact of inequities on the health and well-being of children and across the life course; include global child health inequities in programmes and curriculums for students and professionals in training; publish policy statements relevant to their country highlighting the impact of inequities on child health and well-being; advocate for evidence-based pro-equity interventions with policy makers using a child rights

perspective; advocate for affordable, accessible healthcare for all children in their country; promote data collection and policy focused research to monitor inequity in their child populations

Individual paediatricians and child health professionals: be aware of the impact of social determinants of health on children under their care; within the constraints of their country's health services, work to ensure their clinical services or practices are accessible and acceptable to all children and families; collect and utilise data on their local population's health and well-being; promote undergraduate and postgraduate experiential learning on the social determinants of health; engage in advocacy at a community and national level.

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1. Introduction

The report of the WHO Commission on Social Determinants of Health [1] opens with the following statement:

> "*Social justice is a matter of life and death. It affects the way people live, their consequent chance of illness, and their risk of premature death. We watch in wonder as life expectancy and good health continue to increase in parts of the world and in alarm as they fail to improve in others. A girl born today can expect to live for more than 80 years if she is born in some countries – but less than 45 years if she is born in others. Within countries there are dramatic differences in health that are closely linked with degrees of social disadvantage. Differences of this magnitude, within and between countries, simply should never happen*".

As the WHO statement shows, inequities in health, health inequalities that are unjust, have a profound effect on the health of populations across the world. Children are especially vulnerable to the health impact of social disadvantage and inequities, evident from birth, have a profound effect on health across childhood and adolescence and into adulthood. [2] The WHO report has the sub-title 'Closing the Gap in a generation' reflecting the conviction that inequities can be reduced. We share this conviction and this position statement contributes to the promotion of child health equity by identifying the nature and extent of child health inequities, how they arise, why they violate child rights, and the actions needed to achieve equity.

ISSOP presents this position statement to call for paediatricians, national and international paediatric societies, and governments and policy makers to:

- Recognise the short and long-term impact of inequity on child health, development and well-being
- Recognise the negative consequences of inequities in child health and development on both individuals and societies
- Be aware of the early onset of inequities and of the special responsibility child health professionals bear in their prevention

- Monitor the impact of and actions to address inequity in child health, development and well-being
- Advocate for policies and interventions that have been shown to be able to prevent inequities in child health and development.
- Prioritise research focussing on policies which promote equity in child health outcomes
- Incorporate child health equity issues in the graduate and postgraduate training and Continuing Professional Development

2. Statement of the problem

2.1 *Defining health inequity*:

We use the term health inequities rather than health inequalities to denote those inequalities in child health which are avoidable and relate to the social circumstances in which children are conceived, born, live, develop and grow. By definition inequities are unjust.

2.2. *Inequity in child health outcomes across the world*

Inequities in child health outcomes occur across the world between countries and within countries. Child health outcomes show huge inequities between low, middle and high income countries (LMHICs). Table 1 shows the extent of the gap in under-5 mortality rates (U5MR) between countries grouped by region and level of development. [2]

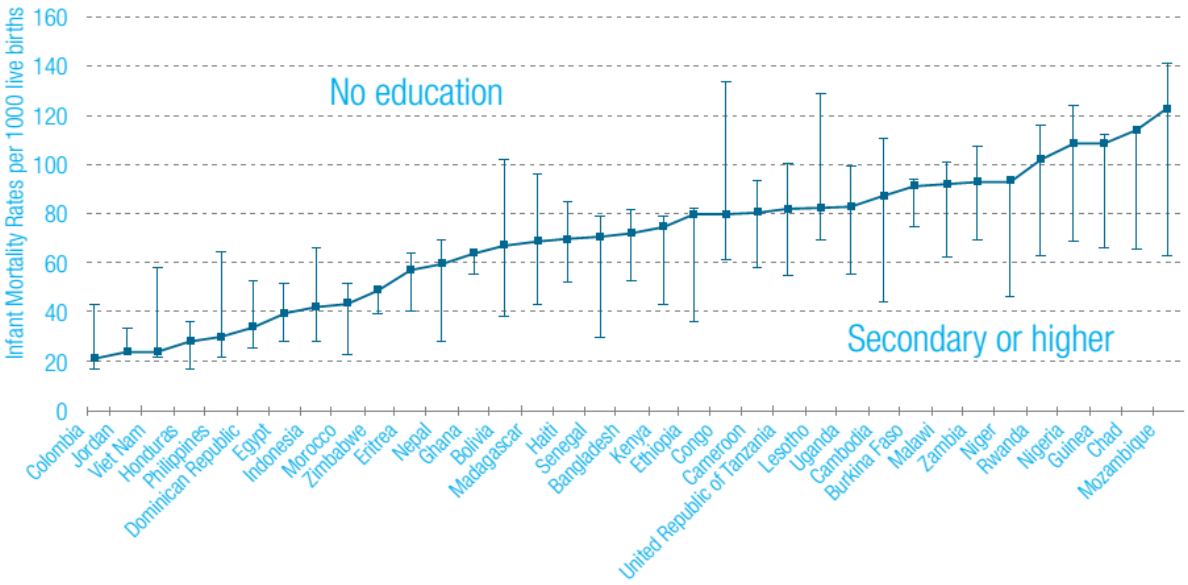
Region	U5MR (90% uncertainty bounds)
Sub-Saharan Africa	83.1 (77.5,93.0)
All Developing Countries	46.5 (44.7,50.0)
World	42.5 (40.9,45.6)
All Developed Countries	5.8 (5.5,6.3)

Table 1: U5MR by region and level of development

[Source: [2]]

Infant mortality rate (IMR) (the major component of under-5 mortality) varies widely between countries with low income countries, particularly in sub-Saharan Africa (SSA), having the highest rates (Figure 1). [1] Figure 1 also shows the influence of maternal education level on IMR such that

within each of the selected countries mothers with secondary or higher education have lower rates than those with no education. WHO estimates that if the IMR for Iceland were applied to the whole world only two infants would die in every 1000 born alive resulting in 6.6 million fewer infant deaths in the world each year. [1]



Data from the Demographic and Health Surveys (DHS, nd) derived from STAT compiler. The continuous dark line represents average infant mortality rates for countries; the end-points of the bars indicate the infant mortality rates for mothers with no education and for mothers with secondary or higher education.

Figure 1: Inequity in IMR between and within selected middle and low income countries showing marked inequity between and within countries by maternal education. Source [1]

Low birth weight (LBW) is the most important risk factor for death in infancy or early childhood, and the global leading cause of Disability Adjusted Life Years (DALYs), accounting for more than 3% of all global DALYs, also due to long term consequences on mortality and ill health even in adult life. LBW babies include preterm (<37 weeks gestational age) babies, and term and preterm babies born small for gestational age (SGA). Prematurity is the world's leading cause of newborn deaths and second leading cause of under-5 deaths after pneumonia. The incidence of LBW is around 15.5% globally (i.e. more than 20 million infants worldwide), 16.5% in LMICs and up to 27% in South-East Asia, while it is around 6% in Western Europe. Estimates of preterm births vary around an average of 11.3% of all births (up to 18% in some African countries), corresponding to approximately 13 million/year. Out of these, at least 10.9 million are born in Africa or Asia. Incidence of SGA babies vary depending

on whether all SGA (birth weight <10 th centile) or only babies < 2500 gr are considered. Estimate of all SGA is 27% worldwide. Although improved identification may confound interpretation, trends seem to be increasing worldwide. Figure 2[3] clarifies magnitude and existing inequities among LBW, premature and SGA births by UN Regions

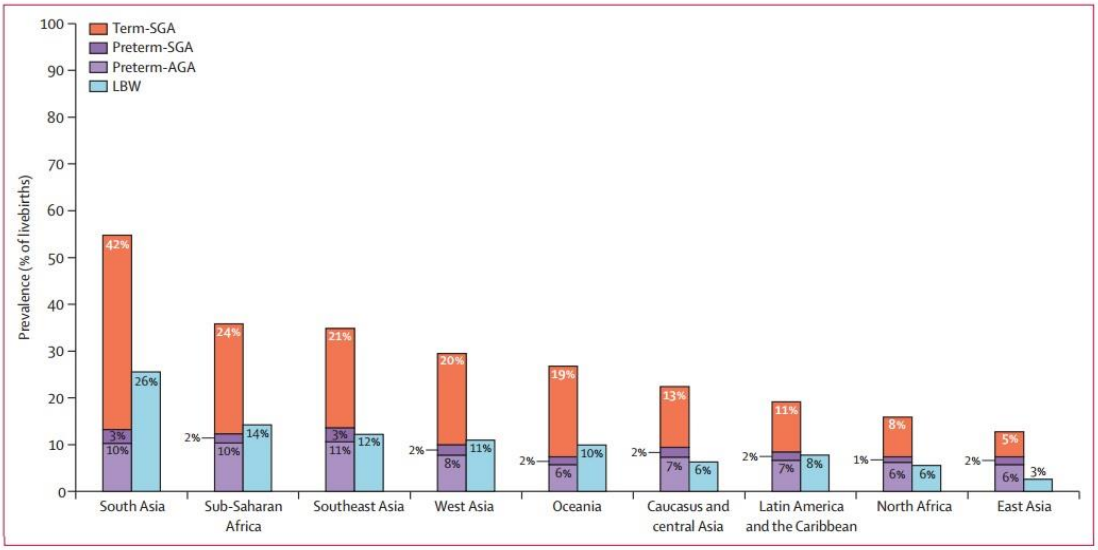


Figure 3: Prevalence of SGA, preterm births, and LBW by UN-MDG region in 2010

Figure 2: Prevalence of SGA, preterm births and LBW by UN-MDG region in 2010 (Source [3])

Accurate data on inequity in rates of LBW by income and wealth within LMICs is limited by the high proportion of children, particularly the poorest, whose birth weight is not recorded at birth.

Moderate to severe stunting (>2 standard deviations below median height-for-age of the WHO Child Growth Standards) among children <5 years of age shows a similar pattern of global inequity; stunting affects 37% of children under 5 years of age in the least developed countries, 11% in the middle income countries of East Asia and the Pacific, and Latin America and the Caribbean compared with little recorded stunting in high income countries. [2]

Despite a 53% reduction in U5 deaths and a 43% reduction in stunting since the 1990s, poor children are almost twice as likely to die before the age of five years and to be stunted as rich children in LMICs. [4]

Data from individual LICs show the extent of within country inequities. In Nigeria, a country with very wide income inequality, in 2008 U-5 mortality among the poorest fifth of the population was 217/1000 live births compared with 87/1000 live births among the richest fifth. [5] Inequities in nutrition by wealth, gender and residence in Nigeria are shown in Table 2.

Indicator	Gender			Residence			Wealth quintile						Source
	Male	Female	Ratio of male to female	Urban	Rural	Ratio of urban to rural	Poorest	Second	Middle	Fourth	Richest	Ratio of richest to poorest	
Stunting prevalence (WHO Child Growth Standards, %)	43	38	1.1	31	45	0.7	52	49	42	34	24	0.5	DHS 2008
Underweight prevalence (WHO Child Growth Standards, %)	25	22	1.1	16	27	0.6	35	29	22	17	10	0.3	DHS 2008
Wasting prevalence (WHO Child Growth Standards, %)	14	13	1.1	11	15	0.7	21	17	12	10	9	0.4	DHS 2008
Infants not weighed at birth (%)	·	·	·	60	91	0.7	99	96	90	73	40	0.4	DHS 2008
Early initiation of breastfeeding (%)	38	39	1.0	41	38	1.1	30	38	43	43	41	1.4	DHS 2008
Women with low BMI (< 18.5 kg/m^2, %)	·	12	·	9	14	0.6	21	15	11	10	7	0.3	DHS 2008

Table 2: Child nutrition in Nigeria by gender, residence and wealth in 2008. Source [5]

Data, based on a cohort study in Ballabgarh, Northern India [6] which followed children from birth to 3 years, reported death rates by socioeconomic group measured by caste, parental education and wealth index. The poorest by all three measures had higher death rates and, except for caste, these showed a clear social gradient (Table 3). When death rates were stratified by gender, girls had higher death rates than boys in the higher socioeconomic groups by all 3 measures. The authors conclude that, in this part of Northern India, socioeconomic development worsened the gender differential in death rates and suggest the need for specific interventions to target gender issues.

Socioeconomic status	Total births	Total child years	Total deaths	Death rate per 1000 child-years (95% CI)
Caste				
Scheduled (low)	3677	7517	286	38.1 (33.6 to 42.5)
Backward (middle)	3132	6406	148	23.1 (19.4 to 26.8)
Forward (high)	5708	11874	276	23.3 (20.5 to 26.0)
Parental education				
Lowest tertile	4790	9951	422	42.4 (38.4 to 46.5)
Middle tertile	3578	7491	190	25.4 (21.8 to 29.0)
Highest tertile	4149	8354	98	11.7 (9.4 to 14.1)
Wealth Index*				
Lowest tertile	3557	7428	307	41.3 (36.7 to 46.0)
Middle tertile	3572	7496	176	23.5 (20.0 to 27.0)
Highest tertile	4268	8891	143	16.1 (13.5 to 18.7)
Overall death rate	12517	25797	710	27.5 (25.5 to 29.6)

*Information on wealth index was available only for 11 260 (91%) of the households; hence, 84 deaths could not be classified in any Wealth Index tertile.

Table 3: Death rates in different socioeconomic groups in North India from birth to 3 years, 2006-11. Source [6]

Although infant and child mortality rates are far lower in HICs compared with LMICs, marked inequities continue to exist in these countries. There is a close correlation between rates of child poverty and U5MR in rich nations (Figure 3). [7]

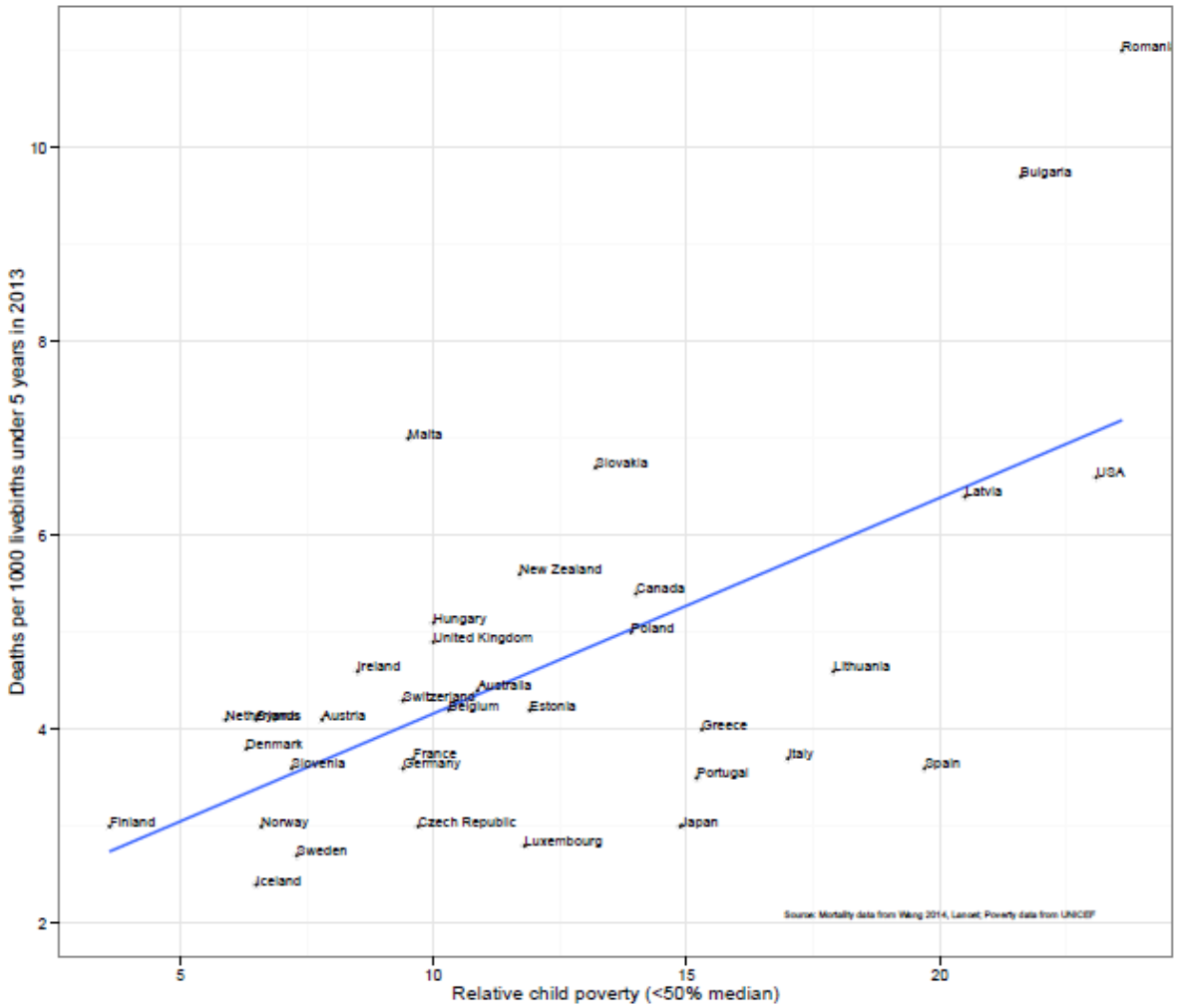


Figure 3: Correlation of U5MR with rates of relative child poverty in 35 rich nations Source: [7]

Children in low income families In HICs are at increased risk of a range of adverse health outcomes throughout childhood and into adolescence. Systematic reviews of the literature in Europe [8] and HICs [9] report higher risk of low birth weight, preterm birth, infant mortality, developmental problems, acute and chronic respiratory conditions and disabling chronic conditions among children in low income households compared with their more advantaged peers. Overweight and obesity, associated with chronic health problems in adulthood, is more prevalent among the children of mothers with low levels of education (Figure 4). [10]

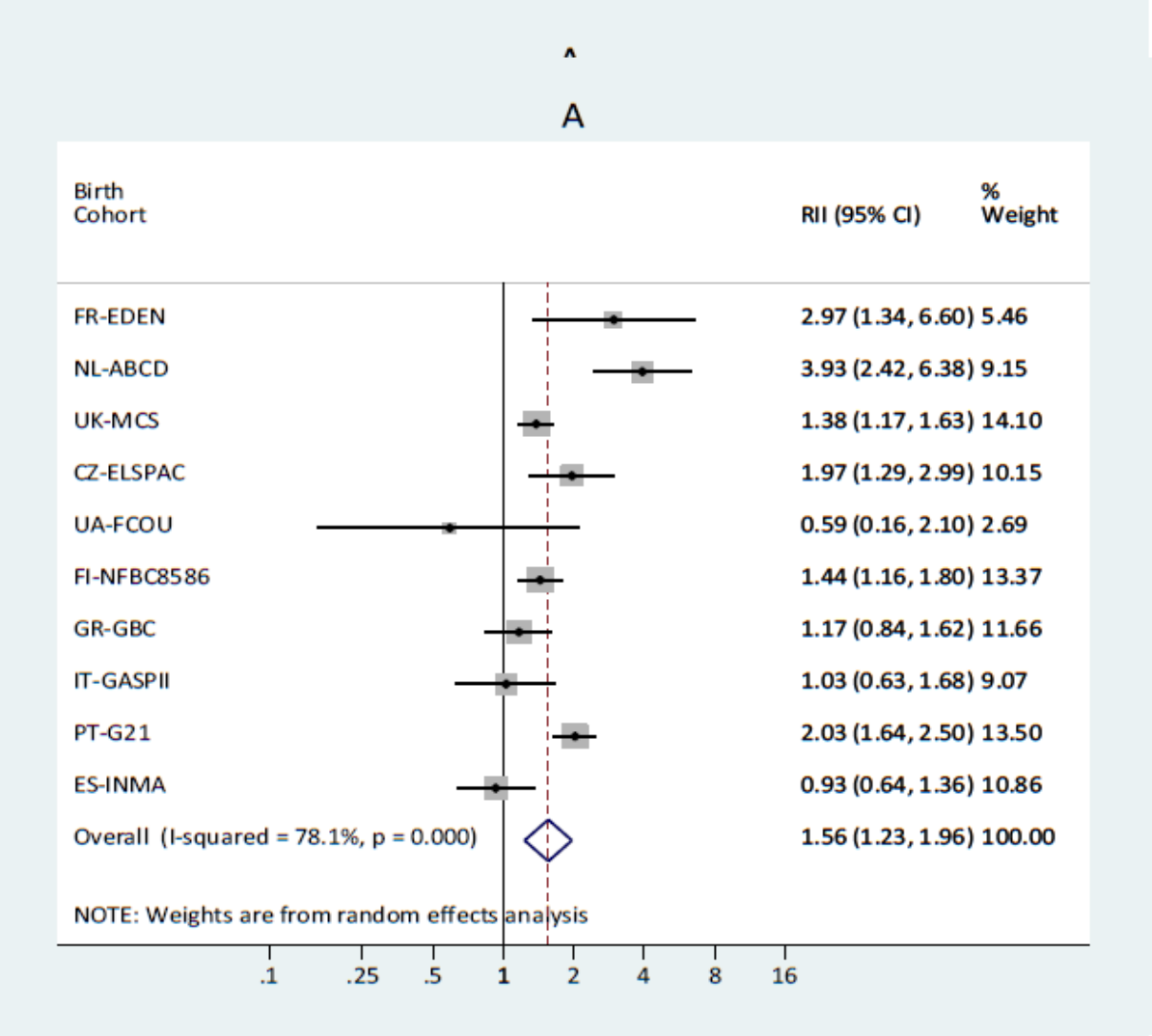


Figure 4: Risk of overweight/obesity among 4-8 year olds by low maternal education in 10 European countries. Source: [10] Country Key: FR France; NL Netherlands; UK United Kingdom; CZ Czech Republic; UA Ukraine ; FI Finland; GR Greece; IT Italy; PT Portugal; ES Spain.

Asthma is among the most common childhood conditions especially in HICs. UK children enrolled in the Millennium Cohort Study had increasingly higher odds of suffering from asthma as family income decreased (Figure 5). [10]

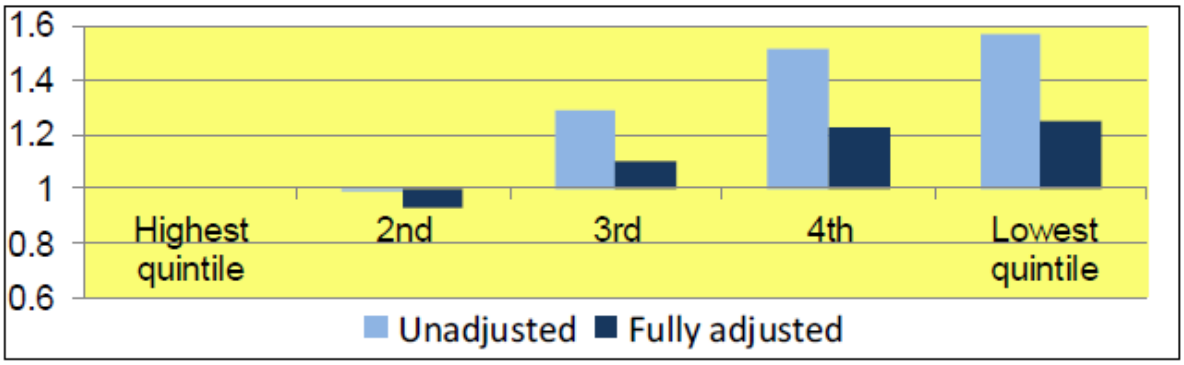


Figure 5: Unadjusted and adjusted odds ratios for asthma among UK children. Source:[10]

Table 4 shows pooled estimates for children in low socioeconomic status households for different groups of disabling chronic conditions based on meta-analysis of findings from the literature from high income countries. [9]

Disabling chronic condition	Studies	OR (95% CI)
All-cause disabling chronic conditions	20	1.72 (1.48 to 2.01)
Psychological disorders	55	1.88 (1.68 to 2.10)
Intellectual disability	21	2.41 (2.03 to 2.86)
Activity-limitation or hospital admission for asthma	13	2.20 (1.87 to 2.85)
Cerebral Palsy	6	1.42 (1.26 to 1.61)
Congenital abnormalities	13	1.41 (1.24 to 1.61)
Epilepsy	6	1.38 (1.20 to 1.59)
Sensory impairment	9	1.70 (1.39 to 2.07)

Table 4: Pooled random effects estimates for children in low socioeconomic status households by group of disabling chronic conditions. Source: [9]

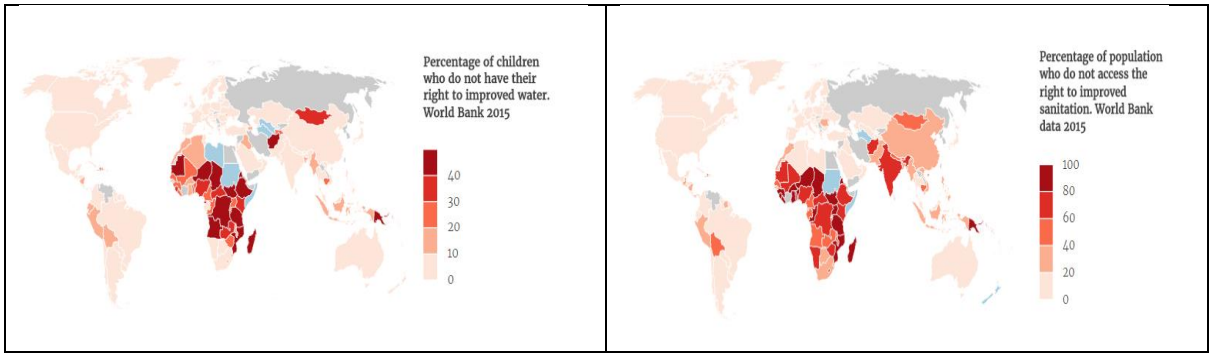
Another issue that is of global public health significance and is linked with inequities is that of violence. Both intentional or inflicted violence and unintentional injuries are linked with child poverty. The burden from child injury is greatest in low- and middle-income countries, where 95% of all child-injury deaths occur, and where recorded rates of child maltreatment are also substantially higher than in high-income countries. [11] When considering the impact of violence and its effects on children, we cannot ignore the importance of *structural violence*, particularly for children and young people from the majority world. As distinct from direct violence, structural violence is violence exerted indirectly, and refers to the impact of 'sinful' social structures characterized by poverty and steep grades of social inequality on the health and wellbeing of children. [12]

2.3 *Inequity in access to the determinants of health within and between countries:*

The determinants of health which are critical for survival are our physiological needs and include clean air, water, sanitation, shelter and nutrition. For example, it is thought that household air pollution causes 50% of lower respiratory tract infections which is responsible for 15% of deaths in children. Inadequate water and sanitation is responsible for more than half of the disease burden due to diarrhoea, which is responsible for 10% of under-five mortality, while environmental interventions could halve the disease burden due to malaria. [13] Also important is the fact that half of the reduction in child mortality between 1970 and 2009 is attributed to increased maternal education [14], and half of the reductions in child mortality since 1990 has been because of interventions outside the health sector. [15] These critical social determinants of health (SDH) are also minimum core human rights and enshrined in the Universal Declaration of Human rights and many international treaties ratified by most countries and should be prioritised in order to reduce child mortality and improve child survival. [16] The indicators which will be used in the Sustainable Development Goal era [17], include these and all children in all countries should have *immediate* access. The duty bearers are governments of the countries where children live and the international community when resources are limited, or if actions or inactions by the international community has caused limited resources, (for example through sanctions), as all states have extra territorial responsibilities regarding human rights. [18].

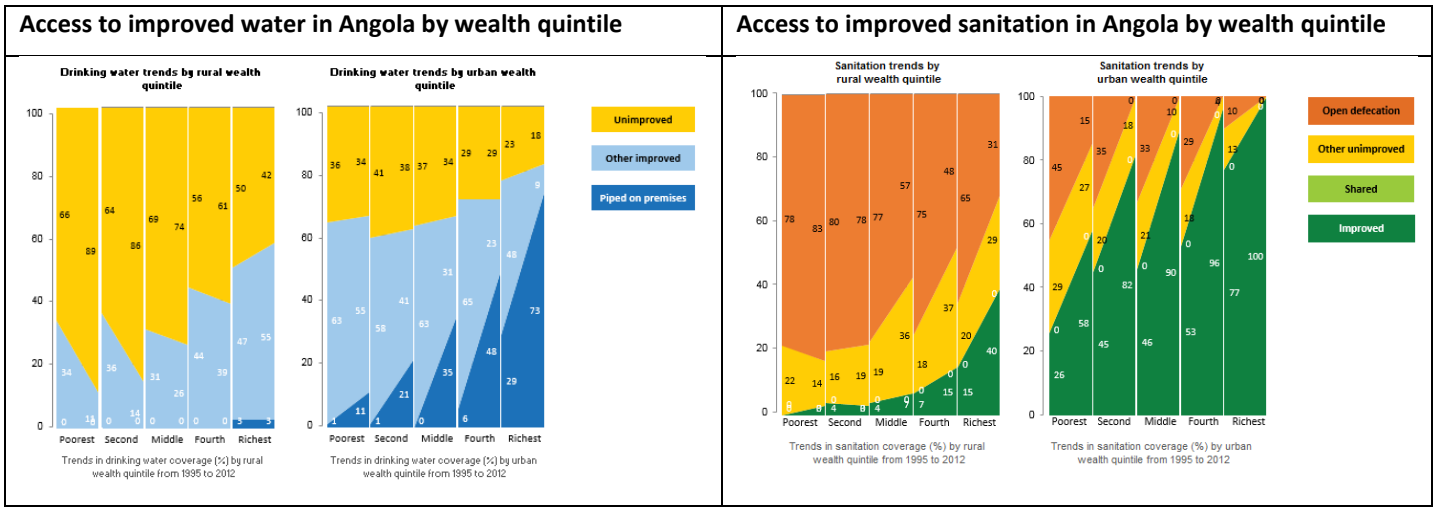
Despite the evidence regarding the SDH, the multiple international agreements regarding immediate access to survival rights, the economic arguments that intervention at the preventative level rather than curative would be more cost effective, many children in the world do not enjoy access to these survival SDH, see figure 6 for access to water and sanitation.

Figure 6 Coverage of minimum core economic, social and cultural rights; water and sanitation
Source: [19]



As well as between countries inequality there is marked inequality within countries. For example, between girls and boys, between wealth quintiles, rural and urban location, and in the rate of progress. For example see access to water and sanitation in Angola, figure 7 which shows regression in rural access to water in all but the wealthiest quintile. [19]

Figure 7 – Access to water and sanitation by wealth quintile in Angola. Source [19]



2.4 Inequity in child health services across the world

Inequity in child health services is a major determinant of child health inequity particularly in LMICs but also in some HICs. Effective prevention and treatment for the majority of conditions responsible for mortality and morbidity among children in LMICs have been available for many years but, despite some recent improvement, limited access and affordability continue to deny poor children essential treatment. Lack of medical insurance in some HICs also excludes many poor children from access to essential treatment.

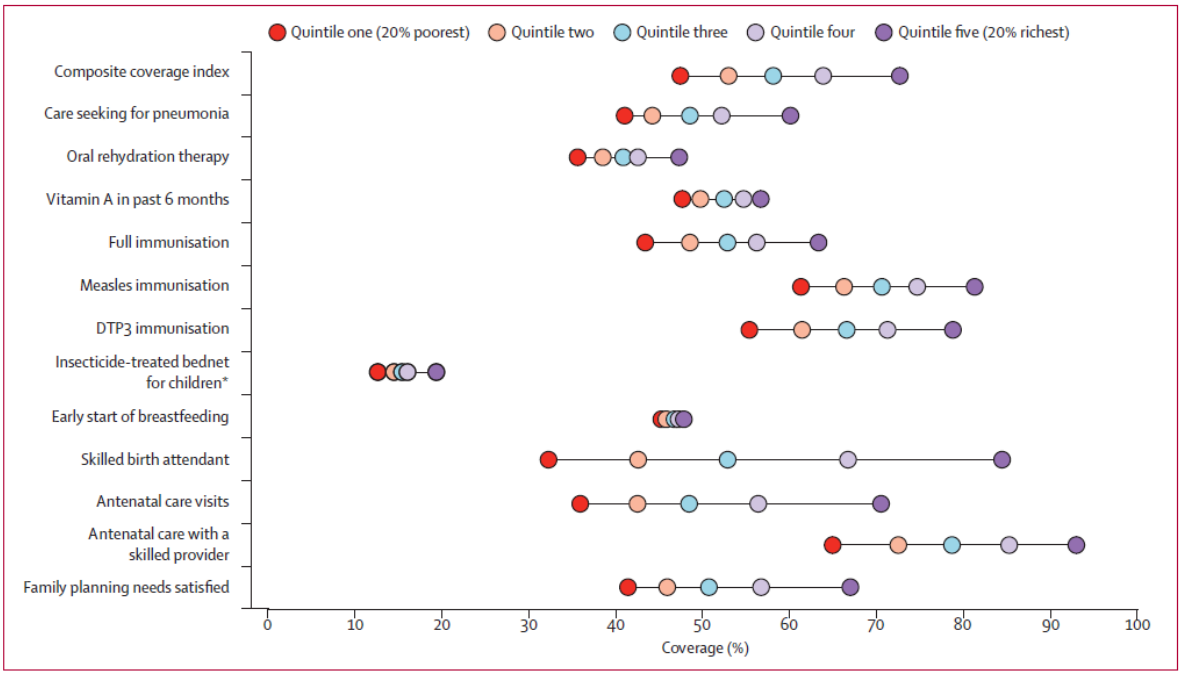


Figure 8: Mean coverage for each wealth quintile for the studied interventions in 54 Countdown countries. Source [20]

Figure 8 shows inequity by wealth index for a range of interventions of proven efficacy in 54 LMICs. [20] These data were collected during the period 2001-2008 but are likely to continue to reflect the extent of inequity in these key interventions. The most striking inequities are in maternal health care interventions which are important for prevention of neonatal mortality and morbidity. Early start of breast feeding and use of insecticide-treated bed nets (ITNs) by children are relatively equitably distributed but both have low levels of prevalence in the whole population (Figure 8). Chad, Nigeria, Somalia, Ethiopia, Laos, and Niger were the most inequitable countries for the interventions examined, followed by Madagascar, Pakistan, and India. The most equitable countries were Uzbekistan and Kyrgyzstan. For all interventions, variability in coverage between countries was

larger for the poorest than for the richest individuals. UNICEF reports an increase in ITN use so that by 2014 they were being used by just under 50% of children in sub-Saharan Africa. [4]

Data compiled by Save the Children [21] from national surveys from 2005 to 2010 show that children from the poorest 20% of households are also those with the lowest DTP3 coverage rates in almost all countries analysed; on average, they are three times less likely to be vaccinated than those from the richest households. Inequities in immunisation by individual countries are shown in Figure 9. More recent exploration of the immunisation coverage within and across 85 LMICs, showed persistent and stark pro-rich and pro-urban inequalities in full immunisation coverage in most low- or middle-income countries, although they were, relatively small in the region of the Americas and Europe – and relatively large in the Eastern Mediterranean and Western Pacific Regions.[1]

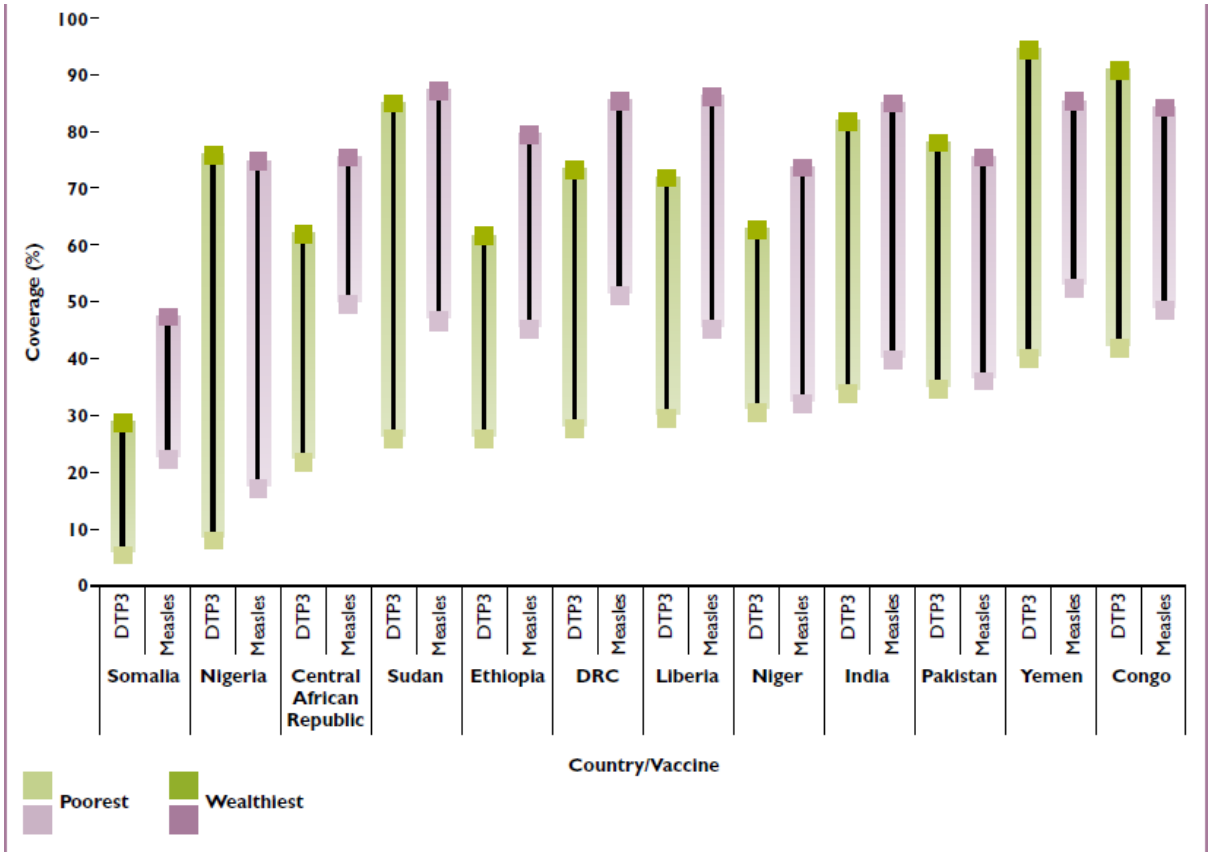


Figure 9: Inequities in DTP3 and measles vaccination coverage between the poorest and wealthiest households in selected countries. Source [21]

2.5 *Early child development: a critical determinant for equity*

2.5.1 The early start of Inequities. Born unequal, grown unequal.

Most health and social inequities originate in the earliest periods of life and even before, since transmission of a significant proportion of disparities is intergenerational. [22] The main reason for the early onset of inequities is that the earliest periods of life are crucial for the development of most systems and organs and primarily for the brain, thus establishing the biological foundations for lifelong functioning. [23] In the earliest years there is an opening window of both vulnerability and opportunity that will never be so important along the entire life span. Longitudinal studies show that many early influences and exposures have effects that persist into adult life, affecting school performance, behaviour, health risks, and ultimately social position and income. [24] Figure 10 shows theoretical developmental trajectories for advantaged compared with disadvantaged children.

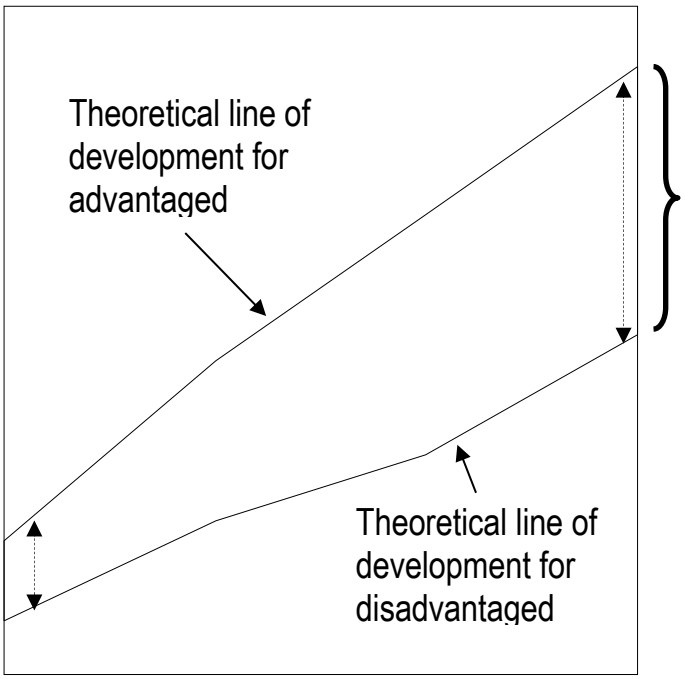


Figure 10: Graph showing contrasting theoretical developmental trajectories for advantaged and disadvantaged children [personal communication Giorgio Tamburlini**]**

2.5.2 The mechanisms of inequity: from the social environment to biology and vice versa.

While the long-lasting effects of early experiences have been known for a long time, some of the complex and closely interlinked mechanisms that influence early development have been clarified more recently. The development of neural networks and the entire brain architecture is shaped by the early environment: the thickness of brain cortex as well as the size of important underlying

functional hubs such as the hippocampus are associated with family income, parental education and adverse life experiences. [25][26] Some of these changes are mediated by epigenetic modifications, others by induction of metabolic patterns that will then be maintained along the entire life course. Early neglect induces a methylation of the cortisol promoter gene and a long-lasting modification in the response to stress which can be reversed only by early intervention. [27] Essentially, most functions and competences, and even our genome, are shaped by early experiences.

The main factors that have been shown to influence child development range from socio-economic background to the psychosocial and physical environment. They include family income, parental stress, maternal education, breastfeeding and Infant and Young Child Nutrition (IYCN), parent-child interactions, day care attendance, environmental exposure. [28] Parenting is one of the most powerful factors influencing child development in the first years of life: poor, illiterate or poorly educated, unhealthy parents give birth and grow, on average, less healthy, shorter, less smart children unless supported by specific policies and interventions.

2.*6 Child health inequity and health across the life course*

There is growing evidence from longitudinal studies that childhood socio-economic disadvantage impacts negatively on adult health. Mortality and morbidity from cardio-vascular disease in adulthood is linked to socio-economic disadvantage in childhood [29] partly through inequities in fetal, infant and childhood growth. [30] Most of the studies included in these reviews were based in HICs; however, there is evidence from Brazil that social disadvantaged is similarly linked to adult cardio-vascular disease. [31] Risk of asthma [32] and reduced renal function [33] in adulthood are associated with social disadvantage in childhood through their relationship to birth weight. Adult mental health is also linked to childhood socio-economic position. [34]

The biopsychosocial processes by which childhood socio-economic disadvantage impacts on adult health are not fully understood and are likely to differ by health outcome. Hertzman et al [35] identify three processes: latent effects by which early life environment affects adult health independent of intervening experience; pathway effects, through which early life environment sets individuals onto life trajectories that in turn affect health status over time; and, cumulative effects whereby the intensity and duration of exposure of unfavourable environments adversely affects health status, according to a dose–response relationship. A preliminary study, based on the 1958

British cohort study, suggests that childhood socio-economic position may influence DNA methylation potentially providing an epigenetic explanation for adult health inequities. [36]

2.7 The pervasive effect of social and economic inequity on society

High levels of social and economic inequality act as a social stressor, disturbing the social cohesion and damaging the social fabric, so important for a healthy society and consequently on children. [37] [38] [39] For example, we know that parental stress increases the risk of maltreatment and more generally of unfavourable neonatal outcomes and later behavioural and mental problems. [40] [41]

Thus, even if greater equity usually makes most difference to the least well off, it still produces benefits for the well off, by facilitating the sense of balance and control in life and increasing the generalized trust [37] [42], ultimately benefitting the whole society.

3. **Policy background**

3.1 *How do inequities arise*?

Inequities are built into the structure of societies arising, as the WHO Report [1] states "because of the circumstances in which people grow, live, work, and age, and the systems put in place to deal with illness. The conditions in which people live and die are, in turn, shaped by political, social, and economic forces. Social and economic policies have a determining impact on whether a child can grow and develop to its full potential and live a flourishing life, or whether its life will be blighted". Social and economic determinants, the so-called "causes of causes", are the underlying factors shaping children's health and life chances in all countries interacting in a complex web of direct and indirect causality. Figure 11 illustrates this causal web for children in HICs. [43] These same factors operate in LMICs; however, as discussed in section 2.3, many children are deprived of the basic environmental and societal health determinants, such as sanitation, clean water and health services, with the result that these are the dominant determinants in the causal web.

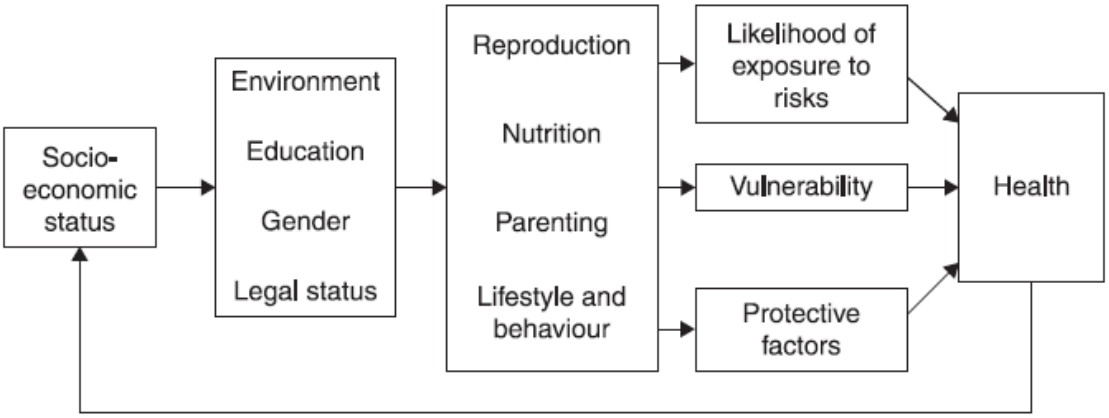


Figure 11: Causal web illustrating how socioeconomic factors relate to health. Source: [43]

Inequities in child health and development start early even before conception. The society and specific social circumstances in which the child's parents have grown up impact the developing embryo and fetus. If the mother has been malnourished in childhood leading to stunting, fetal growth will be adversely affected leading to low birth weight. This is well recognised in LMICs but maternal short stature also affects fetal growth and, consequently birth weight, in HICs. [44] Smoking in pregnancy, one of the major determinants of low birth weight in HICs, has been shown to be related to life course accumulation and cross-sectional clustering of social risk exposures.[45] As a result of these intergenerational effects, birth outcomes are profoundly unequal in LMICs and HICs. For example, the low birth weight rate (births <2.5 kgs/100 live births) in the least developed countries is 14% compared with 6% in HICs [2] and, within LMICs and HICs, there is a strong social gradient both in birth weight and preterm birth. [46]

Inequities in early childhood health and development resulting from disparities in these pre- & peri-conception and pregnancy factors are further exacerbated by multi-level global and societal influences which further disadvantage poorer children in LMICs and HICs. As figure 12 shows, multi-level global, societal and community factors influence individual-level factors, such as parenting, to generate inequities in early childhood health and development. [47] Throughout childhood and adolescence, this interaction between global and societal factors, which are structurally inequitable, and individual factors ensure differential exposure to risk and protective factors resulting in maintenance and generation of health and developmental inequities.

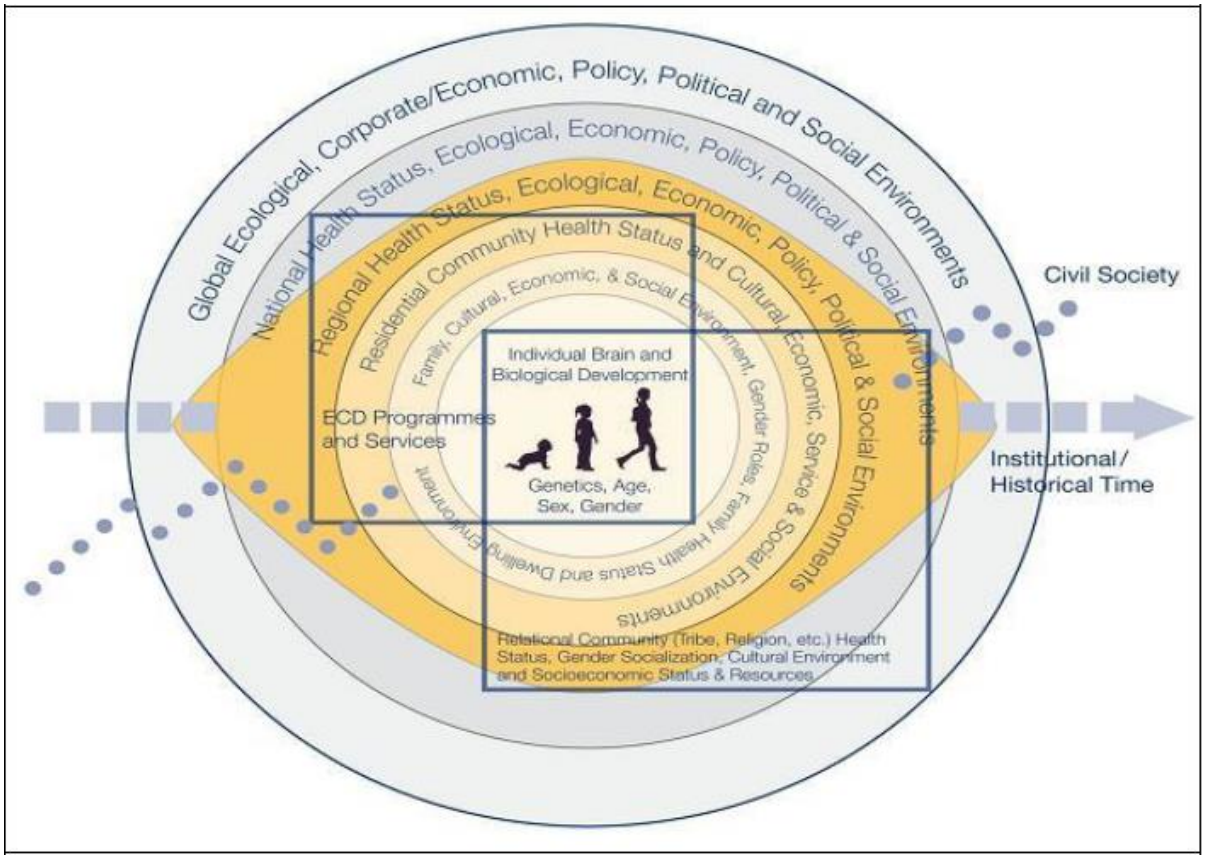


Figure 12: Conceptual framework of Early Child Development showing multi-level influences contributing to inequities. Source: [47]

3.2 *Policies & interventions that work*

Whitehead [48] identified four categories of actions to tackle health inequalities; these include: 1) strengthening individuals; 2) strengthening communities; 3) improving living and working conditions; 4) promoting healthy macro-policies. This typology can be applied to all countries although actions may need to be tailored to particular local and national conditions. All categories of the typology require political will and government-level investment and support. To be effective, actions in all categories need to reach the poorest and new data and analysis backed by UNICEF shows that the number of lives saved per million dollars invested among the poorest children is almost twice as high as the number saved by equivalent investments in less deprived groups. [49] Specifically, investments that increase access to high-impact health and nutrition interventions by poor groups

have saved almost twice as many lives as equivalent investments in non-poor groups. UNICEF argued that an intensified focus on equity-enhancing policies and investments and monitoring gaps in coverage can not only help countries achieve the Sustainable Development Goal newborn and child mortality targets but also help break intergenerational cycles of poverty. Simply put, "when children are healthy, they are better able to learn in school and can earn more as adults." The UNICEF research was based in LICs; however, the need for actions that reach the poorest most marginalised children and their families applies equally in HICs.

3.2.1 Multi-sectoral life-course interventions

Multi-sectoral life-course interventions, acknowledging that there are critical phases or transitions in the life course when the potential impact may be particularly far-reaching, such as the perinatal period and early childhood, are likely to be most effective when tailored to address major determinants of inequity in particular settings.

In LMICs, evidence-based interventions aimed at addressing maternal and child under-nutrition, a major determinant of inequity, can be delivered through community engagement and delivery strategies that proactively reach poor segments of the population at greatest risk. [50]. These include—peri-conceptional folic acid supplementation or fortification, maternal and infant balanced energy protein supplementation, micro nutrient supplementation in pregnancy, promotion of breast feeding, appropriate complementary feeding, vitamin A and preventive zinc supplementation in children 6‑59 months of age, clinical management of acute malnutrition. These interventions need to be delivered by pro-poor strategies [51]—making services more accessible for the poor such as making use of community-based service delivery, using outreach from existing facilities; increasing the availability of human and material resources in facilities serving the poor and increasing quality of healthcare delivery for the poor. Interventions under strengthening communities aimed at enhancing horizontal social interactions, particularly those targeting women's groups practising participatory learning and action have a strong evidence-base in low resource settings. [52]. Under category 3, improving access to life-enhancing services such as the provision of high-quality early education and stimulation packaged up with early childhood nutrition support is feasible in low resource settings, although coverage is problematic. [53] Category 4, arguably the most important include nutrition-sensitive macroeconomic policy approaches—ie, women's empowerment, agriculture, food systems, education, employment, social protection, and safety nets. [50] For those

in employment, a living wage is essential as is protection against catastrophic out-of-pocket health spending. [54]

3.2.2 Early Childhood Development interventions

Interventions to enhance early childhood development have the potential to reduce inequities. This is explicitly recognised in the resolution adopted by the UN General Assembly (no. 65/197. Rights of the Child, 30 March 2011) stresses the rights of children in early childhood and calls upon all States *" to include, within the overall context of policies and programs for all children within their jurisdiction, appropriate provisions for the realization of the rights of children in early childhood, in particular: (a) To ensure that the rights of the child are fully respected, especially in early childhood, without discrimination on any grounds, including by adopting and/or continuing to implement regulations and measures that ensure the full realization of all their rights; (b) To provide special support and assistance to children in early childhood who are suffering from discrimination or living under especially difficult circumstances, in order to ensure their physical and psychological recovery and social integration and the full realization of their rights within an environment that encourages dignity and self-respect.* [55]

Effective early child development interventions provide direct learning experiences to children and families, are targeted toward younger and disadvantaged children, are of longer duration, high quality, and high intensity, and are integrated with family support, health, nutrition, or educational services.[49][56] Parenting capability and capacity (and that of other members of the family and other caregivers) is central to determining the health and well-being of children and adolescents from preconception on (see also 'Three Generation Approach ' 3.2.3 below). While the health system can play a crucial role in ensuring ECD interventions to all communities and children [51], effective action requires integrated services, with intensive contributions also from sectors such as education, community development, welfare and finance. A particular focus should be on including children in poverty, migrant or minority ethnic groups and children with disabilities. Universal access to opportunities for early promotion and assessment of child development since birth are key to equitable outcomes. Pre-school programmes in the US [57] and in the UK [58], have been shown to enhance early childhood development among disadvantaged children and impact health and wellbeing across the life course. Interventions implemented through inter-sectoral collaboration of health, nutrition, education, and welfare while not targeting early child development alone, can

have long-term health, economic and social benefits (see Table 7 below for essential interventions). [59]

Table 7: Esssential interventions to support early child development. Source [59]

ESSENTIAL INTERVENTIONS TO SUPPORT EARLY CHILD DEVELOPMENT

Preconception care

- Promotion of adequate maternal nutrition
- Maternal immunisation
- Birth spacing
- Cessation of smoking and substance misuse
- Detection of genetic conditions
- Prevention from environmental toxins
- Prevention of intimate partner violence
- Support for mental health

Maternal health

- Antenatal, childbirth, and postnatal care by a skilled provider
- Detection and care for maternal mental health problems

Child health

- Immunisation
- Prevention and integrated management of newborn conditions
- Prevention and integrated management of childhood illnesses
- Counselling on Care for Child Development

Nutrition

- Counselling on infant and young child feeding, management of feeding difficulties, and inadequate growth
- Counselling on Care for Child Development

Adolescent health

- Promoting health literacy and support for healthy lifestyles
- Addressing adolescent health needs and agency for decision making to promote health and development

Violence prevention

- Prevention of child maltreatment
- Prevention of violence in the home and community

Environmental health

- Access to safe water, sanitation, and hygiene
- Access to electricity
- Safe places for play
- Prevention of exposure to toxins such as lead, mercury, and pesticides
- Prevention of indoor and outdoor air pollution

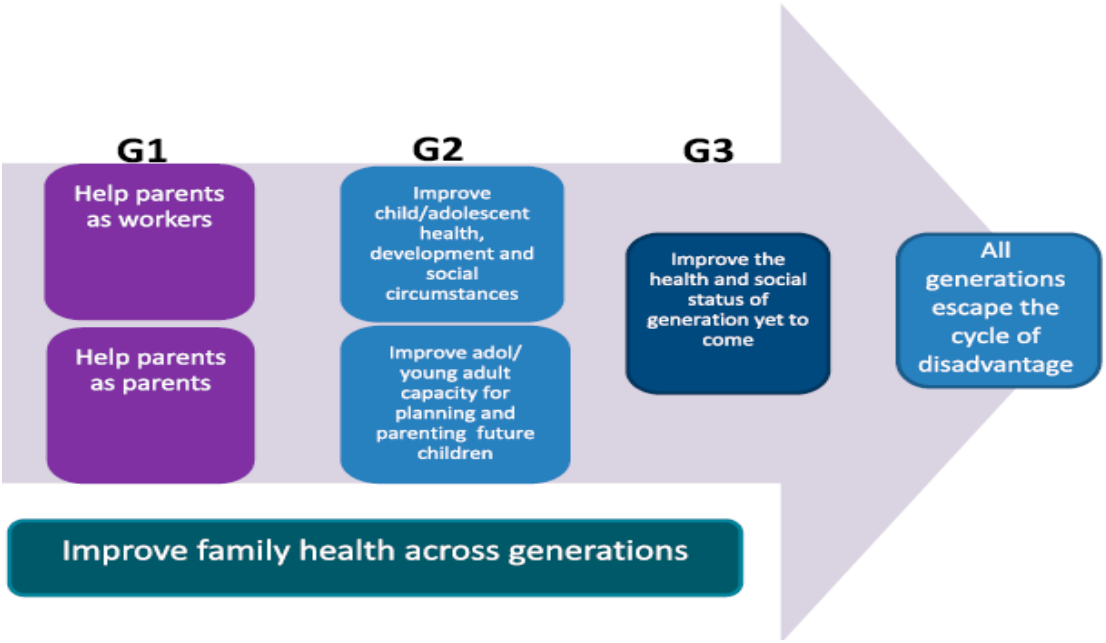
Social protection

- Social help and cash transfer schemes
- Birth registration
- Parental leave and child care
- Child protection services

3.2.3 'Three Generation Approach'

Globally, there is evidence of a cycle of inter-generational disadvantage and the 'Three Generation Approach' is designed to break this cycle looking forward in time toward health promotion of both current and future generations.[22] This approach (Figure 13) has particular implications for clinical care, in that it emphasises childhood, adolescence and young adulthood as critical period during which the health system, social/welfare and education sectors much work together in optimising: 1) young people's capacities for education, employment, productivity; 2) preconception health; 3) reproductive life course planning and 4) parenting capacities.

Figure 13: Three Generation Approach. Source: [22]



G1: Generation 1, Parents; G2: Generation 2, Child; G3: Generation 3, Future offspring; Adol: adolescent

3.2.4 Universal Education

Education provision is an essential Category 4 intervention. A vast and increasing multidisciplinary literature shows that the lack of early education is a major cause of inequity across all dimensions: economic, social and health along the life course. [28][60][61] And, vice versa, that investment in early education for disadvantaged children from birth to age 5 helps reduce the achievement gap, reduce the need for special education, increase the likelihood of healthier lifestyles, lower the crime

rate, and reduce overall social costs. [57] Policies that provide early childhood educational resources to the most disadvantaged children produce greater social and economic equity. [62]

An important and often overlooked aspect is that while important, cognitive abilities alone are not as powerful as a package of cognitive skills and social skills—defined as attentiveness, perseverance, impulse control, and sociability. Therefore, both type of skills need to be pursued in early education, pointing at the importance of the availability of teachers able to work with infants and young children ***and*** their caregivers to provide opportunities to children of cognitive and socio-relational development and to families to develop educational skills. [63]

Adverse impacts of genetic, parental, and environmental resources can be overturned through investments in quality early childhood education that provide children and their parents the resources they need

3.2.5 Universal Healthcare (UHC)

As noted in section 2.4, many children, particularly the poorest, have limited or no access to essential healthcare. For child health equity to be achieved, an essential Category 4 component is access to effective healthcare services. WHO define Universal Healthcare (UHC) as:

"Universal health coverage means all people receiving the health services they need, including health initiatives designed to promote better health (such as anti-tobacco policies), prevent illness (such as vaccinations), and to provide treatment, rehabilitation, and palliative care (such as end-of-life care) of sufficient quality to be effective while at the same time ensuring that the use of these services does not expose the user to financial hardship." [54]

An estimated 400 million people do not receive healthcare consistent with this definition. As the WHO report [54] shows policy approaches differ across LMICs but some, such as Costa Rica, Brazil, and Cuba, have succeeded in ensuring affordable and effective UHC despite relatively limited resources. As Gwatkin, Wagstaff, and Yazbeck demonstrate from case studies in Africa, Asia and Latin America of reaching the poor with health, nutrition and population programs, better performance in reaching the poor is both needed but also feasible. [64] Chopra et al [56] identify a series of bottlenecks (see Table 5) faced by poor and marginalised people in access to and use of health interventions and services which, if not addressed, will lead to increasing inequity.

Table 5 Bottlenecks faced by poor and marginalised. Source [56]

Availability The availability of crucial health system inputs—eg, drugs, vaccines, supplies, human resources. This information is usually obtained from stock registers, personnel information systems, and facility surveys.
Accessibility The conditions determining physical access to health services, including the presence of trained human resources at community level, the number of villages reached at least monthly by outreach services, and the time taken to reach a facility providing basic and emergency obstetric and neonatal care services.
Utilisation The first use of multicontact services—eg, first antenatal contact or tuberculosis immunisation. Household surveys and service statistics reported at facilities are the main sources of information. Financial, cultural, social, and structural factors prevent people from using available services.
Continuity The extent of achievement of the full course of contact or intervention necessary to be fully effective—eg, the proportion of women receiving four antenatal contacts. Data come from administrative and household surveys.
Effective coverage An amalgamation of both utilisation and quality, effective coverage is defined as a minimum amount of inputs and processes that are expected to produce desired health effects when used by individuals or applied to the population at large. In some cases, effective coverage is assessed as the proportion of timely continuous use coverage with high-quality inputs, because low-quality inputs are not expected to deliver the desired result. Demographic and health surveys, facility surveys, and expert opinion are frequent sources of these data.

Investments that increase access to high-impact health and nutrition interventions by poor groups have saved almost twice as many lives as equivalent investments in non-poor groups. [49] The key practical, high-impact, and, for the most part, low-cost health interventions include: insecticide-treated nets to prevent malaria; oral rehydration salts to treat diarrhoea; early immunization against vaccine-preventable diseases; primary and community-based health services such as skilled birth attendants to reduce complications during labour and delivery; early initiation of breastfeeding continuing for the first six months of life; and care-seeking by parents of young children to treat illness. We know from the Countdown to 2015 report that community-based interventions are more equally distributed than those delivered in health facilities. [20] Besides providing specific interventions, quality primary healthcare when ensured in all its dimensions (access/first contact care, comprehensiveness, longitudinality and coordination with other health and non-health services) may strongly contribute to more equitable outcomes in child health and development . [65]

3.2.6 National and international economic and social policies

National and international economic and social policies are arguably the most important Category 4 determinants of inequities. The role of growth in national income, usually expressed as Gross Domestic Product/capita (GDP), in relation to population health status has been disputed. A systematic review and meta-analysis of studies from developing countries of the relationship of national income and infant mortality concludes that income is an important determinant of child survival. [66] The findings indicate that if a country has an infant mortality of 50 per 1000 live births and the gross domestic product per capita purchasing power parity increases by 10%, the infant mortality will decrease to 45 per 1000 live births. Although GDP/capita is an important determinant of child survival, governments in LMICs, such as Cuba [67], Costa Rica [68], and the Indian state of Kerala [69], can use their limited resources effectively to improve child health. Growth alone without pro-poor policies may improve child survival overall but increase inequity. [70]
A country's GDP per capita is highly correlated with government revenue per capita, and government revenue, as well as the level of governance determines how well a country can provide for their citizens with the social determinants of health. An important point of loss from government revenue includes tax avoidance by multi-national companies, which may drain vital government revenue from LMICs by shifting profit out of low income countries into tax havens in order to minimise the profit upon which they are taxed. [71] Tax incentives are granted to attract foreign direct investment in order to fund development. It is important for countries to strike the balance between generating enough tax to invest in infrastructure (which is essential to attract foreign investment) and yet avoid a race to the bottom in terms of tax competition where the only beneficiaries are the shareholders of multinational companies. [71] When the combined loss of income of these are considered, along with corruption and debt servicing, O'Hare et al [71] estimate, using the percentage change in Under 5 Mortality associated with 1% change in GDP/capita, that all sub-Saharan countries except Zimbabwe would have achieved MDG target by 2015.

HICs and their arms industries must bear part of the responsibility for the devastation and impoverishment due to wars and use of scarce resources to buy armaments; in 2011, arms transfer agreements to developing countries amounted to USD 71.5bn and arms deliveries to USD 28bn. [72] Structural Adjustment Programmes (SAPs), imposed on developing countries by HICs through the international Monetary Fund (IMF) throughout the 1980s and 90s, have now broadly been abandoned but their legacy of "*short-term, profit-maximization models that perpetuate poverty,*

inequality, and environmental degradation" [73] persists. Policies in HICs need to be directed at reducing these huge burdens on LMICs.

Pro-poor policies introduced by governments have been shown to reduce inequity in child health in LMICS. Conditional Cash Transfer programmes have been shown to have wide-ranging effects. They have increased the educational achievements of poor families [74] and had spill over effects on the educational achievements of non-poor families [75] ; created multiplier effects of transfers through self-investment [76]; improved the health status of mother and children [77]; reduced nutritional deficiency [78 increased local economies [79]; and further reduced inequality and poverty. [80]
There is also evidence of short to medium term impact on poor households with evidence of reduction in inequity in uptake of preventive child health services including immunisation [81] and, in the longer term, sustained improvement in education and achievement among poor boys stretching into early adulthood. [82]

Children in HICs, in contrast to many in LMICs, experience relatively good health and long life expectancy; however, there are marked differences between countries which are related to social and economic policy. Differences in social structures and social protection policies result in differences in exposure to risk and the factors that promote child health inequities.
A key structural factor influencing health inequities in HICs is inequality of income and wealth. The gap between rich and poor has increased over the last 30 years in most HICs [83]; however, there is significant variation in the extent of income and wealth inequality (see Figures 13 & 14). [84]
The variations in inequality, measured by Gini Coefficient and ratio of income share by top and bottom 10% (Figure 13), across countries have an influence on health inequities through exposure to or protection from risk. Inequalities in wealth which are considerably wider than income inequalities (Figure 14) reflect inequalities in access to resources, such as housing, education and, in some HICS, healthcare, that promote health and well-being.
Measures to reverse the upward trend in income and wealth inequality in HICs are essential to reduce child health inequities.

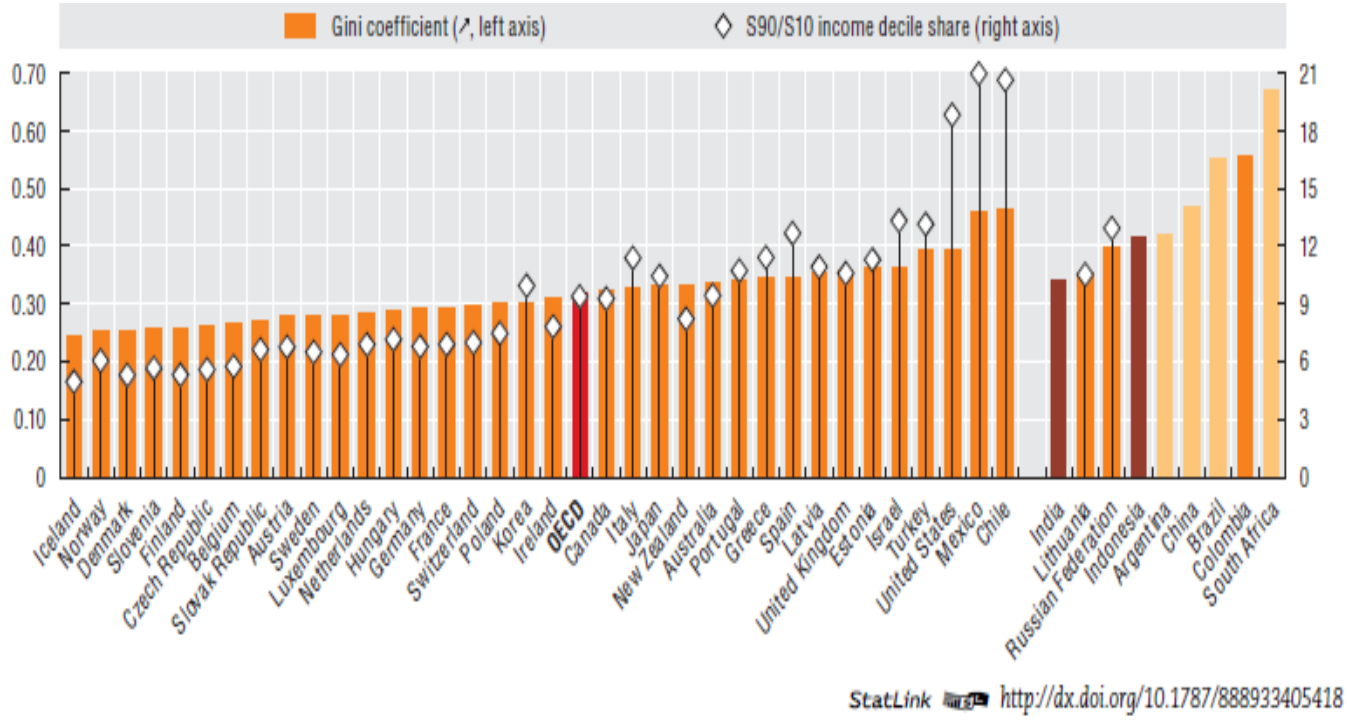


Figure 14: Gini coefficient of household disposable income and gap between richest and poorest 10%, in 2014 (or nearest year). Source [84]

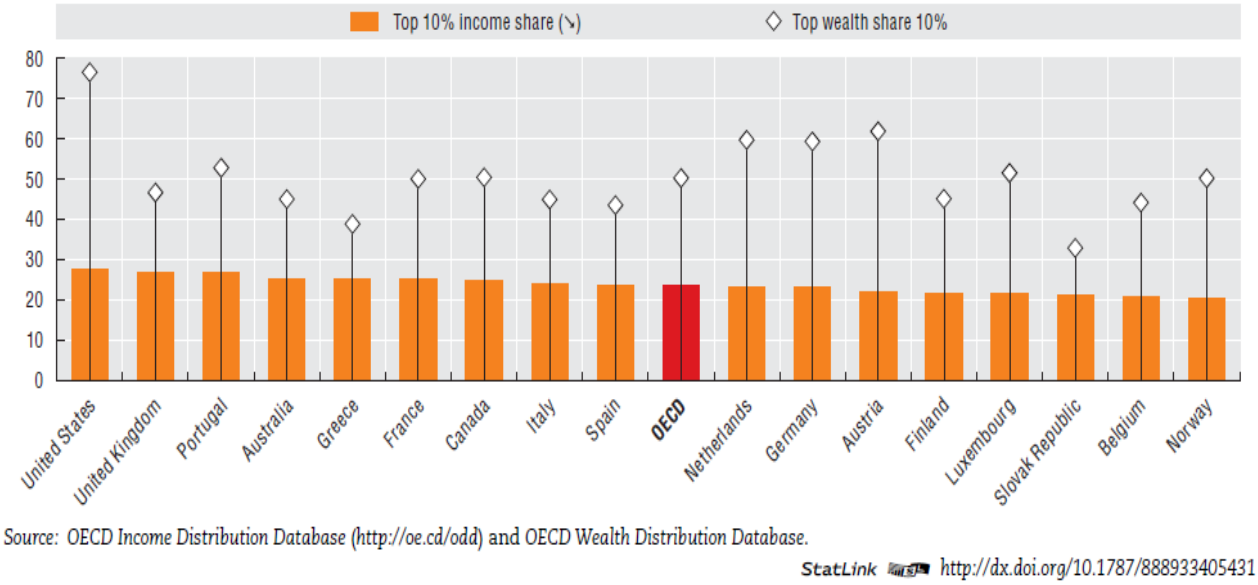


Figure 15: Share of top 10% of household disposable income and top 10% of household net wealth, 2012 (or nearest year) Source [84]

Variation of child poverty rates in HICs (see Figure 2) arise as a consequence of policy decisions. A UNICEF report in 2005 [85] found *that "no OECD country devoting 10 per cent or more of GDP to social transfers has a child poverty rate higher than 10 per cent. No country devoting less than 5 per cent of GDP to such transfers has a child poverty rate of less than 15 per cent."* As child poverty rates are associated with poorer child health outcomes (see Figure 2), higher social transfers and enhanced social protection for children would be an important step towards child health equity in those HICs with high child poverty rates.

The importance of poverty reduction and the role of income in child health and well-being is demonstrated by a systematic review of the literature examining the relationship between household financial resources and children's outcomes in rich nations [86] from which the authors conclude:

"The studies provide strong evidence that income has causal effects on a wide range of children's outcomes, especially in households on low incomes to begin with. We conclude that reducing income poverty can be expected to have a significant impact on children's environment and on their development."

4. **What we are calling for?**

4.*1 Advocacy/Promotion of equity*

There is wide acceptance among health professionals, NGOs and many decision makers that the inequities highlighted in this statement are unjust and hugely wasteful of human potential and resources; however, despite increased understanding of effective policy interventions to promote equity both in LMICs and HICs, action remains limited and inadequate to the scale of the problem. International, national and local paediatric and child health professional organisations and individual practitioners can use the evidence on effective interventions and the positive impact of greater equity on the lives of children and future generations to advocate for equity.

Paediatric organisations in the US (https://www.academicpeds.org/taskforces/TaskForceCP.cfm) and the UK (https://www.rcpch.ac.uk/state-of-child-health) are addressing the health implications of child poverty and the gap between rich and poor and advocating for policy solutions aimed at reducing child poverty rates.

4.2 *Monitoring*

Effective advocacy depends on robust data. Paediatricians and their organisations can contribute to data collection on the impact of inequity on child health and well-being both in their individual practice [http://www.bacaph.org.uk/advocacy/child-poverty-actions-for-all] and nationally through their organisations. Local and national trends in inequity in common child health and well-being outcomes provide valuable data with which to inform policy makers. In some HICs, with highly developed data linkage systems and well-designed national population-based repeated cross-sectional and cohort studies, local and national trend data can be obtained relatively easily. In LMICs and HICs with less developed data collection systems, multi-agency working groups involving child health and public health professionals can be formed to collect data. DHS and MICS surveys, repeated in many LMICs every five years, provide trend data which can inform advocacy at regional and national levels.

4.3 *Policy focused research*

There has been an upsurge in equity-related research in recent years particularly following the report of the WHO Commission on SDH. [1] As outlined in sections 3.2.1 and 3.3.1 above, there is a body of macro-level policy research in both LMICs and HICs; however, studies of equity in the delivery of health care interventions rather than at government policy level tend to dominate. There are evidence-based healthcare interventions which, if delivered to scale, would be pro-equity in their effect [42]; however, the major barrier to delivery of these interventions to the poorest children and their families is lack of political will at government level. There needs to be more attention to research on policy at national and international levels and identify evidence-based pro-equity policy initiatives, including ways of overcoming barriers to universal access to healthcare so poor children can benefit from proven healthcare interventions. Policy focused research is more extensive in HICs but tends to be adult focused; more work is needed on policy interventions in these countries that have been shown to promote child health equity.

5. **Recommendations**

5.1. *For Governments*

1. Recognize that child poverty is detrimental to health and well-being across the life course and act to reduce child poverty rates

2. Continue with or urgently enact policies designed to reduce inequities in child health and development in line with the recommendations of the WHO CSDH Report [1]
3. Commit to implementing Sustainability and Development Goals (SDG) Poverty targets including:
   a. Diminishing poverty by 50 percent by 2030
   b. Implementing appropriate social protection systems for the poor
   c. Ensuring equal access to economic resources
   d. Mobilizing resources for the poor
4. Recognize that inequity in health is a violation of children's rights under the UN Convention on the Rights of the Child and ensure that the rights of all children, to healthcare, education and social protection are fully protected
5. Ensure that the basic determinants of health such as adequate nutrition, education, clean water and sanitation are available to all children and their parents/families/communities

5.2. *For Paediatricians & child health professionals*

The College of Family Physicians of Canada has a simple schema for clinicians to engage with and act on inequities and the social determinants of health. [87] There are three levels at which paediatricians can act.

1. **Micro—in practice:** At the individual level, clinicians can regularly screen patients and families for poverty and intervene where necessary by using tools such as the Poverty Intervention Tool (Ontario specific, but there are other examples). Paediatricians could proactively make efforts to ensure their clinical services or practices are accessible and acceptable to all children and families, especially marginalized populations. Clinicians can offer flexibility in appointment times to vulnerable groups and allow sufficient appointment length to address complexities. Clinical models of care that are multi-disciplinary and team based are more necessary for marginalised populations and having access to social welfare services is essential.
2. **Meso—in communities:** At this level paediatricians can do a range of things, including collecting and utilising data on their local population's health and well-being; promoting

undergraduate and postgraduate experiential learning on the social determinants of health; and engage in advocacy at a community level.

3. **Macro—looking upstream:** Paediatricians and other clinicians occupy a unique place of privilege and position in society and thus are ideally placed to form advocacy groups or networks. Paediatricians need to take a strong stance on poverty and advocacy efforts should be directed at municipal, provincial, territorial, and federal levels of government. Paediatricians can engage with their own and other medical, health care, and social service organizations to provide organizational advocacy to work on improving the social determinants of health.

5.3. *For National and International Paediatric and Child Health Professional Organisations*

1. Ensure their members and constituent bodies are made aware of the impact of inequities on the health and well-being of children and across the life course
2. Include global child health inequities in their national programmes and curriculums for medical students and paediatricians in training
3. Publish policy statements relevant to their country or regional setting highlighting the impact of inequities on child health and well-being
4. Advocate for evidence-based pro-equity interventions with policy makers at national, regional or global level using a child rights perspective
5. Promote and institute data collection and policy focused research to monitor inequity in their child populations and to study social policy responses interventions that promote equity in child health and well-being

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