

MERCK



WE100TM
healthy years

Are kids prepared?

100 HEALTHY YEARS Are Kids Prepared?

Enabling younger generations worldwide to live healthier lives

INTRODUCTION

People are living longer than ever and in nearly every country on earth the number and proportion of older persons is increasing.¹

But for much of human history, few people grew old. Until the 19th century a typical person was fortunate to live 40 years. In Sweden the life expectancy of a woman in 1840 was 45 years, while in 2015 it nearly doubled to 84 years.^{2,3} According to the United Nations, the number of older persons – those aged 60 years or more – is increasing substantially. Between 2015 and 2030 the number of people aged 60 or over is projected to grow 56 percent from 901 million to 1.4 billion and by 2050 this population is projected to reach nearly 2.1 billion.⁴ If the pace of increased life expectancy in developed countries continues through the 21st century, most babies born in France, Germany, Italy, the UK, the USA, Canada, and Japan

since 2000 have a good chance of celebrating their 100th birthdays.⁵

As life spans increase, coping with the world's aging population is set to be a major challenge. Nearly all sectors of society from labor and housing to transportation and healthcare will be impacted by the changing demographic. Ensuring that society is prepared to cope with the economic and societal shifts associated with an increasingly older population is critical.

To enable people to live longer and healthier lives, society must invest in early interventions because instilling healthy habits in children helps to produce healthier outcomes later in life.⁶ Empowering younger generations to make conscious choices about their health is critical to maximizing the benefits of longer living while minimizing the probability that later years are spent in poor health. Schools have an important role to play in equipping students for healthy living and ageing, but it is also crucial that all stakeholders, including parents, policy makers, healthcare practitioners, and NGOs among others, participate in strong and structured collaboration to achieve lifelong health.



One very important part of adapting to this trend is ensuring that the extra years are spent in good health rather than in illness or disability.

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MORE THAN THE BOTTOM LINE : A NEW METRIC FOR MEASURING QUALITY OF LIFE

Since 1980 the world's population has gained more than ten years in life expectancy, rising to 69 years in men and 74.8 years in women thanks in part to falling death rates from communicable diseases, including HIV/AIDS, malaria, and diarrhea, as well as advances in medical technology.⁷ But a new trend in disease is emerging. The 2015 **Global Burden of Disease Study** reports that seven out of ten deaths are now due to non-communicable diseases (NCDs), which include cardiovascular diseases, cancer, diabetes, chronic respiratory disease, and mental health and neurological disorders.⁸ Often the result of social factors such as urbanization, rising incomes, changes in diet and lifestyle, and improved life expectancy, NCDs affect low-, middle-, and high-income countries alike.

They are chronic and crippling, and they not only diminish quality of life but also exert an enormous burden on healthcare systems and caregivers. The World Health Organization (WHO) estimates that inaction on NCDs will cause a total output loss of USD 47 trillion over the next two decades.⁹

Considering the rise of chronic diseases, governments, researchers, and healthcare providers should **not only focus on how long people are living but also on the quality of their lives as a standard for measuring population health.**

Tracking **healthy life expectancy**, or the number of years an individual is expected to live in good health and free of long-term disability ensures that improvements in quality of life are keeping pace with increases in life expectancy. This is especially important for older persons who suffer more from chronic disease, frailty, and disability as they age.¹⁰

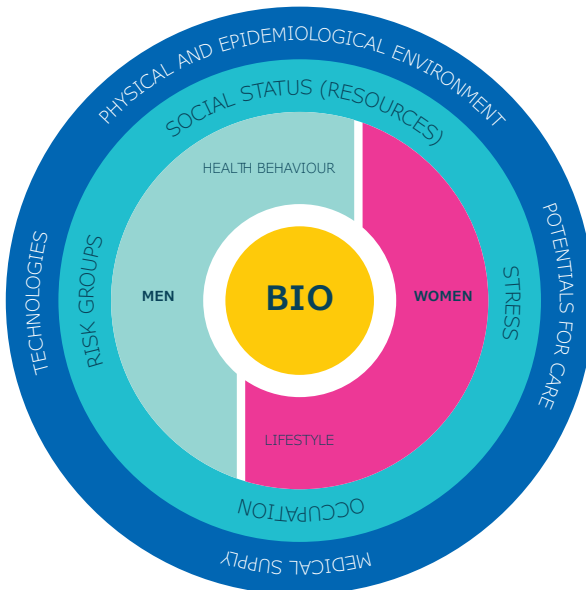
By focusing on healthy life expectancy society can work towards a holistic healthcare model that supports healthy living and aging rather than a model designed to extend the length of lives regardless of quality. Longer healthy life expectancies would mean that the rapidly growing demographic of older persons have more years to enjoy productive and fulfilling lives as opposed to struggling with illness – which by comparison exerts heavier and costlier burdens on families, communities, and healthcare systems.



HEALTHY LIFE EXPECTANCY – A CLOSER LOOK

In 2015, the number of healthy life years at birth in the European Union was 63.3 years for women and 62.6 years for men, which represents approximately 76 percent and 80 percent of the total life expectancy for women and men.¹¹ According to a WHO study, Japan has the highest healthy life expectancy with an average of 74.9 years, while Sierra Leone has the lowest healthy life expectancy with an average of only 44.4 years.¹²

A variety of factors can influence healthy life expectancy. Genetic and hormonal factors, also known as biological factors, play a significant role in determining healthy life expectancy. However, non-biological factors such as behavioral, economic, social, environmental, and cultural conditions are equally important in contributing to a person's health.¹³ While it is difficult to influence biological factors, addressing the non-biological factors can help to improve the number of years a person lives in a healthy state. In general, tobacco smoking, alcohol consumption, poor diet, and physical inactivity can have long-term health implications. For example, tobacco use is known to harm nearly every organ of the body while negatively affecting a person's overall health. It also increases the risk of heart disease, stroke, and lung cancer as well as other types of cancers.¹⁴ Clear patterns have also emerged between alcohol consumption and cancers of the head and neck, esophagus, liver, breast, and colon.¹⁵ Obesity, which is linked to diet and physical activity among other factors, is a major risk in developing cardiovascular diseases, diabetes, musculoskeletal disorders, and some cancers.¹⁶ However, a lifetime of good nutrition, exercise, and abstaining from alcohol and tobacco use not only lowers the chances of disease,¹⁷ it also increases the chances of a longer healthy life expectancy.



LIFELONG HEALTH STARTS EARLY BUT CHILDHOOD EDUCATION LAGS BEHIND

As shifts in demographics and disease reinforce the importance of enabling longer healthy life expectancies, there is an increasing body of research that shows that health in adulthood stems from conditions in childhood, which means that the stronger children start their journey in life the healthier they will be over the long-term. According to the WHO, a survey conducted in Puerto Rico demonstrated that the probability of being disabled was more than 64 percent higher for people who grew up in poor conditions compared to people who grew up in good conditions. Similarly, a survey of seven urban centers in Latin America and the Caribbean found the probability of disability was 43 percent higher for those from disadvantaged backgrounds than for those from more favorable ones.¹⁸ To ensure healthy living and aging, it is never too early to introduce tools and good habits.

And yet while it is widely understood that instilling health early is imperative for a long and healthy life, the current state of

affairs paints a worrying picture. According to the World Obesity Federation, over 223 million school children globally are overweight or obese, and without intervention the number is expected to reach 268 million by 2025.¹⁹ The World Obesity Federation also projects that by 2025 as many as 12 million children will have impaired glucose intolerance, 4 million will have type 2 diabetes, 27 million will have high blood pressure, and 38 million will have first stage fatty liver disease.²⁰

Even more troubling is that **unhealthy habits established at an early age are difficult to break²¹** and can lead to a cycle of illness. Obese children for example are more likely to develop a variety of health problems as adults, including:

- Cardiovascular diseases
- Insulin resistance (an early sign of future diabetes)
- Musculoskeletal disorders (especially osteoarthritis)
- Some cancers (endometrial, breast, and colon)
- Disability



The stronger children start their journey in life the healthier they will be over the long-term

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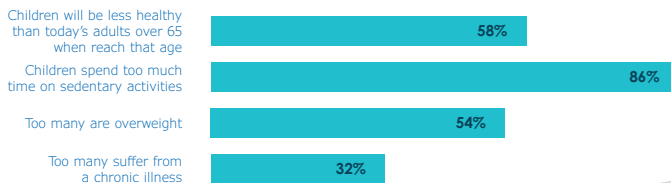
To understand the current threats to children's health overall, Merck Consumer Health hosted its second annual 2017 Global Consumer Health Debate in May 2017. The theme of the event, 100 Healthy Years – Are Kids Prepared?, facilitated deeper understanding and discussion around how to support children in living longer and healthier lives. To contribute to the body of research, Merck Consumer Health collaborated with the Economist Intelligence Unit on a study in five countries representing a range of cultures and levels of economic development. In Germany, South Africa, India, Brazil, and Saudi Arabia, researchers examined the degree to which children are encouraged to take a long-term view of their health early on as well as whether they are given practical tools to do so. Dominic Richardson, Senior Education Specialist, UNICEF, Office of Research Innocenti commented that the study *"highlights the complexity of issues affecting children who sit in an ecosystem of influences on their health and wellbeing."* The study included 400 parents and 101 educators and policy makers with responsibility for educating school children on health-related topics. The findings of the survey showed that:

1. 58 percent of respondents believe today's children will be less healthy than today's adults over 65 when they reach the same age
2. 86 percent of respondents believe children spend too much time on sedentary activities

Dim outlook

Please state the degree to which you agree or disagree with each of the following statements concerning children in your community or district.

(% respondents who agree strongly or agree somewhat)



Source: Economist Intelligence Unit, Educators' survey, Q9.

58% of educators say that today's children will be less healthy than today's over-65s when they reach that age



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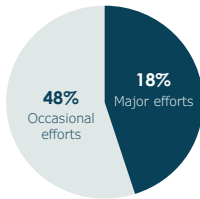
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3. Across the five countries surveyed, schools are targeting issues they perceive to be the most serious such as lack of exercise but at the same time they are failing to address other health issues (e.g. mental health).
4. In fact, school programs are having little effect on childhood obesity and mental health disorders.

Working hard

What degree of effort, if any, does your school or school district make to promote children's knowledge about the link between healthy practices and longer life?

Please select one. (% respondents)

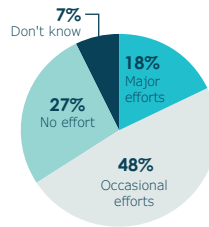


Source: Economist Intelligence Unit, Educators' survey, Q16.

Hardly working

What degree of effort, if any, does your child's school make to promote children's knowledge about the link between healthy practices and a longer healthy life?

Please select one. (% respondents)



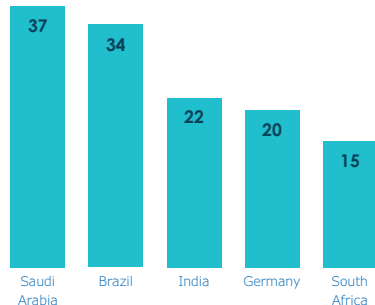
Source: Economist Intelligence Unit, Parents' survey, Q18.

Levels of child obesity and mental illness are already high and in many cases they are rising.²³ To reverse the trend, integrated efforts and cooperation between stakeholders, including educators, parents, policy makers at national and regional levels, healthcare practitioners, and NGOs, is essential to ensure children are equipped to benefit from long and healthy lives. According to Dr. Erasmus Morah, Country Director South Africa, Joint United Nations Programme on HIV/AIDS, the study is valuable because *"it defines the three areas we need to focus on: parents, communities, and schools."* He went on to say, *"To me these are the most important areas for lifelong health for children."* Anada Soldo, Deputy Director, Ministry of Basic Education, South Africa also believes that all members of society play an important role: *"We need to educate young children but also teachers and parents about the long-term effects of health choices, as kids do not yet understand the long-term impact of their choices today."*

The current level of engagement around children's health in homes, schools, and communities is insufficient to stem the increasing instance of lifestyle-related diseases.²²

Overweight – official view

Overweight (including obese), % of children, latest data



Sources: Robert Koch Institute; World Health Organisation; national statistics.



BUILDING SUSTAINABLE SOLUTIONS WITH EFFECTIVE SCHOOL HEALTH PROGRAMS

Initiatives at country-level play an important role in helping children build the foundations of life-long health but progress toward delivering robust childhood health education depends in large part on economic status as well as local attitudes towards healthy living. The more economically stable a country is, the more resources it can direct towards a strong health education program. Likewise a country that values healthy living and places equal emphasis on all aspects of health, including nutrition, health education, exercise, and mental wellbeing, from a young age will be more successful in providing its citizens with the tools they need to achieve longer, healthier lives. These countries are also more likely to invest in integrated efforts that involve schools, parents, policymakers, and healthcare systems in stemming the surge of lifestyle related diseases.

Economic conditions and cultural attitudes towards health vary dramatically from country to country, which makes it difficult to propose a one-size-fits-all solution, but two examples from countries with different socioeconomic conditions are outlined in the following sections to provide perspective on how countries approach health initiatives.

COUNTRY CASE STUDY

FINLAND

Finland is a Nordic welfare state where the healthcare and education systems are designed to provide universal and equal access to services.²⁴ Finland's schools have been among the world's top performing for many years. According to the Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA), a worldwide study of the scholastic performance of 15 year old students in reading, science, and mathematics, Finland ranks among the top five in science.²⁵ Finland's education system is unique in that it is designed to enable educators to deliver academic lessons while also drawing on the collective contributions of parents, healthcare practitioners, and counselors who emphasize nutrition, health, physical activity, mental wellbeing, and stress management to enable sustainable success for students. Finnish public schools employ nurses with four and a half years of college training as well as school health physicians. Schools also have psychologists, social workers, and special education teachers on staff for students' needs. School health physicians play an active role in students' health during the course of their education and regularly screen students for healthy development with both the pupil and a parent present. School health physicians focus not only on physical health, they also routinely screen students for psychosocial and mental health issues and provide support to promote overall health with the help of nurses and teachers.²⁶

Finland is one of only a few countries in the world that has introduced health education (HE) as a stand-alone school subject with every pupil beginning HE in the 1st grade and continuing through to the end of the 12th grade.

In Finland's national core curriculum, HE is integrated into environmental and natural science studies from grades 1-4. Between grades 5-6, HE is covered in biology, geography, physics, and chemistry. Starting in the 7th grade, Health Education becomes an independent subject with three different courses and 38 lessons each. Stand-alone courses in HE continue until the end of the 12th grade. Mental health, nutrition, benefits of physical activity, safety in traffic, sexual health, and the most common health issues are some of the topics covered by the curriculum.

In 2010, researchers conducted a school-based study on Health Behavior in School-aged Children (HBSC) to obtain feedback from students regarding the HE program. According to the results, 86 percent of 13-15 year old girls agreed that the courses were beneficial, and 79 percent of boys thought the program provided benefits.²⁷ What sets Finland's education system apart from other countries' is that it integrates health and education with the support of a range of experts and enables the long-term wellbeing of its students, which helps contribute to the country's impressive healthy life expectancy of 71 years.²⁸



COUNTRY CASE STUDY

SOUTH AFRICA

By comparison, South Africa is a country that struggles with significant social and economic difficulties that include malnutrition, poverty, and inaccessibility to resources. Life expectancy at birth for men and women is 59 and 66 years respectively due to challenges that include HIV/AIDS, infectious diseases, malnutrition, and stroke,²⁹ while the healthy life expectancy is on average only 54.4 years.³⁰ It is also one of the few countries in the world where child and maternal mortality rates have risen since the 1990s because of HIV/AIDS, which accounts for more than one-third of deaths among children under five.³¹ Also troubling is the fact that almost two-thirds of the country's children live below the poverty line.³²

Like Finland, the South African school system delivers health services through designated School Health Nurses, but a recent study by the South African Ministry of Basic Education revealed a host of problems that hinder nurses' performance, including:

- Insufficient staff and infrequent visits to schools
- Lack of or insufficient basic equipment (i.e. scales to weigh children)
- Lack of a conducive environment for screening and examining children properly, including mental health assessments, due to lack of privacy
- Referral systems that lack capacity to respond to identified health needs
- Follow-up that is rarely conducted, as nurses generally visit schools just once a year
- Lack of transport and poor infrastructure, limiting access to schools³³

Merck Consumer Health GEN100™ South Africa Activation, May 2017



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South African school health programs have also contended with a history of poor management, inequitable distribution of resources, and a lack of collaboration between various governmental departments.

To address these issues the South African Ministries of Health and Basic Education joined together to introduce a new program in 2012 called the Integrated School Health Programme (ISHP) that aims to strengthen the country's school health services and achieve better outcomes for youth.

The program provides a comprehensive package of services that addresses barriers to learning as well as other conditions that contribute to illness and mortality among learners during both childhood and adulthood. The ISHP strongly believes that topics such as nutrition, exercise, personal and environmental hygiene, chronic illness, abuse, sexual and reproductive health, menstruation, contraception, sexually transmitted infections (including HIV/AIDS), and mental health should be included as co-curricular/school-based activities to support lifelong health and maximum healthy life expectancy.³⁴



A new program in 2012 called the Integrated School Health Programme (ISHP) provides a comprehensive package of services.

COLLABORATIVE EFFORTS FOR BETTER OUTCOMES IN SOUTH AFRICA

Considering the relatively low life and healthy life expectancies in South Africa and that 30 percent of the population is under 15 years old, there is enormous opportunity for stakeholders in healthcare to make a positive impact in the country. In addition to educators and the Ministries of Health and Basic Education, there is also the potential for industry actors to make contributions, particularly in the form of public-private partnerships.

Collaborations between the public and private sectors can be especially productive in achieving long-term development goals as industry partners can provide relevant and innovative expertise when public resources are constrained. Merck, a leading science and technology company in healthcare, life science, and performance materials, for example, has launched a pilot program called GEN100™ to help bridge the existing gaps in South Africa's school health programs. In a country where 16.5% of girls and 11.5% of boys between the ages 2-14 are obese and where 71% of children score low on general nutritional knowledge,³⁵ GEN100™ is designed to increase the understanding of the importance of health. The educational program operates under Merck Consumer Health's flagship WE100™ movement, which is dedicated to helping youth develop the skills they need to make healthy lifestyle choices and potentially live 100 healthy years. Now operating in 40 schools in South Africa, the GEN100™ program has the short-term aim of raising awareness and educating children about the importance of healthy lifestyles and the long-term aim of effecting behavior change. Atilla Cansun, Chief Marketing Officer, Merck Consumer Health, expressed his support of the initiative at the 2017 Global Consumer Health

Debate, "We are going to contribute to the education of kids who are going to be the first generation to reach 100 years."



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REASONS NOT TO SKIP BREAKFAST - IT'S THE MOST IMPORTANT MEAL OF THE DAY



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Reference 1: Photo Clinic. Diabetes: Take time for a healthy breakfast. Downloaded 2015 [Cited 2017 June 30]. Available from URL: <http://www.merckinc.org/medias/conditions/diabetes/health-blog/diabetes-and-breakfast-top-20150206>

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- It provides nutrients that you need to boost your immune system¹
- It gives you brain power to keep focused throughout the day¹
- It wakes up your metabolism and gets your energy levels up¹
- It will help you start the day in a feel-good mood¹
- It helps you concentrate and do better on tests¹
- It fuels your body to prepare you for the day¹
- You will be less hungry throughout the day¹
- It lowers the risk of developing type 2 diabetes¹

WE100

Healthy choice pillars

GEN100™ territory for youth education



Nutrition

Obesity



Diabetes



Skincare



Exercise

In collaboration with participating schools, Merck Consumer Health developed the Healthy Choices curriculum covers the topics of nutrition, obesity, hygiene, exercise, and diabetes, and it is now integrated into the schools' existing curriculums. Healthy Choices content is aligned with the CAPS (Curriculum Assessment Policy Statements) criteria, a national policy for learning and teaching in South African schools. Primary school students between the ages of 10-13 and high school students between the ages of 14-16 participate in eight one-hour lessons taught once a month or in a condensed version taught over the course of 12-16 weeks. Programs like GEN100™ offer the potential to help South Africa's youth live a healthier future, and by collaborating with everyone from students and school teachers to parents, healthcare professionals, and Merck employees, the GEN100™ program has the ability to scale its impact and achieve sustainable results for South African children.

MERCK CONSUMER HEALTH CONVENES EXPERTS TO PROMOTE PROGRESS

To further spearhead collaboration and progress around children's health and long-term healthy aging, Merck Consumer Health used the platform of its 2017 Global Consumer Health Debate to convene key experts in discussing ways of enabling healthier lives for younger generations. Serving as a forum for innovation, experts on children's health from UNAIDS, Unicef, the World Obesity Foundation, Inmed Brazil, McKinsey, the Smile Foundation, Every Woman Every Child Organization, and the South African Ministry of Basic Education contributed insights from their work and shared best practices with other stakeholders to bridge gaps and foster collective action. As a pioneer in the field with more than 350 years of experience in healthcare, Merck Consumer Health is committed to its WE100™ and GEN100™ programs as well as its annual Global Consumer Health Debate as concrete, industry-led initiatives that help equip today's children with the tools they need to be tomorrow's healthy adults.

Please visit <https://www.merckgroup.com/en/expertise/consumer-health/our-consumer-health-debate.html> for more information about the Merck Global Consumer Health Debate.



Merck Consumer Health
is committed to its
WE100™ and GEN100™
programs

CONCLUSION

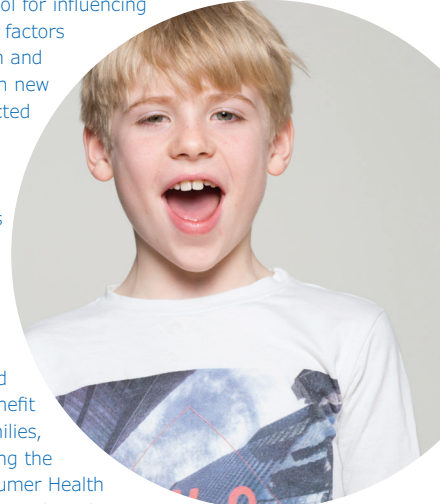
Early childhood is considered the most important developmental phase of a person's life and economists now argue that investments in early childhood are the most powerful investments a country can make.³⁶ Because early childhood education improves children's developmental trajectories and guards against the future onset of adult disease and disability,³⁷ it is essential to leverage school programs as a means of equipping children with the tools they need to develop healthy lifestyles over the long-term. Schools and educators are not the only stakeholders responsible for instilling health, however. As demonstrated in the Finnish school system, involving a coalition of experts such as healthcare practitioners, counselors, and parents who bring health education into school systems is key to generating successful outcomes. For countries that lack the necessary resources to build robust school health programs, public-private partnerships with industry experts are an effective way of driving transformative change.

As populations increase and the tide of lifestyle-related diseases also surges, leveraging childhood health education

is an important tool for influencing the non-biological factors that impact health and quality of life. With new generations expected to celebrate their 100th birthdays, it is important to unite stakeholders in a holistic approach to healthy living and aging so that later years are productive and fulfilling to the benefit of individuals, families, and society. Closing the 2017 Global Consumer Health Debate, Uta Kemmerich-Keil, CEO,

Merck Consumer Health, delivered the message that children's health is a collective investment, *"We are here to help today's kids become tomorrow's healthy adults. I believe the conversation gave a clear direction on the way forward to tackle the issue of kids and old age, and what parents, educators, policy makers, research institutions, and development actors can do to better prepare kids for long and healthy lives."*

Indeed way forward depends on collaborative action, and what stakeholders can do depends on concrete commitments from each of them. To achieve a future where children thrive well into their later years, stakeholders must work towards objectives that improve children's health and wellbeing.



It is essential to leverage school programs as a means of equipping children with the tools they need to develop healthy lifestyles over the long-term

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The following actions are specific contributions stakeholder groups can make to realize the goal of 100 healthy years:

Governments:

- Establish children's health as an important priority
- Fund and activate comprehensive healthcare programs for kids from all ages
- Initiate programs that include educators, healthcare providers, the private sector, parents, and communities
- Mobilize resources and continue investing in effective health interventions

NGO organizations:

- Share knowledge and encourage collaboration to facilitate access to valuable information, best practices, and resources
- Prioritize communities/countries that have the biggest need
- Create platforms where proactive voices can be heard at regional and global levels

Healthcare providers and workers:

- Provide the highest quality of care for patients regardless of the financial availability
- Invest in training and development of healthcare workers
- Develop and deploy innovative ways of delivering community healthcare services

Private sector:

- Support governmental policies aimed at better healthcare services, better nutrition for children, and improved sanitization
- Leverage business expertise to initiate and scale programs that have a positive impact on communities
- Collaborate with local partners to achieve social missions
- Encourage other members of the business community to promote the health and wellbeing of children

The media:

- Highlight children's health and wellbeing as one of today's most important issues
- Publish accurate and evidence-based articles to create public awareness
- Provide a platform for children, parents, healthcare providers, and teachers to voice their concerns about children's health and wellbeing

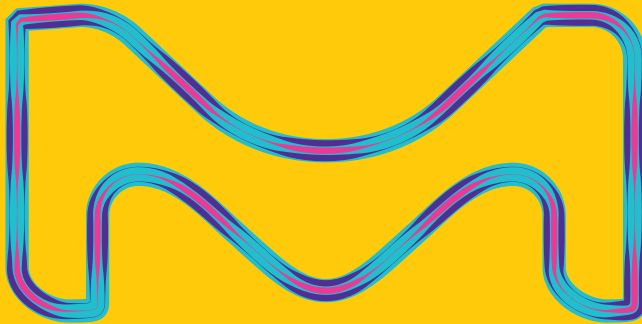
With sustained and concerted efforts from the global community we have the opportunity to transform today's reality into a new era where children realize their full potential as healthy and thriving adults. There are still challenges to tackle but collaboration and active partnerships are the keys to a prosperous and sustainable future.

Investments in early childhood are the most powerful investments a country can make

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DECLARATION OF INTEREST

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