Noncommunicable diseases: the slow-motion disaster
Of all the major health threats to emerge, none has challenged the very foundations of public health so profoundly as the rise of chronic noncommunicable diseases. Heart disease, cancer, diabetes, and chronic respiratory diseases, once linked only to affluent societies, are now global, and the poor suffer the most. These diseases share four risk factors: tobacco use, the harmful use of alcohol, unhealthy diets, and physical inactivity. All four lie in non-health sectors, requiring collaboration across all of government and all of society to combat them.

At the turn of the century, chronic noncommunicable diseases were not widely recognized as a barrier to development and were not included in the Millennium Development Goals. In terms of gaining attention and financial support, these diseases were overshadowed by the devastating epidemics of HIV, tuberculosis, and malaria and the large number of maternal and childhood deaths. In 2010, only US$18.2 million in development assistance was devoted to NCD prevention and control, amounting to just 0.8% of total aid for health.

Much of WHO’s work in the earliest years of the decade involved collecting the data and making the arguments that would elevate NCDs on the global health and development agendas. On their part, countries – especially those with emerging economies – used the WHO STEPwise approach to gather standardized data on the true burden of these diseases. Those efforts culminated in 2011, when the UN General Assembly held a high-level meeting on NCDs and adopted a far-reaching Political Declaration.

The Political Declaration acknowledged that the threat of NCDs constitutes one of the major challenges for development in the 21st century, undermining social and economic progress throughout the world, and made WHO the principal agency for leading the global response. Several relevant WHO resolutions and regional initiatives were cited as providing a framework for stepped-up action on multiple fronts. WHO was specifically asked to prepare recommendations for a set of voluntary global targets. Despite the existence of low-cost, feasible, and high-impact interventions, WHO’s so-called “best buys”, the Political Declaration recognized the complexity of these diseases, the challenges facing prevention and control, and the need for a whole-of-government and whole-of-society approach.

High blood pressure, or hypertension, is the leading risk factor for heart disease and stroke.
So began a period of intense demands for WHO leadership and expectations for guidance that would deliver a measurable impact. The number of initiatives under WHO leadership soon grew to reflect the magnitude of the challenges, the breadth of the issues that needed to be addressed, and the large number of partners with something unique to contribute.

In 2013, the World Health Assembly adopted a comprehensive global monitoring framework for NCDs, with nine voluntary targets and 25 indicators. The Health Assembly also approved the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020, which provided a roadmap and menu of options for taking coordinated and coherent action to attain the targets. For each of the global targets and indicators, WHO issued an array of practical tools to facilitate implementation in countries, often adapted to regional settings. Of central importance was the STEPwise guide to the development, implementation and monitoring of national multisectoral action plans.

That same year, a UN Inter-Agency Task Force on the Prevention and Control of Noncommunicable Diseases was established by the UN Secretary-General and placed under the leadership of WHO to coordinate the engagement of UN agencies. The Task Force built on the work of the Ad Hoc Inter-Agency Task Force on Tobacco Control as another problem requiring collaboration from multiple non-health agencies. In 2014, the WHO Member States established the Global Coordination Mechanism on the prevention and control of NCDs to coordinate the engagement of nongovernmental organizations, philanthropies, business associations and academic institutions around coherent policy objectives, while also protecting public health and the integrity of WHO from potential conflicts of interest. In 2016, ECOSOC encouraged members of the Task Force to provide support to countries in reflecting the new NCD-related targets in the 2030 Agenda for Sustainable Development in their national responses.

However, as one country after another – whether rich or poor – struggled to make progress, many obstacles emerged. The complexity of the task ahead, concealed by so many years of inadequate attention, became readily apparent.

**The most democratic of all diseases**

Of all the major health threats to emerge since the start of this century, none has challenged the very foundations of public health so profoundly as the rise of chronic noncommunicable diseases. The prevalence of heart disease, cancer, diabetes, and chronic respiratory diseases, once considered the close companions of affluent societies, is now global, with the heaviest burden concentrated in low- and middle-income countries.

These are among the most democratic of all diseases, affecting populations at every income level in every country, but the poor suffer the most. In wealthy countries, where these diseases have been a research priority for nearly a century, high-income groups benefit from a range of treatments for lowering blood pressure, cholesterol and glucose levels, managing diabetes, and relieving the symptoms of chronic respiratory diseases. The use of sophisticated interventions, usually requiring specialized treatment in hospitals, has improved survival rates for heart disease and cancer significantly. Populations in wealthy countries also benefit from screening programmes...
designed to detect the diseases early when the prospects of successful treatment are greatest.

In these countries, low-income groups with poor access to health services and poor financial protection bear the heaviest burden of premature mortality.

In most emerging economies, risk factors first appear in wealthier groups who can afford to abandon traditional lifestyles and dietary patterns. In the typical pattern, risk factors – and the diseases they cause – then settle into poorer groups, who tend to smoke the most, consume the most alcohol, and eat the most cheap and convenient junk food. These groups also tend to seek health care only when a disease has progressed to severe symptoms that can no longer be ignored. In developing countries, for example, the vast majority of cancer patients are diagnosed so late that the only treatment option is pain relief. WHO estimates that, for various reasons, some 80% of the world’s population lacks adequate access to the medications needed for palliative care.

The trends are deadly, carry crippling economic costs, and cannot be easily reversed under the unique conditions of the 21st century. Health in all regions is being shaped by the same forces: demographic ageing, rapid urbanization, and the globalized marketing of unhealthy products. Under the pressure of these forces, chronic noncommunicable diseases have overtaken infectious diseases as the leading killers worldwide. In terms of its significance for health development, this shift in the disease burden has profound implications, as it challenges the very way socioeconomic progress is defined.

Beginning in the 19th century, improvements in hygiene, living conditions and nutrition were followed by vast improvements in health status and life-expectancy. These improvements aided the control of infectious diseases, totally vanquishing many major killers from modern societies. Today, the tables are turned. Instead of diseases vanishing as living conditions improve, socioeconomic progress is actually creating the conditions that favour the rise of chronic diseases. Economic growth, modernization, and urbanization have opened wide the entry point for the globalized marketing of health-harming products and the spread of unhealthy lifestyles. The world has 800 million chronically hungry people, but it also has countries where more than 70% of the adult population is overweight or obese.

The disease burden and its implications

WHO estimates that noncommunicable diseases kill 40 million people each year, accounting for 70% of all deaths worldwide. The yearly number of deaths includes 15 million people who died between the ages of 30 and 70 years. The majority of these premature deaths could have been prevented or delayed. Among the premature deaths, 85% occurred in developing countries, including 41% in lower-middle-income countries where the probability of dying from a chronic disease between the ages of 30 and 70 years is up to four times higher than in wealthy countries.

The implications for health systems and the care they provide are profound, calling for a change in the mindset of public health. The traditional approach to health that relies on the biomedical model, focused on the cure of individual diseases, is inadequate. The essential emphasis on prevention requires a greater reliance on the social and life sciences. Though better care is
needed everywhere, it is increasingly unaffordable – again everywhere. In several countries, the management of diabetes alone absorbs up to a third of the entire health budget. The average cost of newly approved treatments for various cancer indications is $120,000 per person per year, suggesting that advanced cancer treatment is becoming unaffordable for even the richest countries in the world. A study conducted by the World Economic Forum estimated that, under a “business as usual” scenario, low- and middle-income countries could lose $500 billion per year over the period 2011–2025 due to NCD morbidity and mortality, amounting to roughly 4% of average GDP.

These high costs, in turn, have four implications. First, they underscore the ethical imperative of fairness in access to life-saving and health-promoting interventions. Second, they make the need for systems of social protection more sharply obvious. For example, in parts of sub-Saharan Africa, people with diabetes living in rural areas can spend up to 60% of total household income on insulin. Third, they make prevention the cornerstone of the global response. Finally, they make it clear that no country in the world can hope to “spend its way out” of the NCD crisis by investing in treatment services alone.

The greatest challenge arguably falls on the way health systems are designed and services are delivered. Most health systems were built to manage brief episodes of acute illness, in which the patient either survives or dies, and are ill-equipped, staffed and budgeted to manage the demand for long-term or even life-long care. The health workforce, too, is inadequate in numbers and training, as was acknowledged in 2016 with the launch of the report of the High-Level Commission on Health Employment and Economic Growth.

Prevention faces two main barriers. First, most doctors worldwide are trained to diagnose, treat, and cure diseases, but not to prevent them. Incentive schemes in many health care settings reflect that emphasis. Second, the risk factors for these diseases – tobacco use, the harmful use of alcohol, unhealthy diets, and physical inactivity – lie in non-health sectors and are strongly influenced by the behaviours of powerful economic operators.

To address the underlying determinants of health, public health has long relied on collaboration with friendly sister sectors, like education, nutrition, housing, and water supply and sanitation. Tackling the forces that drive the marketing of health-harming products is far more complex and contentious, but it can be done.

Noncommunicable diseases are a slow-motion disaster, as many take decades to develop overt signs of disease. However, predisposing risk factors are known to start early in life, calling for a life-course approach to prevention and control. WHO has internationally agreed guidelines for managing all four diseases, especially when detected early. Most medicines needed for treatment are included in the WHO Model Lists of Essential Medicines, and many of these medicines are low-cost generics.

The approaches needed to combat such a monumental and broad-based challenge are numerous – from considering the implications of trade and foreign investment agreements to legislative and fiscal measures that enforce population-wide prevention, from community engagement and a life-course approach to people-centred health services that focus on integrated care instead of individual diseases, from finding ways to shape the behaviours of powerful economic operators to persuading municipal authorities to create safe playgrounds and spaces for pedestrians and cyclists.
These demands have shaped the direction WHO and health ministries have taken when calling for health system reforms. Of all the diseases under the WHO mandate, few others depend so heavily on health systems organized around the principles of primary health care and oriented towards universal coverage.

**Shared risks but different needs**

Though they share risk factors and approaches to prevention, each of the four principal noncommunicable diseases has its distinct epidemiological profile and distinct set of needs for both prevention and treatment. Even if preventive interventions were perfectly implemented, clinical cases of all four diseases will continue to burden health systems and societies.

**Cardiovascular disease.** WHO estimates that 17.5 million people die each year from cardiovascular disease, accounting for around 31% of all deaths worldwide and making this disease the world’s biggest killer. Some 80% of these deaths are caused by heart attacks and stroke. **High blood pressure, or hypertension, is the leading risk factor for heart disease and stroke,** and accounts for more than 12% of total deaths from cardiovascular disease. A large proportion of heart attacks and stroke can be prevented by controlling major risk factors through lifestyle interventions and pharmacological treatment when indicated. In 2013, WHO issued a *Global brief on hypertension* and, to raise public awareness, made the monitoring of blood pressure the theme for World Health Day. The new Global Hearts Initiative, launched by WHO, the US Centers for Disease Control and Prevention, and other partners in 2016, includes a SHAKE technical component aimed at helping countries devise population-wide policies to reduce salt intake.

**Cancer.** WHO estimates that 14.1 million new cases of cancer and 8.2 million cancer-related deaths occurred worldwide in 2012. Of these deaths, 4.3 million were premature, with 75% occurring in low- and middle-income countries. Based on current knowledge, **between one third and one half of all cancers are potentially preventable.** In addition to the risk factors shared by NCDs, the risk of cancer increases with exposure to indoor and outdoor air pollution, radiation, environmental chemicals, and occupational exposures. Tobacco use directly contributes to about 22% of global cancer deaths. In less developed countries, cancer-causing infections are a major risk factor. Responsible for more than 20% of cancer deaths. Vaccines are currently available for two common oncogenic infectious agents, namely human papillomavirus, which causes cervical cancer, and hepatitis B virus, which causes liver cancer. In less developed regions, WHO’s International Agency for Research on Cancer ranks liver cancer as the second most common cause of cancer deaths and cervical cancer as the seventh most common cause.

The discrepancies for cancer outcomes between wealthy and poorer countries are stark. For childhood acute lymphoblastic leukaemia, a highly treatable cancer, the five-year survival rate in poorer countries is less than 20% compared with 90% in select high-income countries. In poorer countries, late diagnosis of cancer is common, with many patients presenting for care only when the disease has reached an advanced or metastatic stage. Limited access to diagnostic services, including pathology, is likewise common. In 2014, the World Health Assembly adopted
its first resolution on the Strengthening of palliative care as a component of comprehensive care throughout the life course.

The costs of interventions, new medicines and sophisticated procedures and technologies are becoming unaffordable, even for the world’s wealthiest countries. The 2015 WHO Model List of Essential Medicines includes 16 low- and high-cost drugs which can increase survival times for common cancers, such as breast cancer, or can successfully cure up to 90% of patients with rare cancers, such as leukaemia and lymphoma. Different strategies have been used by countries and companies to address high prices, including measures to foster generic competitions, price regulation, use of voluntary licenses, and use of flexibilities set out in the World Trade Organization’s TRIPS agreement. Unaffordable high prices for essential medicines are a legitimate justification for countries to foster price regulation or ultimately issue compulsory licenses.

**Diabetes.** In 2016, who issued its first *Global report on diabetes*, underscoring the enormous scale of a crisis. The report estimated that the number of adults living with diabetes has almost quadrupled since 1980, moving from 108 million in 1980 to 422 million in 2014. More than half of these people are unaware of their disease status and even more receive no treatment. The global prevalence of diabetes in the adult population has also increased, nearly doubling from 4.7% in 1980 to 8.5% in 2014. Like population-wide obesity, its precursor, diabetes is increasing most markedly in the cities of low- and middle-income countries. Most people are affected by type 2 diabetes – once known as adult-onset diabetes, but no longer, as so many adolescents and children are now affected.

Each year, diabetes causes around 1.5 million deaths. High blood glucose contributes to an additional 2.2 million deaths, largely by increasing the risk of cardiovascular disease. That means 3.7 million yearly deaths related to high glucose levels. Of these deaths, 42% occur prematurely, before the age of 70 years.

The Asia-Pacific region is generally considered the epicentre of the diabetes crisis. In these countries, people develop the disease earlier, get sicker, and die sooner than their counterparts in wealthier countries. Some researchers are investigating whether a genetic predisposition may be at work. Others are looking at factors in the environment that could amplify a genetic risk or operate on their own to explain this unique epidemiological pattern. Evidence is mounting that bodies programmed during gestation and early childhood to survive on low energy intake are metabolically challenged when confronted with even modest increases in calorie intake. Some researchers believe this may be one reason why people in India and China develop diabetes about a decade earlier than people of European origin and can do so following only a small weight gain.

In some of Asia’s most populous countries, a generation that grew up in rural poverty, with too little to eat and jobs involving hard manual labour, now lives in urban high-rise apartments, with sedentary jobs, low-cost cars, and food environments loaded with cheap and convenient calories. Partly as a result of these changes, millions of people lifted out of poverty to join the booming middle class now find themselves trapped in the misery of diabetes and all its costly complications.

**Chronic respiratory diseases.** Chronic respiratory diseases are diseases of the airways and other structures of the lung. Some of the most common are chronic obstructive pulmonary disease,
asthma, occupational lung disease, and pulmonary hypertension. WHO estimates that 235 million people, especially children, suffer from asthma. Chronic obstructive pulmonary disease kills around three million people each year, with more than 90% of these deaths occurring in poorer countries. In addition to tobacco smoke, other risk factors include air pollution, exposure to occupational chemicals and dusts, and frequent lower respiratory tract infections. Although this group of diseases cannot be cured, various forms of treatment that help dilate major air passages and improve shortness of breath can control symptoms and improve the quality of life. **Worldwide, most chronic respiratory diseases are under-diagnosed and under-treated.** Access to essential medications in many countries is poor. In 2007, WHO published a comprehensive approach to **Global surveillance, prevention and control of chronic respiratory diseases.**

### The four risk factors: root causes in non-health sectors

The highest-burden noncommunicable diseases share the same four risk factors. All lie in non-health sectors, which makes the control of these diseases one of the most powerful examples of the need for multisectoral collaboration that takes a whole-of-government and whole-of-society approach.

**Tobacco use.** Smoking is the second leading risk factor for early death and disability worldwide. More than 1.1 billion people, or one in five adults, currently smoke tobacco, leading to around 7.2 million deaths each year. Moreover, global tobacco use exerts an extraordinary toll on the world’s economy. In 2017, the US National Cancer Institute and WHO jointly estimated that tobacco use causes more than $1.4 trillion in health care costs and lost productivity annually.

As shown in internal company documents, the tobacco industry has long regarded WHO as its biggest enemy, a distinction the WHO Director-General has worn as a badge of honour. Full implementation of the WHO Framework Convention on Tobacco Control is the most powerful way to reduce the huge harms to health caused by tobacco. To support the implementation of the treaty on the ground, WHO introduced MPOWER – a set of six measures, aligned with the treaty, which help countries reduce the demand for tobacco, using methods that are high-impact but also practical and low-cost.

Progress in adopting MPOWER measures demonstrates countries’ commitment to tobacco control. In 2007, only 1 in 10 people living in low- and middle-income countries were protected by at least one MPOWER measure at the highest level of achievement. Seven years later, with the support of many partners including Bloomberg Philanthropies, this level of protection is enjoyed by nearly 1 in 3 people in those countries.

Time and again, increasing taxes on tobacco products to raise retail prices has been proven to be the most effective and efficient of the best-buy demand-reduction measures to reduce tobacco use. Unfortunately, it is also the least widely implemented measure. Despite all the positive progress made, raising tobacco taxes lags behind implementation of the other MPOWER measures. In 2014, only 10% of the world’s population was covered by taxes that amount to more than 75% of the retail price. The big picture, however, is promising; countries are moving in the right direction on all MPOWER measures, with great progress made on some.
A substantial factor in lack of progress in implementing tobacco control is interference by the tobacco industry. A large body of evidence demonstrates that tobacco companies use a wide range of tactics to interfere with tobacco control. Such strategies include direct and indirect political lobbying and campaign contributions, financing of research, attempting to affect the course of regulatory and policy machinery, and engaging in social responsibility initiatives as part of public relations campaigns.

Most recently, the way the industry opposes tobacco control measures has been clearly on display in their response to the introduction of tobacco plain packaging. Tobacco industry opposition to this policy has been long-standing. In 1993, tobacco companies formed an industry wide “plain packs group” to oppose plain packaging laws. Today, the experience in countries introducing plain packaging suggests that tobacco companies will go above and beyond their typical opposition to tobacco control measures by undertaking a massive opposition campaign to plain packaging through lobbying and litigation. Industry opposition focuses on questioning established evidence, the supposed unintended consequences, and arguments about paternalism. Tobacco companies argue that plain packaging will increase illicit trade,
push prices down, and create confusion for retailers. These claims are not supported by the evidence and are contradicted by Australia’s experience.

In 2012, Australia became the first country to fully implement plain packaging of all tobacco products. Australia faced a number of legal challenges to this legislation. A domestic Constitutional challenge brought by the tobacco industry was dismissed by the High Court of Australia. Philip Morris also used the investor-state dispute settlement mechanism in a bilateral investment treaty between Australia and China (Hong Kong Special Administrative Region) to seek compensation for losses it claimed were caused by plain packaging, including expropriation of its intellectual property. In December 2015, this claim was dismissed for lack of jurisdiction. The disputes at the World Trade Organization over Australia’s tobacco plain packaging measure remain ongoing.

By the end of May 2017, tobacco plain packaging will be fully implemented in France and the UK. Both countries have also faced domestic legal challenges to their legislation; in each instance the claims were dismissed by domestic courts. Ireland, Hungary, New Zealand, Norway, Slovenia and Thailand have passed plain packaging legislation. Other countries are at an advanced stage of the policy development process or have the policy under active consideration. In 2016, World No Tobacco Day focused on tobacco plain packaging, and WHO expects that interest in tobacco plain packaging will continue to grow among its Member States.

Other recent legal victories have also been significant. In 2016, the European Court of Justice upheld the European Union’s 2014 Tobacco Products Directive, which implements a number of provisions in the WHO Framework Convention on Tobacco Control. Also in 2016, after six years of litigation, Uruguay was successful in defending a claim for compensation brought by Philip Morris under the investor-state dispute settlement mechanism in a bilateral investment treaty. The claim challenged the introduction of large graphic health warnings and a single presentation requirement restricting the number of brand variants available on the market. In dismissing the claim, the Tribunal hearing the arbitration also ordered Philip Morris pay Uruguay $7 million towards the country’s legal costs.

The progress made in implementing tobacco control measures - despite powerful industry opposition - may offer some lessons for other areas of public health that face opposition to policy initiatives from powerful corporate interests.

The harmful use of alcohol. The harmful use of alcohol causes immense damage to health and societies and imposes a heavy burden on health systems and health budgets. Alcohol can be a killer. WHO estimates that the harmful use of alcohol is responsible for around 3.3 million deaths worldwide each year. Alcohol can kill slowly, as it gradually contributes to diseases like cirrhosis of the liver and cancer at several sites. Harmful drinking is also a major risk factor for cardiovascular disease.

Alcohol can kill quickly, sometimes instantly, when it contributes to road traffic crashes, injuries, poisoning, violence, violent crime, and suicide. Alcohol use can lead to the development of alcohol dependence and a range of neuropsychiatric disorders. Through various mechanisms, it increases the risks of infectious diseases, like tuberculosis and HIV, and has a negative impact on their treatment outcomes. Alcohol consumption during pregnancy can cause permanent physical and mental damage to the developing fetus resulting in a range of health conditions known as Fetal Alcohol Spectrum Disorders.
Preventive action is deeply desired by many governments, many civil society organizations, and many millions of people around the world who have seen lives, families, careers, and communities devastated or destroyed by the harmful use of alcohol. Like many other societal problems, the harmful use of alcohol has multiple dimensions and contributing factors that extend well beyond the health sector. Depending on the national context, efforts to protect populations from the harmful use of alcohol can require support from fiscal policies, trade policies, the judicial system, law enforcement, and government ministries responsible for youth, road safety, consumer affairs, and commerce.

All countries wishing to introduce or strengthen alcohol policies have a powerful instrument to assist them: the Global Strategy to Reduce the Harmful Use of Alcohol, approved by the World Health Assembly in 2010. The strategy sets out a menu of policy options and supporting interventions that each country can draw on to craft effective and affordable policies that match distinct national problems and priorities, as expressed in distinct cultural and religious contexts. The strategy was developed during wide-ranging negotiations and consultations that lasted nearly three years. Its unanimous endorsement was a landmark for public health, WHO, and governments concerned about the harm that alcohol consumption can cause.

The menu of options is organized around ten areas recommended for targeted action, ranging from community action, to responses within health services, to a number of regulatory measures. Regulatory measures are particularly effective in preventing deaths and injuries from drink-driving, constraining the availability of alcohol, and reducing the impact of marketing, especially on young people. Ways of countering the problems of illicit alcohol and home-made brews are also covered.

Increasing the price of alcoholic beverages is one of the most effective preventive interventions. Unfortunately, alcohol consumption is expanding in precisely those countries that lack the regulatory and enforcement capacities to protect their populations. The WHO Global Information System on Alcohol and Health, integrated with the Global Health Observatory, provides regularly updated information on alcohol consumption, its health consequences, and policy responses at global, regional and country levels.

On the positive side, the research that supports the strategy shows that strong alcohol policies work. A reduction in the density of stores selling alcohol has been shown, over time, to reduce rates of child maltreatment and drink-driving. Having fewer outlets has also been linked to fewer traffic crashes and pedestrian injuries. Restrictions on the times when alcohol is available have an impact. In one city in Australia, late-night assaults declined by nearly 40% when closing hours for alcohol purchase were turned back modestly. In a city in Brazil with one of the highest murder rates in the country, the introduction of restrictions on alcohol availability was followed by a 44% decline in murders.

In short, national alcohol policies are needed, desired, entirely feasible, and highly effective. They are also feared and fought by the alcohol industry. In 2013, the WHO Director-General made a public statement following the unmasking of efforts by an industry-sponsored group to shape alcohol policies in four developing countries. She articulated two red lines that industry must never cross: industry cannot sit at the table or have a voice when WHO defines its standards and preventive strategies, and it cannot supplant government’s role in formulating policies for alcohol control.
In the view of WHO and many others, the formulation of alcohol policies is the sole prerogative of national health officials and regulatory authorities. Policies shaped by industry consistently fail to include those measures proven by the evidence and endorsed by WHO to have the greatest impact.

Unhealthy diets. In the second half of the previous century, the world’s food system began to concentrate almost exclusively on increasing the production and reducing the cost of food. Food production became industrialized. Food processing became a science engineered to produce almost irresistibly tasty foods that were also cheap and convenient. Ways were developed to grow vegetables without soil. Confined animal feeding operations sprung up to meet the demand for cheap meat and dairy products, with well-documented consequences for the environment, human health, animal welfare, and the economies of rural areas.

Many large middle-income countries adopted factory farming models from North America and Europe to meet the growing consumer demand for meat that nearly always follows new prosperity. For example China now has mega-factory farms capable of producing more than a million pigs each year. While consolidating meat production undoubtedly improves food safety, it is environmentally unsustainable. Moreover, it comes at a time when WHO and other health agencies are advising populations to reduce meat consumption as part of an overall healthy diet.

For all these reasons, much food production is now divorced from its primary purpose of providing the nutrients that sustain human life in good health. Following a series of high-profile mergers and acquisitions, agribusiness is now operated by just a handful of large multinational corporations that control the food chain, from seeds, feed, and chemicals, to production, processing, marketing, and distribution.

Population-wide overweight and obesity are the signal that bad trouble is on its way, especially given the strong links between obesity and overweight and diabetes, heart disease, and cancer at several sites. However, progress is being made. In 2010, the World Health Assembly approved a set of recommendations on the marketing of foods and beverages high in sugar, salt, and fats to children. In 2013, the Codex Alimentarius Commission, jointly administered by FAO and WHO, harmonized the disclosure of total sugars, sodium, and saturated fatty acids in its international guidelines for food labelling.

In 2014, Mexico – which has one of the world’s highest burdens of obesity and associated diabetes – became the first country to introduce a tax on sugar-sweetened beverages. Studies showed that soda sales fell by 5.5% in 2014 compared with the year before, and by 9.6% in 2015, again compared with 2013. The largest reductions were recorded in the poorest population groups.

Also in 2014, the WHO Director-General established the WHO Commission on Ending Childhood Obesity. One of the strongest recommendations in the Commission’s 2016 report calls on governments to implement an effective tax on sugar-sweetened beverages. The Commission’s report further urged governments to accept their responsibility to protect children, including a responsibility to take action without considering the impact on producers of unhealthy foods and beverages. The oft-heard argument that lifestyle behaviours are a matter of personal choice does has limited application to children. An implementation plan for taking the Commission’s work forward will be considered by the 2017 World Health Assembly.
In 2015, WHO issued new guidelines for free sugars, recommending that they account for less than 10% of total energy intake. A further reduction to less than 5% of total energy intake was recommended to bring additional health benefits. The higher profile given to sugar prompted South Africa, with its obesity epidemic, and the Philippines, where 97% of six-year-olds have tooth decay, to seek WHO guidance in drafting appropriate legislation to tax sugar-sweetened beverages. These countries will join US cities, like Philadelphia in Pennsylvania, Cook County in Illinois, and Berkeley, San Francisco, Oakland, and Albany in California, which are already taxing soda.

In the view of the WHO Director-General, the widespread occurrence of obesity and diabetes throughout a population is not a failure of individual willpower to resist fats and sweets or exercise more. It is a failure to make bold political choices that take on powerful economic operators, like the food and soda industries. If governments understand this duty, the fight against obesity and diabetes can be won. The interests of the public must be prioritized over those of corporations.

Physical inactivity. Regular and adequate levels of physical activity reduce the risk of hypertension, coronary heart disease, stroke, diabetes, and some cancers, including breast and colon cancer. Physical activity also reduces the risk of falls and hip or vertebral fractures and is fundamental to energy balance and weight control. In addition to its role in preventing these conditions, evidence shows that physical activity can reduce depression and help maintain functional abilities in ageing populations.

Despite these well-documented contributions to good health, overall levels of physical activity have declined in nearly all countries and remain a neglected dimension of prevention and intervention, especially in low- and middle-income countries. Globally, around 23% of adults and 81% of adolescents do not meet WHO recommended levels of physical activity. Low or decreasing levels of physical activity often coincide with a high or rising gross national product. In high-income countries, 26% of men and 35% of women were insufficiently physically active, as compared to 12% of men and 24% of women in low-income countries.

The drop in physical activity is partly due to inaction during leisure time, sedentary behaviour on the job and at home, and an increase in the use of “passive” modes of transportation. Other factors associated with urbanization and modernization include high levels of urban air pollution which discourage outdoor activity, the failure of authorities in rapidly growing cities to provide playgrounds and walking and cycling lanes, and the increasing amount of leisure time spent behind the screens of TVs, computers, and hand-held devices.

In 2010, WHO issued its first Global recommendations on physical activity for health. The recommendations set out the frequency, duration, intensity, type, and total amount of physical activity needed to prevent noncommunicable diseases in three age groups: 5–17 years, 18–64 years, and 65 years and older. For all age groups, recommended levels of daily or weekly activity are considered essential to improve cardiorespiratory and muscle fitness, bone health, and mental health and to reduce the risks of stroke, hypertension, obesity-related diabetes, and breast and colon cancer. For the oldest age group, recommendations are further intended to improve balance, reduce falls, and maintain cognitive abilities.
In 2013, the WHO Global NCD Action Plan for the Prevention and Control of NCDs established the target of a 10% relative reduction in the prevalence of insufficient physical activity by 2025. In 2016, the WHO Commission on Ending Childhood Obesity called for the implementation of comprehensive programmes that promote physical activity and reduce sedentary behaviours in children and adolescents. In January 2017, the Executive Board asked WHO to develop a Global Action Plan on Physical Activity to be considered by the World Health Assembly in 2018.

Democratizing the benefits of clinical care

With the burden of premature mortality overwhelmingly concentrated in poor settings and experiences elsewhere showing the dramatic impact of risk reduction and clinical care, WHO sought a way to translate at least some of this success into clinical protocols and technical guidelines suitable for use in low-resource settings. In doing so, WHO adopted the public health approach that worked so well to extend high-quality care for HIV and tuberculosis, achieving expanded coverage and good results despite limited resources. Central to this approach was the use of evidence – accumulated over decades in wealthy settings – to standardize and simplify the demands on health systems and staff. Such an effort deliberately countered the assumption that poor people living in poor places will inevitably receive poor care or no care at all.

The quest to democratize the benefits of clinical care culminated in 2013, when WHO published its Package of essential noncommunicable disease interventions for primary health care in low-resource settings, which became known as WHO PEN. The package includes clinical protocols and technical guidelines covering the questions to ask and the step-by-step actions to follow to screen for breast and cervical cancer, manage the symptoms of asthma and chronic obstructive pulmonary disease, and get people with high blood pressure and high glucose and cholesterol levels on treatment. The PEN approach recognizes that multiple factors work together to increase risks and need to be managed in an integrated way. A protocol on counselling for behaviour change is also included.

PEN uses a simplified approach that relies on just a few technical tools and a core list of essential medicines that can have a high impact, even without the backup of laboratory services. For example, the package makes good use of simple colour-coded wall charts, co-developed by WHO and the International Society of Hypertension, which help predict the 10-year risk of a fatal heart attack or stroke looking at a limited set of risk factors in 14 specific epidemiological settings. By using the wall charts and other simple non-invasive measures, countries can stratify populations according to the level of risk and manage those at highest risk using low-cost generic drugs.

A major strength of the package is its evaluation and ranking of the evidence used to support recommendations, especially as most studies of effective interventions had been conducted in affluent countries and some scepticism existed about whether certain medicines could be safely administered and tests accurately performed in low-resource settings. By setting out the evidence, WHO also set the stage for developing simple algorithms, adapted to the local situation, for the training of primary health care staff. The package also includes evidence-
based recommendations for self-care for cardiovascular disease, diabetes, and chronic respiratory diseases.

WHO PEN obviously met an urgent need, as it stimulated a flurry of pilot studies that tested the protocols with consistently good results, especially in reducing the risks for heart attacks and stroke and improving the management of diabetes and hypertension. In 2016, the World Hypertension League recommended implementation of WHO PEN in low-resource settings as a cost-effective and equitable means to control hypertension and other risk factors. The endorsement further argued that implementation of WHO PEN could strengthen the efficiency and equity of the health system as a whole.

The principles and approaches of WHO PEN took another step forward in 2016, when WHO, the US CDC, and other partners launched the Global Hearts Initiative aimed at scaling up measures, known to have the greatest life-saving impact, under the constraints typically found in developing countries. The initiative represents an unprecedented effort of wealthy countries that have substantially reduced deaths from cardiovascular disease to adapt lessons from their success to settings with far fewer resources.

The initiative has three technical packages focused on tobacco control, reduced salt consumption, and the prevention of heart attacks and stroke in primary health care. The heart package systematically addresses barriers to care and uses a protocol-driven approach to simplify and standardize the integrated management of risk factors. It further provides a monitoring framework for the PEN initiative.

A high profile on the development agenda

Taken together, these events, initiatives, targets, and achievements show that the world is now wide-awake to the threat from noncommunicable diseases – no longer sleep-walking towards a disaster as it was at the start of the century. The control of noncommunicable diseases is now more broadly recognized as one of the most powerful ways to improve longevity and healthy life expectancy. The inclusion of an ambitious target for reducing premature deaths from noncommunicable diseases in the 2030 Agenda for Sustainable Development formalizes the elevated place of these diseases on the international development agenda.
This report is available on WHO's website
www.who.int/publications/10-year-review/en/