



## ***News and Events***

***Dr. Bhaswati Sengupta,***

### **Climate summit**

The 2015 United Nations Climate Change Conference, was held in Paris, France, from 30 November to 12 December 2015

The conference negotiated the Paris Agreement, a global agreement on the reduction of climate change, the text of which represented a consensus of the representatives of the 196 parties attending it. The agreement will become legally binding if at least 55 countries (which together represent at least 55 percent of global greenhouse emissions) sign the agreement in New York between 22 April 2016 and 21 April 2017, and adopt it within their own legal systems (through ratification, acceptance, approval, or accession).

The key result was an agreement to set a goal of limiting global warming to less than 2 degrees Celsius (°C). The agreement calls for zero net anthropogenic greenhouse gas emissions to be reached during the second half of the 21st century. In the adopted version of the Paris Agreement, the parties will also "pursue efforts to" limit the temperature increase to 1.5 °C by achieving zero emissions sometime between 2030 and 2050.

The objective of the 2015 conference is to achieve, for the first time in over 20 years of UN negotiations, a binding and universal agreement on climate, from all the nations of the world.

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The International Trade Union Confederation has called for the goal to be "zero carbon, zero poverty"

Prior to the conference, 146 national climate panels publicly presented draft national climate contributions (called "Intended Nationally Determined Contributions", INDCs). These suggested commitments were estimated to limit global warming to 2.7 degrees Celsius by 2100.

Together, the Paris Agreement and the accompanying COP decision:

- Reaffirms the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establishes binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commits all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commits all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirms the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too.
- Extends the current goal of mobilizing \$100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extends a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Requires parties engaging in international emissions trading to avoid "double counting;" and
- Calls for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC.

**Source:**

World Climate Summit 2015.

[www.wclimate.com/world-climate-summit2015](http://www.wclimate.com/world-climate-summit2015) accessed on 16.01.2016.

UN Climate Summit

[www.un.org/climatechange/summit](http://www.un.org/climatechange/summit) accessed on 16.01.2016.

**WHO DAY 2016**

**Slogan: Halt the rise, Beat Diabetes,**

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin, a hormone that regulates blood sugar, gives us the energy that we need to live. If it cannot get into the cells to be burned as energy, sugar builds up to harmful levels in the blood.

There are 2 main forms of the diabetes. People with type 1 diabetes typically make none of their own insulin and therefore require insulin injections to survive. People with type 2 diabetes, the form that comprises some 90% of cases, usually produce their own insulin, but not enough or they are unable to use it properly. People with type 2 diabetes are typically overweight and sedentary, 2 conditions that raise a person's insulin needs.

Over time, high blood sugar can seriously compromise every major organ system in the body, causing heart attacks, strokes, nerve damage, kidney failure, blindness, impotence and infections that can even lead to amputations.

WHO has focussed, on diabetes on World Health Day, 7 April 2016 because:

1. The diabetes epidemic is rapidly increasing in many countries, with the documented increase most dramatic in low- and middle-income countries.

In 2008, an estimated 347 million people in the world had diabetes and the prevalence is growing, particularly in low- and middle-income countries.

In 2012, the disease was the direct cause of some 1.5 million deaths, with more than 80% of those occurring in low- and middle-income countries. WHO projects that diabetes will be the 7th leading cause of death by 2030

2. A large proportion of diabetes cases are preventable. Simple lifestyle measures have been shown to be effective in preventing or delaying the onset of type 2 diabetes. Maintaining normal body weight, engaging in regular physical activity, and eating a healthy diet can reduce the risk of diabetes.

3. Diabetes is treatable. Diabetes can be controlled and managed to prevent complications. Increasing access to diagnosis, self-management education and affordable treatment are vital components of the response.

4. Efforts to prevent and treat diabetes will be important to achieve the global Sustainable Development Goal 3 target of reducing premature mortality from non- communicable diseases (NCDs) by one-third by 2030. Many sectors of society have a role to play, including governments, employers, educators, manufacturers, civil society, private sector, the media and individuals themselves.

The main goals of the World Health Day 2016 campaign will be to:

1. Increase awareness about the rise in diabetes, and its staggering burden and consequences, in particular in low-and middle-income countries;
2. Trigger a set of specific, effective and affordable actions to tackle diabetes. These will include steps to prevent diabetes and diagnose, treat and care for people with diabetes; and
3. Launch the first Global report on diabetes, which will describe the burden and consequences of diabetes and advocate for stronger health systems to ensure improved surveillance, enhanced prevention, and more effective management of diabetes.

Source: WHO/World Health Day 2016

[www.who.int/campaign/World-Health-Day](http://www.who.int/campaign/World-Health-Day) accessed on 20.02.2016.

World Health Day 2016: World Health Day - Wikipedia, the free encyclopaedia

[https://en.wikipedia.org/wiki/World\\_Health\\_Day](https://en.wikipedia.org/wiki/World_Health_Day) accessed on 27.03.2016.

## **Food safety**

Food safety is a scientific discipline describing handling, preparation, and storage of food in ways that prevent foodborne illness. This includes a number of routines that should be followed to avoid potentially severe health hazards. The tracks within this line of thought are safety between industry and the market and then between the market and the consumer. In considering industry to market practices, food safety considerations include the origins of food including the practices relating to food labelling, food hygiene, food additives and pesticide residues, as well as policies on biotechnology and food and guidelines for the management of governmental import and export inspection and certification systems for foods. In considering market to consumer practices, the usual thought is that food ought to be safe in the market and the concern is safe delivery and safe preparation of food for the consumer.

Food can transmit disease from person to person as well as serve as a growth medium for bacteria that can cause food poisoning. In developed countries there are intricate standards for food preparation, whereas in lesser developed countries the main issue is simply the availability of adequate safe water, which is usually a critical item. In theory, food poisoning is 100% preventable. The five key principles of food hygiene, according to WHO, are:

1. Prevent contaminating food with pathogens spreading from people, pets, and pests.
2. Separate raw and cooked foods to prevent contaminating the cooked foods.
3. Cook foods for the appropriate length of time and at the appropriate temperature to kill pathogens.
4. Store food at the proper temperature.
5. Do use safe water and raw materials.

A 2003 World Health Organization (WHO) report concluded that about 30% of reported food poisoning outbreaks in the WHO European Region occur in private homes. According to the WHO and CDC, in the USA alone, annually, there are 76 million cases of foodborne illness leading to 325,000 hospitalizations and 5,000 deaths.

Dr.Sudershan Rao Vemula, et al, NIN (ICMR), Hyderabad reported outbreak of food borne diseases in India from 1980-2009

Epidemic Dropsy 242 at Delhi , Botulism 34 at Gujrat Pesticide poisoning 96 at Ahmedabad and Delhi , Mycotoxicosis 1,548 at Various parts of the country, Sodium nitrate poisoning 22 at Hyderabad Bacterial food poisoning 1,130 at Various parts of the country ,Lead poisoning 30 at Hyderabad and Rancidity of food 125 at Hyderabad .

The Food Safety and Standards Authority of India has been established under the Food Safety and Standards Act, 2006 as a statutory body for laying down science based standards for articles of food and regulating manufacturing, processing, distribution, sale and import of food so as to ensure safe and wholesome food for human consumption.

**Source:**

FoodSafety.gov: Home

[www.foodsafety.gov/](http://www.foodsafety.gov/) accessed on 27.03.2016.

WHO | Food Safety and Zoonosis

[www.who.int/foodsafety/en/](http://www.who.int/foodsafety/en/) accessed on 27.03.2016.

Foodborne diseases in India—a review

[www.emeraldinsight.com](http://www.emeraldinsight.com) accessed on 19.04.2016.

**The growing antimicrobial resistance-A threat**

In their joint declaration at Davos 2016 calling for new government-industry funding models to "fight the problem of antimicrobial resistance" the pharmaceutical industry representatives "jointly acknowledged industry's responsibility for helping to make sure antibiotics were used properly" and not "overused.". Antibiotics should only be used when needed and only when prescribed by health professionals.] When antibiotics are being prescribed, the prescriber should closely adhere to the five rights of drug administration: the right patient, the right drug, the right dose, the right route, and the right time. Narrow-spectrum antibiotics should be used rather than broad-spectrum antibiotics when possible to effectively and accurately target specific organisms. Cultures should be taken before

treatment when indicated and treatment potentially changed based on the susceptibility report. For people who will be self-administering these medications in the home setting, emphasis must be placed on education about proper use of the drug. In practice, health care providers should try to minimize spread of resistant infections by using proper sanitation techniques including handwashing or disinfecting between each patient, and should encourage the same of the patient, visitors, and family members.

The rising trend in drug resistance can be attributed to three primary areas: use of antibiotics in the human population, use of antibiotics in the animal population, and the spread of resistant strains between human or non-human sources. Any use of antibiotics can increase selective pressure in a population of bacteria, causing vulnerable bacteria to die thereby increasing the relative numbers of resistant bacteria and allowing for further growth. As resistance to antibiotics becomes more common, there is greater need for alternative treatments. Call for new antibiotic therapies have been issued, but there is continuing decline in the number of approved drugs. The Centres for Disease Control and Prevention (CDC) has developed a monitoring program for the top 18 drug-resistant threats in the United States, categorized by level of concern; examples of common types of drug-resistant bacteria include: methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *S. aureus* (VRSA), extended spectrum beta-lactamase (ESBL), vancomycin-resistant *Enterococcus* (VRE), multidrug-resistant *A. baumannii* (MRAB).

A World Health Organization (WHO) report released April 2014 stated, "This serious threat is no longer a prediction for the future, it is happening right now in every region of the world and has the potential to affect anyone, of any age, in any country. Antibiotic resistance—when bacteria change so antibiotics no longer work in people who need them to treat infections—is now a major threat to public health." There have been increasing public calls for global collective action to address the threat, including a proposal for an international treaty on antimicrobial resistance. Antibiotic resistance is not properly mapped across the world, but the countries that are affected the most are poorer countries with already weaker healthcare support.

In 2014, the WHO stated:

People can help tackle resistance by: using antibiotics only when prescribed by a doctor; completing the full prescription, even if they feel better; never sharing antibiotics with others or using leftover prescriptions.

Health workers and pharmacists can help tackle resistance by: enhancing infection prevention and control; only prescribing and dispensing antibiotics when they are truly needed; prescribing and dispensing the right antibiotic(s) to treat the illness.

Policymakers can help tackle resistance by: strengthening resistance tracking and laboratory capacity; regulating and promoting appropriate use of medicines, by fostering innovation and research and development of new tools; promoting cooperation and information sharing among all stakeholders.

**Source:**

WHO | Antimicrobial resistance

[www.who.int/mediacentre/factsheets/fs194/en/](http://www.who.int/mediacentre/factsheets/fs194/en/) accessed on 06.04.2016.

Antibiotic / Antimicrobial Resistance | CDC

[www.cdc.gov/drugresistance](http://www.cdc.gov/drugresistance) accessed on 09.04.2016



## **Cartridge Based Nucleic Acid Amplification Testing (CBNAAT) diagnostics for the diagnosis of tuberculosis and multi-drug resistant tuberculosis in India.**

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Currently, diagnosis of pulmonary TB in India is primarily based on smear microscopy results, with provision for clinical and radiography-based diagnosis for those whose sputum smear results are negative.

Disadvantages of sputum smear microscopy:

- Moderate sensitivity
- Requirement for multiple visits for patients
- Heavy dependence on individual laboratory technician skill
- Lack of information on organism susceptibility to treatment
- Limited usefulness in HIV-infected persons or children

### **What is CBNATT test?**

Cbnatt test Cartridge-based Nucleic acid amplification test (CBNAAT) is a recently introduced polymerase chain reaction (PCR) based method for detection of TB. It also detects rifampicin resistance as it targets the *rpoB* gene of mycobacteria. CBNAAT is a Mycobacterium tuberculosis-specific automated, cartridge based nucleic acid amplification assay, having fully integrated and automated amplification and detection using real-time PCR, providing results within 100 minutes. It is a highly specific test as it uses 3 specific primers and 5 unique molecular probes to target the *rpoB* gene of *M. tuberculosis*, which is the critical gene

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associated with rifampicin resistance. It offers very high sensitivity and specificity equivalent to solid culture and DST(Drug Susceptibility test).

- Allows for early initiation of standardized second line TB treatment for MDR-TB patients.
- With dedicated staff and sufficient instrument capacity, results are available from raw sputum in about 2 hours, without the requirement of highly trained personnel.
- Provides information on drug susceptibility to rifampicin.
- Designed to extract, amplify and identify targeted nucleic acid sequences in the TB genome.
- An effective tool even in HIV infected patients.

### **Public health significance:**

Tuberculosis is one of the deadliest public health threats today, but there remains a lack of effective diagnostic tools. This contributes to the global TB problem, as untreated TB patients remain a source of infection for other members of the community. Untreated TB also results in considerable morbidity and mortality, especially in HIV co-infected individuals. The most widely used method to detect TB in most disease-endemic countries is the 125 year-old sputum smear microscopy test, which has a number of drawbacks including low sensitivity (especially in HIV-positive individuals and children), inability to determine drug-susceptibility, and variable performance that depends on operator training and volition.

Conventional diagnosis of drug resistant TB relies on mycobacterial culture and drug susceptibility testing (DST), a slow and cumbersome process requiring sequential procedures for isolation of mycobacteria from clinical specimens, identification of *Mycobacterium tuberculosis* complex, and in vitro testing of strain susceptibility to anti-TB drugs. During this time patients may be inappropriately treated, drug-resistant strains may continue to spread, and amplification of resistance may occur.

In contrast, this ( Cbnatt) test is a rapid test which identifies both the presence of *M. tuberculosis* and resistance to rifampicin in a single test. This can enable early and appropriate treatment initiation, as well as accelerating the implementation of MDR-TB control measures,

and ultimately reducing TB case incidence. Results from large-scale studies showed that testing a single sputum sample.

This test allows for a rapid and accurate diagnosis which helps to ensure that individuals can be commenced early on appropriate treatment. The test is specifically designed for use at the district or sub-district level of the health system.

Pitfalls for this new technology: The machine requires a stable and uninterrupted electrical power supply and is linked to a computer for data analysis, which of course requires security against theft. The instrument requires at least annual calibration which presently needs to be performed by a trained technician using specialized calibration equipment. The most commonly-deployed GeneXpert device (GX4) has a limited throughput, and larger systems (or linked devices), with throughputs of up to 1000 tests/day, will carry higher capital costs.

### **WHO's involvement in the development of new TB diagnostics :**

WHO strongly encourages the development of new diagnostics and gets involved once there is enough data available from large-scale demonstration studies in different geographical and epidemiological settings.

The RNTCP National Strategic Plan 2012 – 2017 proposes buying 1000 CBNAAT machines and testing all confirmed TB cases for RIF resistance at the district level. It is unknown whether a larger investment and deployment could accelerate reductions in incidence. This project is expected to inform the real impact of new rapid diagnostics on future TB control, and guide major GOI investments.

The theme of world TB day for the year 2016 is 'let Unite to End TB'

### **Source**

1 Directorate of Health Services, Central TB division, Ministry of Health & Family Welfare(Mohawk),Government of India. National strategic plan(2012-2017)for tuberculosis, New Delhi.[www.tbcindia.nic.in](http://www.tbcindia.nic.in)

2. Dewan R , Anuradha S, Khanna A, Garg S, Singh S, Ish P. et al. Role of Cartridge-based nucleic acid amplification test (CBNATT) for early diagnosis of Pulmonary tuberculosis in HIV.,JACM2015;16(2)114

3.WHO. Standards of TB care in India (STCI), WHO 2014