Disease Control Priorities History

- 1993 World Development Report

- *Disease Control Priorities in Developing Countries, Second Edition* 2006 (DCP2)

- *Disease Control Priorities, 3rd Edition* 2015-2018 (DCP3)
Overarching Purpose of DCP3

• Summarize and synthesize evidence of the effectiveness and cost-effectiveness of global health interventions.

• Introduce new methods for setting health priorities and policies in poor and middle-income countries.
### DCP3 Volume Topics

<table>
<thead>
<tr>
<th></th>
<th>Topic</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Essential Surgery</td>
<td>2015</td>
</tr>
<tr>
<td>2</td>
<td>Reproductive, Maternal, Newborn and Child Health</td>
<td>2016</td>
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<td>3</td>
<td>Cancer</td>
<td>2015</td>
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<td>4</td>
<td>Mental, Neurological, and Substance Use Disorders</td>
<td>2015</td>
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<tr>
<td>5</td>
<td>Cardiovascular, Respiratory, Renal and Endocrine Disorders</td>
<td>2017</td>
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<td>6</td>
<td>HIV/AIDS, STIs, Tuberculosis and Malaria</td>
<td>2017</td>
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<tr>
<td>7</td>
<td>Injury Prevention and Environmental Health</td>
<td>2017</td>
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<tr>
<td>8</td>
<td>Child and Adolescent Health and Development</td>
<td>2017</td>
</tr>
<tr>
<td>9</td>
<td>Disease Control Priorities: Improving Health &amp; Reducing Poverty</td>
<td>2018</td>
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</tbody>
</table>
DCP3 by the Numbers

9 → Volumes
7 → Years
33 → Editors
170+ → Chapters
500+ → Authors
Multiple Volumes, Common Elements

9 DCP3 Volumes

- Essential Packages
- Intervention Effectiveness
- Uniform Economic Evaluation
- Policies & Platforms
- Priority setting
- Burden of Disease
Who is DCP3 for?

- Policymakers
- Researchers and Academics
- Professional bodies and practitioners
- Students
- Global health funders and program implementers
Volume 8: Child and Adolescent Health and Development

Editors:
Donald A.P. Bundy
Nilanthi de Silva
Susan Horton
Dean T. Jamison
George C. Patton

Published November 2017
Child and Adolescent Health and Development Volume encompasses:

- Geographic patterns of risk and morbidity
- Long-term consequences of chronic illness and malnutrition on physical and cognitive development
- Effect of interventions and outcomes as well as return on investment at different stages along the life cycle
Strengthening Evidence on Child and Adolescent Health and Development

The realization of human potential for development requires age-specific investment throughout the 1000 days of childhood and adolescence. This investment is also required in later phases: the middle childhood growth and consolidation phase (5-9 years), when infection and malnutrition continue, growth and mortality is higher than previously recognized; the adolescent growth spurt (10-14 years), when substantial changes place communities demands on good diet and health; and the adolescent phase of growth and consolidation (15-19 years), when new responses are needed to support brain maturation, intense social engagement, and emotional control. Two core interventions, one delivered through schools and one focusing on early adolescence, would provide place-specific support across the life cycle, securing the gains of investment in the first 1000 days, enabling substantial catchup from early growth falter, and leveraging improved learning from concurrent education investments.

Introduction

Society and the common legal definition seem to have different meanings for children and adolescents. The evidence shows a need to invest in the crucial development period from conception to 2 years (the first 1000 days) and during important phases over the next 7 years. The fact that infants are not merely small adults—despite appearing similar at birth—means that adolescents require specific interventions. To ensure that their journey begins right is essential, but provision of support to guide development during the next 1000 days is also essential in achieving full potential as adults. One theme of this report is how research and action on child health and development should evolve from a narrower emphasis on the first 1000 days to an approach that encompasses the needs across the life cycle.

We present an overview of the analyses and sections of the World Health Organization's Child and Adolescent Health and Development. This section identifies cost-effective, scalable health interventions during middle childhood (5-9 years) and adolescence that can promote physical, cognitive, and emotional development. In 30 chapters, the volume explores the health and developmental needs of individuals in middle childhood and adolescence and presents evidence for the package of interventions to address priority health needs, including in other work in this area, such as the Lancet Commission on adolescent health and well-being. The analysis suggests that modest health investments are essential to achieve maximum benefit from investments in schooling for individuals aged 5-19 years, such as those proposed by the International Commission on Financing for Children’s Education and Children’s Opportunity, Volume 8 shares contributions to both Commisions, and complements volume 2 in the DFID series. Reproduction.
Policy Forums with WHO EMRO, China Development Research Foundation, and the African Union
Returns to a unit dollar invested

Main Messages

• It takes some 8000 days for a child to develop into an adult.
• Focus on the first 1000 days is an essential but insufficient investment
• Sensitive phases shape development throughout this period, and age-appropriate and condition-specific support is required throughout if a child is to achieve full potential as an adult.
Human development to 20 years of age

A. Height gain

B. Change in brain development

C. Percentage change in volume as a proportion of prepubertal volume for each structure (for males)
Nomenclature concerning age and four key phases of child and adolescent development
# Key phases of child and adolescent health and development

<table>
<thead>
<tr>
<th>Phase</th>
<th>Period</th>
<th>Developmental Importance</th>
<th>Examples of Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 1000 days</td>
<td>Ages -9 months to age 2</td>
<td>Most rapid growth of body and brain</td>
<td>Responsive stimulation</td>
</tr>
<tr>
<td>Middle childhood growth and consolidation</td>
<td>Ages 5 to 9 years</td>
<td>Steady physical growth of body while sensorimotor brain function develops</td>
<td>Infection control, diet quality, and promotion of healthy behaviors</td>
</tr>
<tr>
<td>Adolescent growth spurt</td>
<td>Ages 10 to 14 years</td>
<td>Rapid physical growth and rapid growth of centers for emotional development</td>
<td>Vaccination, physical exercise, and promotion of healthy emotional development</td>
</tr>
<tr>
<td>Adolescent growth and consolidation</td>
<td>Ages 15 to 19 years</td>
<td>Consolidation of physical growth and especially of links in the brain</td>
<td>Reproductive health, incentives to stay in school, protection from excessive risk taking, and early identification of mental health issues</td>
</tr>
</tbody>
</table>
Two essential packages (5-19 years)

- The volume proposes two essential packages for ages 5-19 years:
  - School-age package (5-14 years): utilizes pre-primary and primary schools to address health needs in middle childhood and early adolescence
  - Adolescent package (15-19 years): utilizes a mixed approach involving the community, secondary schools, media and health systems
Indicative rate of school enrollment in low- and lower-middle-income countries
Programs in China Across the 8,000 Days

**Education**
- Mommy Schools
- Parenting Program
- Village Early Education Center
- E-Learning in Rural Primary Schools
- Secondary Vocational Training

**Health**
- Nutrition for Pregnant Women
- Breastfeeding and Nutrition Package
- Preschool Nutrition
- School Nutrition Improvement Initiative
- Mental Health

-9 months 0 years 3 years 6 years 15+ years
Figure 25.2  Indicative Mapping of Benefits and Costs of Essential Package Interventions

- Deworming treatment
- Malaria prevention
- Tetanus toxoid vaccine
- Oral health promotion
- HPV vaccine
- Vision screening
- School feeding

Cost

- Targeted by age or geographically
- Not targeted

Note: HPV = human papillomavirus.

Figure 25.3  Cost Shares of the Essential Package, by Country Income Level

U.S. dollars

- a. Low-income countries
  - School feeding
  - Vision screening
  - Deworming
  - Health education
  - Vaccines
  - Total: $8.20
- b. Lower-middle-income countries
  - School feeding
  - Vision screening
  - Deworming
  - Health education
  - Vaccines
  - Total: $17.33
Working across health and education

• Well designed health interventions in middle childhood and adolescence can leverage the current substantial investment in education, and improved design of educational programs can improve health.

• The potential synergy between health and education is undervalued and the returns on co-investment are rarely optimized.
Median significant effect sizes on education outcomes
Decline in mortality attributable to increases in female schooling, 1970-2010
Optimizing Education Outcomes: High Return Investments in School Health for Increased Participation and Learning

Editors:
Donald Bundy
Nilanthi de Silva
Susan Horton
Dean T Jamison
George Patton

Forthcoming: March 2018
Estimates of public spending on children and adolescents in LLMICs (US$ billion per year)

- **Investment in education**: 210 Billion
- **Investment in health and nutrition**: 1.4 Billion – 3.5 Billion
- **Investment in children under 5**: 29 Billion
Key message about research

• There is asymmetry in research, policy and intervention, with 95% of publications on young people focusing on children under 5 years of age

• Current policy on health and development has substantially neglected and under-served children in the 5-19 age range

• Children between ages 5-9 are the least researched group
Research disparity in health and development after age 5

<table>
<thead>
<tr>
<th></th>
<th>Google Scholar</th>
<th></th>
<th>PubMed</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mortality</td>
<td>Cause of death</td>
<td>Health</td>
<td>Mortality</td>
<td>Cause of death</td>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>&lt;5 years*</td>
<td>939400</td>
<td>55900</td>
<td>2705100</td>
<td>98836</td>
<td>8374</td>
<td>129332</td>
<td>99.17</td>
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<tr>
<td>5–9 years</td>
<td>1520</td>
<td>405</td>
<td>3240</td>
<td>3262</td>
<td>383</td>
<td>4751</td>
<td>5.12</td>
</tr>
<tr>
<td>10–14 years</td>
<td>2760</td>
<td>784</td>
<td>6120</td>
<td>333</td>
<td>65</td>
<td>750</td>
<td>0.52</td>
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<tr>
<td>15–19 years</td>
<td>7050</td>
<td>1990</td>
<td>13300</td>
<td>261</td>
<td>59</td>
<td>829</td>
<td>0.41</td>
</tr>
<tr>
<td>Total</td>
<td>950730</td>
<td>59079</td>
<td>2727760</td>
<td>63692</td>
<td>8881</td>
<td>135741</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note: The number of articles for Google Scholar and PubMed is rounded to the nearest whole number.
Proportion of country population composed of children in middle childhood (ages 5 to 9 years)
Main Messages

• It takes some 8000 days for a child to develop into an adult.

• Focus on the first 1000 days is an essential but insufficient investment.

• Sensitive phases shape development, and age-appropriate support is required if a child is to achieve full potential as an adult.
THANK YOU

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## School-age essential package (5-14 years)

<table>
<thead>
<tr>
<th></th>
<th>Primary health centre</th>
<th>School</th>
<th>Benefit of intervention delivery in schools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deworming</td>
<td>Deworming</td>
<td>Deworming</td>
<td>In endemic areas, regular deworming (following WHO guidelines) can be done inexpensively in schools since most deworming drugs are donated; benefits in school attendance has been reported as a result</td>
</tr>
<tr>
<td>Insecticide-treated net promotion</td>
<td>Insecticide-treated net promotion</td>
<td>Insecticide-treated net promotion</td>
<td>Education about the use of insecticide-treated nets in endemic areas is important because schoolchildren tend to use nets less often than mothers and small children.</td>
</tr>
<tr>
<td>Tetanus toxoid and HPV vaccination</td>
<td>Tetanus toxoid and HPV vaccination</td>
<td>Tetanus toxoid and HPV vaccination</td>
<td>Schools can be a good venue for administration of tetanus boosters, which benefit young people and babies born to those young women.</td>
</tr>
<tr>
<td>Oral health promotion</td>
<td>Oral health promotion and treatment</td>
<td>Oral health promotion</td>
<td>Education on oral health is important; poor households generally cannot afford dental treatment.</td>
</tr>
<tr>
<td>Correcting refractive error</td>
<td>Vision screening and provision of glasses</td>
<td>Vision screening and provision of glasses</td>
<td>Vision screening and provision of inexpensive ready-made glasses boost school performance</td>
</tr>
<tr>
<td><strong>Diet</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micronutrient supplementation</td>
<td>··</td>
<td>Micronutrient supplementation</td>
<td>Supports learning</td>
</tr>
<tr>
<td>Multifortified foods</td>
<td>··</td>
<td>Multifortified foods</td>
<td>Supports learning</td>
</tr>
<tr>
<td>Food provision</td>
<td>··</td>
<td>School feeding</td>
<td>School meals promote attendance and education outcomes</td>
</tr>
</tbody>
</table>
**Adolescent essential package (10-19 years)**

<table>
<thead>
<tr>
<th>Population</th>
<th>Community</th>
<th>Primary health centre</th>
<th>School</th>
<th>Benefit of intervention delivery in schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical health</td>
<td>Healthy lifestyle messages: tobacco, alcohol, injury, and accident avoidance and safety</td>
<td>Adolescent-friendly health services</td>
<td>Healthy lifestyle education including accident avoidance and safety</td>
<td>National media messages on healthy life choices designed to appeal to adolescents, combined with national policy efforts to support healthy choices (i.e. limit adolescent access to products most harmful to their health)</td>
</tr>
<tr>
<td>Sexual health messages</td>
<td>Adolescent-friendly health services</td>
<td>Adolescent-friendly health services</td>
<td>Sexual health education</td>
<td>Additional health education in schools aimed at issues relevant to older ages (15–19 years) in countries with higher levels of secondary completion, intended to supplement earlier messages for children aged 10–14 years in the school-age package</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Nutrition education messages</td>
<td>Adolescent-friendly health services</td>
<td>Nutrition education</td>
<td>Provision of adolescent-friendly health services within schools or health-care facilities that respect adolescent needs</td>
</tr>
<tr>
<td>Mental health</td>
<td>Mental health messages</td>
<td>Mental health treatment</td>
<td>Mental health education and counselling</td>
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</tr>
</tbody>
</table>