



## AFRICAN STRATEGIES FOR HEALTH



Photo by Pinky Patel, USAID

# MEETING THE HEALTH NEEDS OF FIVE TO NINE YEAR OLDS IN AFRICA

Significant global investment in preventative and life-saving interventions for children under five years of age, such as immunization, integrated community case management (iCCM), and prevention of mother to child transmission (PMTCT) of HIV/AIDS, has greatly contributed to the reduction of the global child mortality rate by two-thirds. Between 1990 and 2013, the average annual reduction accelerated and the global under-five mortality rate dropped by 49 percent.<sup>1</sup> The success in child mortality reduction means that more children are surviving into primary school age – approximately 135 million children in

sub-Saharan Africa alone.<sup>2</sup> Additionally, given today's generation of young people being the largest in history, health investments in the youth population (ages 10-24) have increased.<sup>3</sup> This has excluded five to nine year olds (5-9 YOs), creating a gap in the health continuum of care that should extend from birth through adulthood.

The intensive focus on the health of children under five years of age and youth is in distinct contrast to the minimal attention given by the global community to the health of 5-9 YOs, an age cohort just entering the formal education system when good health and nutrition is critical to both their current and future educational achievement, physical and intellectual growth, and overall development. This discussion brief seeks to raise awareness about the health issues affecting 5-9 YOs and initiate dialogue on potential opportunities for health programming directed toward this cohort.

### Health Status of Five to Nine Year Olds

Data regarding the health of 5-9 YOs is limited and not as readily available as that of newborns, under-fives, youth, or women of reproductive age. The lack of research on and monitoring of this cohort is likely because mortality and morbidity rates drop significantly once children reach five years of age (the mortality risk for 5-9 YOs is 12 percent that of under-fives), while health-related risks, particularly related to sexual and reproductive health, increase when a child reaches adolescence.<sup>4,5</sup> Whenever possible, data specific to 5-9 YOs are utilized; however, when unavailable, data for children 5-14 years of age or for school-aged children are used as a proxy.

### ABOUT ASH

African Strategies for Health (ASH) is a five-year project funded by the U.S. Agency for International Development's (USAID) Bureau for Africa and implemented by Management Sciences for Health. ASH works to improve the health status of populations across Africa through identifying and advocating for best practices, enhancing technical capacity, and engaging African regional institutions to address health issues in a sustainable manner. ASH provides information on trends and developments on the continent to USAID and other development partners to enhance decision-making regarding investments in health.

## Mortality

Infectious and parasitic diseases cause nearly half (46.6 percent) of all deaths among children aged 5 to 14 in the African region according to World Bank Global Health Estimates; the largest contributors in this category are diarrheal diseases and HIV/AIDS. Non-communicable diseases, such as cancers, cardiovascular diseases, and neurological conditions, account for 18.6 percent of mortality among this age cohort while almost 20 percent of mortality is due to injury or violence. The remaining causes of mortality include respiratory infections (8.5 percent) and nutritional deficiencies (6.4 percent).<sup>6</sup>

- **Diarrheal Disease** While 11 percent of deaths in school-age children are attributed to diarrheal disease, there are limited data which show the specific causes of diarrheal disease in this age group.<sup>7, 8, 9</sup> Rotavirus, *E coli*, *Shigellae*, and *Vibrio cholerae* are among the pathogens which cause a large percentage of diarrheal disease worldwide, but their contribution to diarrhea incidence and mortality among 5-9YO is challenging to estimate due to scarcity of data.<sup>10</sup> Providing access to clean, safe drinking water and adequate sanitation facilities and increasing knowledge of basic hygiene practices are strategies for preventing diarrheal disease; vaccines for cholera and rotavirus have also been developed and are recommended for use in endemic areas.<sup>11</sup>
- **HIV/AIDS** Approximately 11 percent of all deaths among school-aged children are due to HIV/AIDS.<sup>12</sup> Additionally, an estimated 3.2 million children under 15 were living with HIV in 2013, the vast majority of whom are in sub-Saharan Africa. These children are less than half as likely as HIV-positive adults to receive antiretroviral treatment.<sup>13</sup> Improving diagnosis and comprehensive treatment and care for children exposed to or infected with HIV is critical to avert preventable deaths.<sup>14</sup>
- **Injury and Violence** Among children aged 5-14 years, road injuries are a leading cause of death in sub-Saharan Africa, and a top 10 cause of death in all its sub-regions.<sup>15</sup> Pedestrians aged 10 years and below are particularly vulnerable to road injuries because of their small physical size and underdeveloped abilities to deal with traffic situations, both cognitively (attention focus, interpreting signs) and perceptually (locating sounds, judging speed, peripheral vision).<sup>16, 17</sup> Although reliable data are extremely scarce, it is estimated that approximately 2.1 percent of deaths among 5-14 year olds in Africa in 2012 were due to intentional injury or violence.<sup>18</sup>

## Morbidity

Many of the diseases and nutritional deficiencies from which school-aged children suffer have significant negative consequences on both a child's short and long-term development. Table 1 shows the top ten causes of disability adjusted life years (DALYs) amongst children 5-9 years of age in sub-Saharan Africa in 2010. While not specified in the DALYs table, approximately one-third of all school-age children suffer from helminth infections, which are a leading underlying cause of nutritional deficiencies such as anemia and contribute to increased susceptibility to infectious diseases such as diarrhea.<sup>19</sup>

Table 1. Top Ten Causes of DALYs, 5-9 YOs, sub-Saharan Africa, 2010<sup>20</sup>

1. Malaria	6. Road injury
2. HIV/AIDS	7. Meningitis
3. Iron-deficiency anemia	8. Asthma
4. Diarrheal disease	9. Protein-energy malnutrition
5. Lower respiratory infections	10. Epilepsy

- **Malaria** According to the 2010 DALYs, malaria is the leading cause of morbidity, and approximately 200 million school-aged children in sub-Saharan Africa are at risk of infection.<sup>21</sup> A study conducted in Kenya found that primary school students miss 11 percent of school days each year due to malaria, the equivalent of between 4 and 10 million days per year.<sup>22</sup> Estimates also suggest that 6 to 9 percent of malaria deaths in Africa occur in school-age children, numbering between 70,000 and 110,000 deaths per year.<sup>23</sup>
- **Malnutrition, Underweight, and Stunting** Stunting is the physical manifestation of chronic or long-term undernutrition and has been linked to poor mental development, delayed onset of puberty, and late enrollment in primary school.<sup>24</sup> Underweight is an indicator for both chronic and acute undernutrition and is also common among school-age children. A large study of rural school-age children in several low-income countries found the overall prevalence of both stunting and underweight to be between 48 and 56 percent and 34 to 62 percent, respectively.<sup>25</sup>
- **Micronutrient Deficiency** Nutritional anemia, particularly deficiencies of iron, iodine, and vitamin A, is a significant health issue for school-age children, with multiple micronutrient deficiencies commonplace. Research shows that these deficiencies have a negative impact on growth, increase susceptibility to infection, and impair mental development and learning ability. Iron deficiency is the most common of these deficiencies in school-age children and is caused by inadequate diet and infection.<sup>26</sup> It is estimated that more than half of school-age children in low-income countries suffer from iron deficiency anemia.<sup>27</sup>
- **Helminths and Intestinal Worms** It is estimated that between 55 and 61 percent of 5-9 YOs in Africa are infected with one or more of the major helminth species.<sup>28</sup> The intestinal worms *Ascaris lumbricoides* (roundworm) and *Trichuris trichiura* (whipworm) account for an estimated 12 and 11 percent, respectively, of the total disease burden for this age group, making these two worm infections the single largest contributor to the disease burden of this age group.<sup>29</sup>

## Reaching Five to Nine Year Olds in Africa with Health Programming

All of the major diseases and nutritional deficiencies affecting the 5-9 YO age group are both preventable and treatable through evidence-based interventions including vaccines, antibiotics, nutritional supplements, improved hygiene, and behavior change communication. Furthermore, platforms to reach this age cohort with evidence-based interventions at scale already exist.

## School Health and Nutrition Programs

As under-five mortality rates continue to decline, an increased number of children are entering the school system, which presents a “one-stop shop” opportunity to reach children with an integrated package of health services during their formative years.

Comprehensive school-based health and nutrition programs (SHNPs) typically 1) target the health of school-age children, who often lack health services; 2) use the education infrastructure to maximize efficiency and cost-effectiveness in reaching school-age children; 3) target education and learning outcomes as the primary reason for investing in school health programs; 4) target interventions on problems that are particularly acute for the school-age population; and 5) focus energies on simple health-related interventions that teachers and community members can implement on their own, sometimes in collaboration with local health professionals.

- **School Health and Nutrition Interventions** Table 2 lists interventions commonly found in a school health and nutrition package. It is important to note that several of these interventions address more than just one condition. For example, worm infection is not only addressed through deworming services, but also through the provision of latrines, the promotion of handwashing, and relevant health and hygiene education. Likewise, HIV/AIDS infection prevention is addressed through skills-based health education, including life skills, and peer education. Other interventions have a single focus, such as iron supplementation for prevention of anemia.<sup>30</sup>
- **Economic Benefits of School Health and Nutrition Programs** SHNPs not only improve the immediate health and well-being of children receiving services, but also educational attainment and achievement by ensuring children are healthy enough to be present, ready, and able to learn. According to the “life course approach,” which postulates that “biological

and social factors throughout life independently, cumulatively, and interactively influence health and disease in adult life”, SHNPs can impact an individual’s future health status thus influencing their future economic prosperity.<sup>31</sup> A review of a wide range of studies on individual wage earnings found that in sub-Saharan Africa, for every additional year of school there was a 12 percent rate of return on earnings.<sup>32</sup> Increased and improved educational attainment also yields benefits beyond individual economic gains. Each additional year of schooling contributes to a 0.37 percent increase in a nation’s GDP.<sup>33</sup> One year of extra education for girls can lead to a reduction of 5 to 10 percent in infant mortality.<sup>34</sup> Additionally, five extra years of education for women in Africa could reduce infant mortality by up to 40 percent.<sup>35</sup> The potential impact of school health and nutrition programs on improved health, education, and economic growth in Africa is great.

## Reaching Out-of-School Children

Seventy percent of school-age children in Africa attend primary school, however the other 30 percent – over 30 million children in 2013 – remain out-of-school and unreached by SHNPs.<sup>36</sup> This group includes orphans and vulnerable children, children with disabilities, and children living in refugee camps. Poverty, conflict, and lack of classrooms, teachers, and materials are cited as the main reasons that children do not attend school.<sup>37</sup>

School feeding programs can have positive impacts on enrollment in primary school and attendance. However, to reach children who remain out-of-school with health services, cadres such as community health workers (CHWs), volunteers, or social workers can be trained, supported, and engaged to provide preventive and treatment interventions such as health and nutrition education, use of insecticide-treated bed nets, and treatment for diarrhea, malaria, and malnutrition.<sup>38</sup> Social protection programs can also be leveraged to deliver a range of health services to vulnerable populations.<sup>39</sup>

Table 2. Common Interventions within a School Health Program<sup>40</sup>

Intervention	Expected Outcome
■ Access to safe water; handwashing promotion; provision of sanitation (gender-separate); garbage disposal	■ Reduced infections
■ Curriculum addressing health, hygiene, and nutrition	■ Improved knowledge and skills to promote good health, hygiene, and nutrition
■ Life-skills program	■ Lifelong positive behaviors such as avoidance of HIV/AIDS and substance abuse
■ Peer education programs; health-promoting clubs	■ Reinforcement of positive behaviors
■ Deworming for intestinal worms and Schistosomiasis	■ Reduction in worm infection
■ Prompt recognition and treatment of malaria	■ Reduction in impact of malaria
■ Insecticide-treated nets	■ Reduction in incidence of malaria
■ Micronutrient supplements	■ Reduction in anemia and malnutrition
■ Breakfast, snacks, and meals	■ Avoidance of hunger
■ First-aid kits	■ Management of injuries
■ Referral to youth-friendly clinics	■ Access to specific treatment
■ Counseling and psychosocial support	■ Access to mental health treatment

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# From the health perspective, investing in a true continuum of care from pre-conception all the way through adulthood, ensuring that no age cohort is ignored, will be vital to the attainment of healthy and productive populations in Africa.

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## Gaps and Opportunities

The significant lack of health data and statistics on the 5-9 YO age cohort greatly limits the ability of policy-makers and program managers to make evidence-based decisions to address the health needs of this age group. Similarly, the shortage of data on the impact of SHNPs on health outcomes complicates efforts to advocate for this approach. Expanding the evidence base around the health status of 5-9YOs, the impact of school-based health and nutrition programming, and the contribution of interventions targeting this population to current and future health outcomes, educational outcomes, and economic growth is needed to inform the strategic investment in and design of programs. Analysis of the impact of SHNPs could also serve to inform the optimal design of programs that utilize this school-based platform for other interventions to reach this age group. Lastly, improved documentation of the current scale and coverage of school health and nutrition programs and social

protection programs in Africa is needed to provide a better understanding of the current footprint and opportunities for in-depth research.

## Conclusion

As the world enters the era of the Sustainable Development Goals, there is an opportunity to step back, reassess, and realign the strategic priorities, approaches, and investments which will ensure that improvements in the health status of children under-five years of age are sustained through their childhood and into adolescence. From the health perspective, investing in a true continuum of care from pre-conception all the way through adulthood, ensuring that no age cohort is ignored, will be vital to the attainment of healthy and productive populations in Africa. ■

*This summary brief was prepared by ASH staff Rebecca Levine and Alison Corbacio with inputs from Kelly Sawyer, JoAnn Paradis, Sarah Konopka, Rudi Thetard (ASH), Sara Zizzo, Sylvia Alford, and Kim Connolly (USAID/AFR).*

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