Measuring progress towards the SDGs—a new vital science

A new statistical methodology has emerged to gauge progress towards reaching the 2030 deadline of the UN's Sustainable Development Goals. John Maurice reports.

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With 193 member states to serve, the UN system can hardly be simple. Witness the 17 Sustainable Development Goals (SDGs), which, after more than 2 years of negotiations, the UN launched in 2015 and which came with a complement of 169 targets to be met by 2030 and 231 indicators for measuring progress in meeting the targets. As one development observer pointed out, "the SDGs and the assessment of their progress... are incredibly complex even for the most astute development and health experts". In comparison, with only 18 targets and 48 indicators, the eight Millennium Development Goals (MDGs) that preceded the SDGs were child's play.

The complexity of the SDGs has left many members of the global health and development community wondering whether assessing progress towards reaching the SDGs is doable. The work reported in today's *Lancet* by a team of researchers enlisted by the Institute for Health Metrics and Evaluation (IHME), a global health research centre housed at the University of Washington in Seattle, WA, USA, shows that the task is doable, at least for most of the health-related indicators chosen by the UN.

New indices

The data used for this work come from the 2015 edition of the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD), which covers 188 countries. The team used these data to estimate how 33 of the 47 health SDG indicators have been performing between 1990 and 2015. The indicators include such measurable parameters as maternal mortality ratios, the proportion of births attended by skilled personnel, the incidence of several infectious and non-communicable diseases, the risk of ill health associated with environmental, behavioural, and metabolic factors, the proportion of the population covered by essential health services, death rates from road traffic injuries, and so on. To facilitate comparisons between countries, the IHME team gave each indicator an index score, from zero, for countries furthest from the SDG goals, to 100 for those closest to them.

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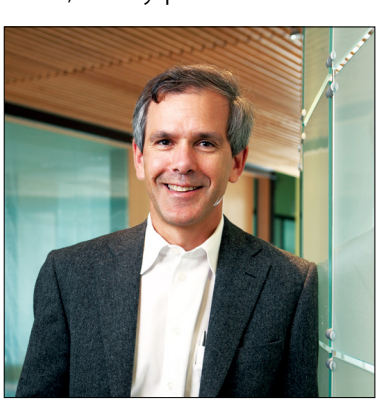
The team also developed a health-related SDG index, which gives a summary measure of the progress being achieved on the 33 health-related indicators. To measure the influence the MDGs might have had on current trends, the team constructed two sub-indices—an MDG index covering the health-related SDG indicators that had also been used to chart progress towards the MDGs and a non-MDG index for SDG health-related indicators that had not been used in the MDG days. To complete the SDG monitoring toolbox the research team created a Socio-demographic Index (SDI) to judge to what extent the performance of a country in progressing towards the SDG health targets differs from what might have been expected, given its degree of development. The SDI uses the country's income per capita, education levels, and total fertility rates to define its overall degree of development.

Creating accountability

"I think this work is important", IHME director Christopher Murray tells *The Lancet*, "because it provides a baseline for all the health-related indicators for which we have data. That baseline allows us to know where the world is and where each country is with regard to development goals and that knowledge is a critical component of accountability."

"Our work is saying that the health-related SDGs are not some abstract pie-in-the-sky idea. We're saying they are important signposts that can be measured and monitored and with regular annual monitoring these signposts will contribute to creating national and global accountability for progress. With this work we are doing, we are making a first critical step to committing countries to act. Users of our analysis need to review the results with respect to their specific needs and then act on them. With such a monitoring system that we've constructed I think there is more chance of action and of creating accountability."

Asked if the system has been field tested, Murray points out that it is



IHME

Christopher Murray, IHME director

IHME

IHME's offices, Seattle, WA, USA

the work of hundreds of researchers from around the world. "We've had about 1800 investigators from more than 120 countries working on the results of our analysis to see if they make sense. Moreover, many of our collaborators are in government or government research institutions, so there's been a lot of ground-proofing that's been going on even before we got to the point of sending our report for publication."

What's the next big step for the IHME monitoring work? "We are starting to work on the universal health coverage indicators, which are of great interest to many organisations and governments and which we will put a lot of effort into improving. We are also trying to use our system to forecast from current trends all the gaps or shortcomings that countries will face in 2030, the deadline year for reaching the SDGs."

In a Comment published in today's *Lancet*, Kevin Watkins, who was executive director of the Overseas Development Institute from 2013 to September this year, and is now chief executive of Save the Children UK, sees the GDB 2015-based study as "a landmark event". "It provides a detailed snapshot of the state of global health and an analytical approach to tracking this dynamic picture. As the international community embarks on the transition from the MDGs to the SDGs, GBD 2015 is a critical part of the tool kit for measuring progress and—critically—holding governments to account."

"I'm very impressed with this work", says David Nabarro, Special Adviser to the UN Secretary-General for the 2030 Agenda for Sustainable Development and Climate Change. "It is well crafted by a huge partnership comprising national actors and also independent groups. They have produced a very full analysis of SDG health-related measurements that will allow governments and civil society decision makers to track progress and confront any challenges in meeting these SDG goals over time."

"What also impresses me is the robustness of the data this team is using. Their data are grounded in national statistics and supplemented with material from independent sources. I'll be interested to see how easy it's going to be to continue producing this kind of comprehensive data over time. But looking at it now, I think it holds great progress. My major concern is with the IHME team's ranking of countries. I do not consider that to be helpful."

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Jeffrey D Sachs, director of the UN Sustainable Development Solutions Network (SDSN) and Special Adviser to UN Secretary-General Ban Ki-moon, sees the IHME work as very useful. "The IHME's health SDG index is a major worldwide effort to create and harmonise data across health indicators. The IHME researchers are to be praised for having made large-scale efforts in data collection, data management, and data standardisation and transformation. Their work helps to make the health-related SDGs measurable and allows countries to understand where they stand on the road towards achieving the goals."

In July, the SDSN, together with the Bertelsmann Stiftung, a private non-profit foundation based in Gütersloh, Germany, published an SDG Index covering all 17 SDGs. "The IHME team", Sachs notes, "used variables that are not otherwise readily available. I look forward to incorporating many of them into the revised and updated 2017 SDSN SDG Index. Whereas the SDSN's SDG Index uses easily accessible, published data that anybody can look up from sources such as WHO and the World Bank, the IHME uses an augmented dataset based on their own data processing and statistical modelling to fill values that are missing in published data. This modelling work is very valuable but I would like to see more clarity concerning the confidence we should place on the imputed data."

"The IHME should also indicate where the world's efforts should be placed on collecting more detailed, relevant, and timely health data. A similar effort is of course very important for many non-health-related SDGs where data availability tends to be far less complete", notes Sachs.

Also commenting on the IMHE work in today's *Lancet*, Devi Sridhar, professor and chair of Global Public Health at the University of Edinburgh Medical School, Edinburgh, UK, wonders whether the IHME SDG index will be useful for governments in low-income and middle-income countries. "The answer is not immediately clear", she writes, "especially since the SDG index relies on GBD data, which have been criticised for having limited use at the national level."

One answer comes from Isabella Maina, who heads the Health Sector Monitoring & Evaluation Unit of the Kenyan Ministry of Health in Nairobi. "Over the past decade, a good number of low-income and middle-income countries have made

tremendous progress in developing their health information systems", she tells *The Lancet*. "But many face difficulties that could hinder their use of the GBD–SDG index. Some have weak data collection systems, inadequately skilled staff, a shortage of tools and techniques, and limited political investment in data management. I am convinced that the GBD–SDG index work will encourage and help these countries to strengthen their data management systems", says Maina. "Countries are in the process of refocusing on the lessons they learnt during the MDG era and are domesticating their SDG agendas for their own specific needs over the coming years of the SDG era. Using the IHME SDG health index, they will be better placed to prioritise the crucial areas of their data management work that need strengthening. And on an overarching level, the SDG health index will, I am sure, help countries to shape their health policies so as to meet the SDGs. However, this will call for concerted and aligned efforts among all stakeholders to assist countries in improving their health information systems."

The Lancet heard a less positive assessment of the IHME work from Abul Kalam Azad, director general for Health Services in the Bangladesh Ministry of Health, Dhaka, Bangladesh. "The well-intentioned attempt to analyse GBD data in order to measure countries' ratings on progress in reaching SDG targets will not, to my mind, reveal the real picture of a country's health outcomes", he says. "The IHME team defined health-related SDG indicators as indicators for health services, health outcomes, and environmental, occupational, behavioural, and metabolic risks with well established causal connections to health." Azad says a measurement index or indicator should focus primarily on only a small number of burdens, such as mortality, morbidity, economic problems, and health risks that lead to these burdens. He is also concerned that "if a country is ranked by a composite measurement index that is not valid, the health officials of the country could suffer negative consequences. Moreover, some of the 33 health-related SDG indicators that the IHME team used for their analysis were not strictly within the health sector. This too may result in the country's health officials being unjustly blamed for their failure to attain these non-health targets."

As for the choice of SDG monitoring tools, Bangladesh is using the WHO's *World Health Statistics* 2016 and its *Global Reference List of 100 Core Health Indicators*. "With the health-related SDG indicators suggested by these sources we are tracking every one of our citizens in order to create a population-based health summary."

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Progress in countries

Putting their monitoring tool to work on the 188 countries, the IHME team's SDG index gleaned from GBD 2015 a profuse body of country data covering the 1990–2015 period. Overall, the SDG health indicators showed an improvement since 2000. As health indicators improved, however, more people lived longer but had functional losses associated with ageing. Countries making the greatest gains in progress to meet the development goals since 2000, as measured by the health-related SDGs, were in southeast and central Asia, and also in parts of Latin America. Timor-Leste, Bhutan, and Colombia showed the greatest improvements in health indicators since 2000. Three countries, Libya, Syria, and Chile, showed significant declines.

In 2015, Iceland topped the list of development performers, followed by Singapore and Sweden. At the bottom of the list came the Central African Republic, Somalia, and South Sudan. Some findings were unexpected. The USA, for example, ranked only 28th, mainly because of its relatively poor performance on MDG indicators such as alcohol consumption, childhood overweight, deaths from interpersonal violence, self-harm, and unintentional poisoning. Surprising too was India's low ranking at 143rd, despite its rapid economic growth over the decade. It had made, however, a poor showing on maternal mortality, malaria incidence, mortality from poor access to water and sanitation, and air pollution. Many countries in western Europe, Latin America, and parts of Asia, and also Australia, attained unexpectedly high levels. Interestingly, some countries which had done well on MDG indicators did badly on the SDG indicators.

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The USA has made slow progress in tackling excessive weight in children

Other SDG tracking initiatives

The publication in this issue of the IHME's indicator tracking toolbox will add to a development landscape already dotted with several initiatives aimed at tracking the SDGs. Like the IHME's GBD-based tool, WHO's Global Health Observatory operates an exclusively health-related statistical database that covers more than 1000 indicators and 194 countries. The Observatory publishes a compendium, *World Health Statistics*, of which the latest 2016 edition is designed for "monitoring health for the SDGs". The UN Statistics Division operates a global SDG indicator database drawing on data compiled through the UN system

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Air pollution has contributed to India's poor performance on SDG health indicators

in preparation for the Secretary-General's annual report on progress towards the SDGs. The Organisation for Economic Co-operation and Development is also present in the development arena. Its study of how its 35 member countries stand in reaching the SDGs found that they had travelled 70% of the way to Goal 3 (health) and Goal 6 (water and sanitation) and 50% of the way to Goal 1 (poverty), Goal 2 (food), Goal 7 (energy), Goal 11 (safe sustainable cities and settlements), and Goal 14 (sustainable use of oceans and seas). The World Bank also maintains a monitoring database with data from other organisations and institutions (including the IHME), and from statistical offices of more than 200 countries. "Implementing the SDGs and measuring and monitoring progress towards them will require much more data than are currently available, with more accuracy, better timeliness, greater disaggregation, and higher frequency", notes Haishan Fu, who heads the World Bank's Development Economics Data Group.

Some observers fear that a profusion of differing monitoring systems might cause confusion among governments, donor institutions, and other potential users looking for clear answers to their concerns. Nabarro, who is one of six candidates running in the election for the next Director-General of WHO, recognises that such a profusion is inevitable and believes that users may need help to avoid being confused. "If the numbers produced by the different tracking systems turn out to be very different that might be a bit frustrating but what really matters is that there is a clear explanation given at some point of why there are differences. Moreover, potential users should always turn to standard-setting bodies, such as WHO in the case of health sector issues, for guidance in choosing an appropriate system."

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In March, WHO and its partner development agencies, countries, donors, and academics, launched a Health Data Collaborative aimed at boosting the capacity of countries to collect, analyse, and use reliable health data to be used for local decision making and for tracking progress towards the health-related SDGs. The Collaborative produced the *Global Reference List of 100 Core Health Indicators* and hopes that by 2024 at least 60 countries will be collecting and using reliable health data. In its introduction to its work plan for 2016–17, the Collaborative explains its rationale. "Many people are still not being counted and important aspects of their lives are not measured. Recent disease outbreaks demonstrate the urgent need for quality real time data. Global leaders, national decision makers and citizens are talking of a data revolution and want to harness the 21st century opportunities of big and open data to address the inequalities in access to quality assured, disaggregated data and information. The monitoring of the SDGs provides an opportunity to take this forward and to consider health in a much more integral manner with other development goals."

Sachs points to one issue that complicates monitoring of progress towards the SDGs. "The actual 17 goals are very good, very balanced and very important, and will have lasting power through the 2030 deadline. The 169 targets are generally fine but countries will have to make sure which targets are relevant to their specific needs and capabilities. But when it comes to the 231 indicators, we're in a problematic zone. Indicators that are well measured, accurate, timely, and relevant for every part of the world are certainly not at hand right now and it's going to take a number of years before they will be."

Another hurdle to overcome, he says, is the complexity of the SDG agenda. "Right now we have a complex agenda but we have no choice. Sustainable development has become an urgent need and the huge value of the SDGs is that they give a point on the horizon for us to aim at but they won't make it easy."

John Maurice