Prioritizing health: A prescription for prosperity

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As health improved in the 20th century, life expectancy more than doubled and the global labor force expanded

Life expectancy at birth, 1800-2017

Global life expectancy at birth

Years

1800 1900 1930 1960 1990 2017

30.5 30.5 30.5 30.5 30.5 72.5

+42 yrs

Global population

Billion

1 1.7 2 3 6 7.5

Source: Gapminder.org; McKinsey Global Institute analysis
More recently people are continuing to live longer but not necessarily in better health

<table>
<thead>
<tr>
<th>Country</th>
<th>Change in life expectancy between 2007 and 2017</th>
<th>Life expectancy, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>0.9 (in good health) 0.7 (in poor health) 1.6</td>
<td>83.0</td>
</tr>
<tr>
<td>Singapore</td>
<td>2.3 (in good health) 0.2 (in poor health) 2.5</td>
<td>82.9</td>
</tr>
<tr>
<td>France</td>
<td>1.4 (in good health) 0.1 (in poor health) 1.5</td>
<td>81.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.8 (in good health) 0.9 (in poor health) 1.7</td>
<td>80.3</td>
</tr>
<tr>
<td>Germany</td>
<td>0.3 (in good health) 1.1 (in poor health) 1.4</td>
<td>80.3</td>
</tr>
<tr>
<td>United States</td>
<td>0.5 (in good health) 0.5</td>
<td>78.2</td>
</tr>
<tr>
<td>China</td>
<td>1.3 (in good health) 1.6 (in poor health) 2.9</td>
<td>76.3</td>
</tr>
<tr>
<td>Mexico</td>
<td>-0.3</td>
<td>76.1</td>
</tr>
<tr>
<td>India</td>
<td>2.7 (in good health) 1.1 (in poor health) 3.8</td>
<td>70.2</td>
</tr>
</tbody>
</table>

Change in life expectancy also called Health Adjusted Life Expectancy (HALE) is the disability-free life expectancy where years lived with disability are subtracted from overall life expectancy as a share of life expectancy.

Source: McKinsey Global Institute analysis
More than half of years lost to poor health occur in the working age population, resulting in an economic cost of $2.8 trillion a year.

54% of years lost to poor health occur in working age (20-64 years), resulting in $2.8 trillion in lost economic output.

Years lost to poor health in 2017, thousands

Western Europe

- 80: 2,516
- 60: 7,374
- 40: 8,921
- 20: 8,992
- 0: 9,106

### Source
- Global Disease Burden Database 2016 IHME; World Bank; MGI Analysis

1. Years lost to poor health is the sum of years lived with disability and years of life lost in this year due to premature death
2. Calculated for 2017, include cost from loss of labor supply from early deaths in 2017, poor health and loss of productivity; does not include healthcare costs to address ill health.
Looking ahead, age-and lifestyle-related diseases is expected to rise while many infectious diseases could decrease significantly

Change in disease burden between 2020 and 2040 globally
% change in disease burden measured in DALY¹

1. DALY = disability-adjusted life year

Source: Global Disease Burden Database Institute for Health Metrics and Evaluation (IHME); University of Washington (this view excludes "Other non-communicable diseases"); McKinsey Global Institute analysis

McKinsey & Company 5
Using interventions that already exist today, the global disease burden could be reduced by about 40 percent over the next two decades.

Disease burden impact by 2040
% of disability-adjusted life years (DALYs)

Global disease burden

Disease burden reduction in healthy growth scenario

Remaining unmet disease burden

Aspirational yet realistic with adoption rates adjusted by country income archetype

1 Based on evidence from Australia. Greenhalgh, Elizabeth, Michelle Scollo, and Margaret Winstanley, Tobacco in Australia: Facts and issues, Cancer Council Victoria, 2020.
Source: Global Burden of Disease Database 2016 IHME; McKinsey Global Institute analysis
Over 70% of the health improvement potential from known interventions would come from environmental, social, behavioral and preventive interventions.

Environmental, social and behavioral
- Dietary interventions: 9%
- Education for behavioral change: 7%
- Smoking cessation: 4%

Prevention and health promotion
- Vaccines: 11%
- Safe child birth: 9%
- Medicines for heart disease, stroke prevention, and diabetes: 7%

Therapeutic
- Anti-infective medicines\(^1\): 10%
- Specialist surgery: 5%
- Psychological: 3%

1. 84% of impact comes from low and lower middle income countries

Source: Global Burden of Disease Database 2017 IHME, McKinsey Global Institute analysis
40% of health improvements could be achieved at under $100 for each additional healthy life year.
Some diseases have limited effective prevention and therapeutic interventions, for example, cardiovascular diseases, cancers, and mental and neurological disorders.

### Disease burden impact

<table>
<thead>
<tr>
<th>Disease burden</th>
<th>Potential disease burden reduction from healthy growth scenario</th>
<th>Remaining disease burden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global disease burden</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>41%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Disease burden by disease group

In % of remaining disease burden

- Cardiovascular diseases: 15
- Mental and neurological disorders: 13
- Cancers: 11
- Musculoskeletal disorders: 7
- Other non-communicable diseases: 5
- 16 other disease groups: 49

Source: Global Burden of Disease Database IHME; MGI disease reduction model
Innovations in the visible pipeline that may enter the market by 2040...

- **Cell Therapy and Regenerative Medicine**
  - CAR-T Cell therapy for solid tumors

- **Next-generation Pharmaceuticals**
  - Senolytics and regulation of cellular aging

- **Omics and molecular technologies**
  - CRISPR and curbing malaria

- **Innovative Vaccines**
  - Cholesterol-lowering vaccine

- **Advanced Surgical**
  - Suspended animation for severe trauma patients
...could further reduce disease burden by

6-10%
We estimate that for each $1 invested in improving health, an economic return of $2.7 is possible
Healthy growth scenario, Western Europe, 2040, USD billions

Note: Snapshot view of the healthy lifespan scenario in 2040. Additional healthcare spending, GDP impact and welfare gains account for health improvements (without expanded participation). They include both the baseline and incremental opportunity in 2040.

Source: Global Burden of Disease Database 2016 IHME, Oxford Economics, ILO Stat, National Transfer Accounts Project, MGI Model, Cost per DALY averted from WHO NCD Appendix 3, DCP-3, Tufts Cost Effectiveness Analysis Registry
51% of the potential healthy life years are added to those aged under 70 where the economic contribution is the highest
Healthy growth scenario, Western Europe, 2040

Addition healthy life years lived in 2040 and respective GDP impact by 10 year age group

<table>
<thead>
<tr>
<th>Age</th>
<th>Additional healthy life years (^1), thousands</th>
<th>GDP impact in 2040, USD billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>420.3</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>52.3</td>
<td>833.0</td>
</tr>
<tr>
<td>40</td>
<td>229.4</td>
<td>1,210.4</td>
</tr>
<tr>
<td></td>
<td>277.7</td>
<td>1,599.1</td>
</tr>
<tr>
<td></td>
<td>285.1</td>
<td>1,894.3</td>
</tr>
<tr>
<td></td>
<td>262.5</td>
<td>2,340.4</td>
</tr>
<tr>
<td>60</td>
<td>956.1</td>
<td>3,945.9</td>
</tr>
<tr>
<td>80</td>
<td></td>
<td>74.6</td>
</tr>
</tbody>
</table>

\(^1\) Additional healthy life years from averting deaths and reducing disability

Source: Global Burden of Disease Database 2016 IHME, Oxford Economics, ILO Stat, OECD, EUROSTAT, National Transfer Accounts Project, MGI Model
Covid has demonstrated that (rapid) change is possible: UK example

- 9 days to build London’s Nightingale Hospital with an initial capacity of 500 and potential to scale to 4,000 patients
- 99% of GP surgeries have capabilities for online consultations and ~90% of primary care has gone online
- 2,000 additional critical care beds made available in 2-3 weeks
- 29% year-on-year drop in A&E attendance
- 750,000 volunteers mobilised to support the NHS
- >20k former NHS staff return to service and 24K students with accelerated certification to join the NHS
- 1,000,000 new users on the NHS App
- £30m raised for the NHS by a single individual walking in his garden - unprecedented public support for the service
Other health systems also made rapid changes

<table>
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<tr>
<th>Workforce transformation</th>
<th>Reimagined system management</th>
<th>Re-imagined second line care</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,000 volunteers applied through a digital platform, created by the MoH, to provide assistance to the health system including administrative or technical support</td>
<td>Nationalisation of Spanish private hospital facilities in March to increase capacity for COVID-19 patients</td>
<td>Sheba Medical Center established a Telemedicine Program including a robot, controlled remotely by clinical staff, to check vital signs of quarantined patients and a digital platform to monitor less critical patients at home</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Integrated digital first local health and care systems</th>
<th>Data and analytics spine</th>
<th>Digitally enabled integration between institutions</th>
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<tr>
<td>A coalition of New York City leaders from the private and non-profit sectors developed a process to serve at-risk populations that included a dynamic texting platform and a network of 60+ social and clinical services</td>
<td>Taiwan used big data analytics leveraging its national health insurance database and integrating it with its immigration and customs database to identify and contain cases</td>
<td>Inter-agency cooperation between the contact tracing teams of the Ministry of Health and the Police Force to track infected people, using social media scrapes</td>
</tr>
</tbody>
</table>

Document intended to provide insight based on currently available information for consideration and not specific advice
## Across health systems, six common enablers allowed rapid change during the COVID crisis

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Example/Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clarity of purpose and a real sense of urgency</td>
<td>“We must go hard and we must go early” - Jacinda Arden, NZ PM declaring a State of Emergency and imposing blanket lockdown.</td>
</tr>
<tr>
<td>2</td>
<td>A balance of command and control on key outcomes with local freedom to implement</td>
<td>NHSE requirement for GPs to use phone or video consultations to assess people but flexibility on implementation</td>
</tr>
</tbody>
</table>
| 3      | Innovation in regulation to enable action:  
- Data protection  
- Workforce  
- Service change  
- Licensing (digital and otherwise) | Temporary regulatory waivers and new rules to enable flexibility – e.g., relaxing supervision requirements for nurse anaesthetists and nurse practitioners.  
|        |        | Reductions of restrictions on telemedicine, no longer requiring prior face-to-face communications with the physician in question.  
|        |        | Coronavirus Act 2020 powers to relax regulations in a range of sectors including NHS, social care, schools, local councils and courts. |
| 4      | Change in culture with a willingness to experiment and orientation to action | “There is always resistance to change. Patients had never been asked what they wanted and physicians hadn’t had the opportunity to try these services. Now they have” – IT Director, Spanish hospital |
| 5      | Supportive workforce, managerial, political and community environment | Digital solidarity campaign to support work and study from home |
| 6      | Relaxation of financial constraints | Advance payments of EUR 2.8 billion for regions to support additional health expenditure |

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A reimagined operating model for the health and care wider ecosystem

Document intended to provide insight based on currently available information for consideration and not specific advice
Imperatives for healthy growth

Make healthy growth a social and economic priority

Keep health on everyone’s agenda

Transform healthcare systems

Double down on innovation