ROLE OF THE VETERINARY SERVICES

• The Veterinary Services help to reduce risks to animal health and public health by conducting checks on-farm and in places of processing, such as slaughterhouses, where they carry out ante-mortem and post-mortem inspections, to verify the health of the animals and the wholesomeness of their products, in accordance with OIE standards.

• In several countries, the Veterinary Services are responsible for food safety throughout the entire food chain (farm, slaughterhouse, transport, distribution retail and catering).

• The education and training of veterinarians, which includes both animal health (including zoonoses) and food hygiene components, makes them uniquely equipped to play a central role in ensuring food safety, especially the safety of foods of animal origin.

FOR MORE INFORMATION

• OIE's Animal Production Food safety portal.

• Scientific and Technical review: *Coordinating surveillance policies in animal health and food safety 'from farm to fork', Vol. 32 (2)*, August 2013.

• Handbook on Import Risk Analysis for Animals and Animals Products (Volume 1 & 2).

• 1st OIE International Conference on Animal Identification and Traceability *'From Farm to Fork'* (2009) (Recommendations).

• OIE Global Conference on the Responsible and Prudent Use of Antimicrobial Agents for Animals (2013) (Recommendations).

OIE *Terrestrial Code*

• The role of the Veterinary Services in food safety (Chapter 6.1.).

• Control of biological hazards of animal health and public health importance through *ante-* and *post-mortem* meat inspection (Chapter 6.2.).

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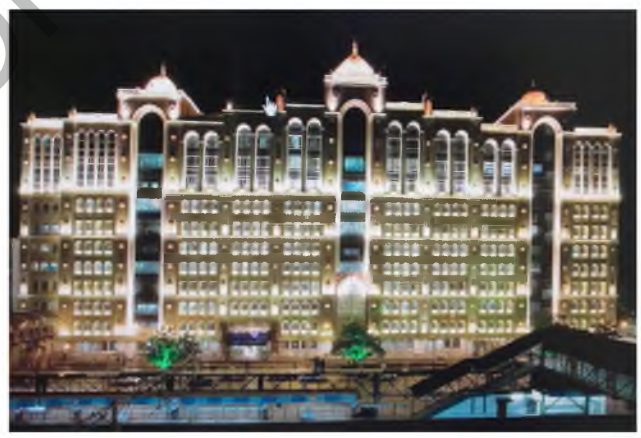

Ms. Christy Nelson

NATIONAL FRAMEWORK FOR MALARIA ELIMINATION

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The article presents data on the problem of malaria in India, its distribution throughout the country, mortality and morbidity in this disease, its prevention and

treatment. ***Keywords:*** *India, malaria, plasmodium, moskitous, treatment, prevention, control, irradication.*

В статье приведены данные о проблеме малярии в Индии, ее распространении по стране, смертности и заболеваемости при данной болезни, о ее профилактике и лечении. ***Ключевые слова:*** *Индия, малярия, плазмодий, москиты, лечение, профилактика, контроль, ликвидация.*

Malaria is a major public health problem in India but is preventable and curable. Malaria interventions are highly cost-effective and demonstrate one of the highest returns on investment in public health. In countries where the disease is endemic, efforts to control and eliminate malaria are increasingly viewed as high-impact strategic investments that generate significant returns for public health, help to alleviate poverty, improve equity and contribute to overall development.

Each case of malaria has been shown to cost households at least US$ 2.67 (range US$ 0.34– 7.66) in direct out-of-pocket expenses. In adults, this leads to an average of 3.4 days (range 2–6 days) of lost productivity, at a minimum additional indirect cost of US$ 10.85. Mothers and other carers sacrifice a further 2–4 days each time a child or other family member contracts malaria, generating yet more indirect costs for households3 . Even though such estimates and studies are few and still evolving in India, the total economic burden from malaria could be around US$ 1940 million. Death rates are not a significant factor because 75% of the burden comes from lost earnings and 24% from treatment costs4 . A malaria burden analysis inferred that every Rupee invested in malaria control in India (1994) produces a direct return of Indian Rupees 19.705 . From the beginning of the 21st century, India has demonstrated significant achievements in malaria control with a progressive decline in total cases and deaths. Overall, malaria cases have consistently declined from 2 million in 2001 to 0.88 million in 2013, although an increase to 1.13 million cases occurred in 2014 due to focal outbreaks. The incidence of malaria in the country therefore was 0.08% in a population of nearly 1.25 billion. In 2015, 1.13 million cases (provisional) were also reported. It is worthwhile to note that confirmed deaths due to malaria have also declined from 1005 in 2001 to 562 in 2014. In 2015, the reported number of deaths has further declined to 287 (provisional). Overall, in the last 10 years, total malaria cases declined by 42%, from 1.92 million in 2004 to 1.1 million in 2014, combined with a 40.8% decline in malariarelated deaths from 949 to 562. India contributes 70% of malaria cases and 69% of malaria deaths in the South-East Asia Region. However, a WHO projection showed an impact in terms of a decrease of 50–75% in the number of malaria cases by 2015 in India (relative to 2000 baseline), which showed that the country has been on track to decrease case incidence 2000–2015.

During 2000, 17 states and union territories (UTs) had an annual parasite incidence (API) of less than one case per thousand population at risk. Overall, in 2014 and 2015, in 26 and 27 states/ UTs respectively, the incidence of malaria was brought down to an API of less than one case per thousand. In 2000, 370 districts also had an API of less than one case per thousand population at risk. In 2014 and 2015, of a total of 677 districts (reporting units), 527 (78%) reported an API of less than one case per thousand population at risk. Presently, 80% of malaria occurs among 20% of people classified as “high risk”, although approximately 82% of the country’s population lives in malaria transmission risk areas. These populations at

high-risk for malaria are found in some 200 districts of Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, West Bengal and seven north-eastern states. Undoubtedly, such reduction of malaria morbidity and mortality reflects tangible success relative to the pre-independence era, before the launch of the National Malaria Control Programme (NMCP) in 1953, when malaria was a major public health problem with 75 million cases and 0.8 million deaths, causing enormous human suffering and loss to the nation, both in terms of manpower and money. Previously, there were tremendous achievements made in bringing down the malaria burden with the overwhelming success of the NMCP leading to the launch of the National Malaria Eradication Programme (NMEP) in 1958. The NMEP was also initially a great success with malaria incidence dropping to 0.1 million cases with no deaths reported in 1965. However, the resurgence of malaria due to technical, operational and financial complexities resulted in an escalation of incidence to 6.4 million cases in 1976.

National framework for malaria elimination in india (2016–2030)

The WHO has recently released the Global Technical Strategy for Malaria 2016–2030 , which advocates acceleration of global malaria elimination efforts and has set targets to reduce malaria mortality rate and malaria case incidence globally by 90% by 2030 (baseline 2015); eliminate malaria from at least 35 countries in which malaria was transmitted in 2015; and prevent re-establishment of malaria in all countries that are malaria-free.

In November 2014, the Asia Pacific Leaders Malaria Alliance (APLMA) representing 18 countries, including India, agreed to the goal of a region free of malaria by 2030. The APLMA Malaria Elimination Roadmap was endorsed in November 2015 in alignment with the WHO Global Technical Strategy for Malaria 2016–2030, and the Roll Back Malaria Partnership document Action and Investment to defeat Malaria 2016–2030. By committing to the roadmap, leaders can catalyse united action across the Asia Pacific through a multipronged approach: greater coordination as a key path to progress; unifying national approaches; linking and harmonizing regional efforts; and increasing partnerships7. Further, malaria reduction and elimination efforts will be a measure of progress and contribute to and benefit from the attainment of the Sustainable Development Goals (SDGs) by 2030, especially Goal 3: ensure healthy lives and promote well-being for all at all ages. The goal explicitly sets the target of ending the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases.

In line with international strategies, timelines, and with solid commitments at the highest leadership level in India and, importantly, buoyed by the achievements of a declining malaria trend, India is confident to embark upon a paradigm shift from control to elimination in 2016. Tailor-made and targeted interventions will be aimed at the continuous and gradual transition of states/UTs, districts, primary health centres and sub-centres to malaria-free areas. Special emphasis will be on hilly, tribal, forested and border areas that are difficult to reach, often conflict prone/affected, lacking optimal health systems and infrastructure and seeing large population movements. These areas have specific socio-demographic conditions including a multiplicity of ethnic groups, who are often migrant/mobile, poor, marginalized, and illiterate, with variable living conditions and health-seeking behaviours.

Additionally, prevention of the possible emergence or importation of malaria multi-drug resistance including resistance to artemisinin-based combination therapies from neighbouring countries will be underscored. Available tools also need to be scaled up before they become ineffective. Throughout, evidence generation, successes and lessons learnt will guide course corrections. As malaria is characterized by focal occurrences and achievements made with reduction in mortality and morbidity are fragile without constant attention to the existing malaria challenges, the sustaining of gains is critical as there is a risk of turning low endemic areas back into high risk areas. xix Against this background and in consideration of the The vision is to eliminate malaria nationally and contribute to improved health, quality of life and alleviation of poverty. The NFME has clearly defined goals, objectives, strategies, targets and timelines and will serve as a roadmap for advocating and planning malaria elimination throughout the country in a phased manner. Necessary guidance is expressed for rolling out the strategies and related interventions in each state/UT as per respective epidemiological situation.

The objectives are to:

(1) Eliminate malaria from all Category 1 and Category 2 states/UTs (26) with low and moderate-transmission of malaria by 2022;

(2) Reduce the incidence of malaria to less than one case per 1000 population per year in all states/UTs and their districts and achieve malaria elimination in 31 states/UTs by 2024;

(3) Interrupt indigenous transmission of malaria in all states/UTs (Category 3) by 2027; and

(4) Prevent re-establishment of local transmission of malaria in areas where it has been eliminated and maintain malaria-free status nationally by 2030. The milestones and targets are set for 2016, 2020, 2022, 2024, 2027 and 2030. It is expected that by 2030 the entire country will have sustained zero indigenous cases and deaths due to malaria for three years and initiated the process for WHO certification of malaria elimination. By the end of 2016, all states/UTs are expected to include malaria elimination in their broader health policies and planning framework; and by end of 2020, 15 states/UTs under Category 1 (elimination phase) are expected to interrupt transmission of malaria and achieve zero indigenous cases and deaths due to malaria. . An enabling environment and necessary resources are critical to achieving the objective of malaria elimination.

Current trends and epidemiological profile of malaria in India Epidemiology Malaria in India is mainly caused by two major malaria parasites namely Plasmodium falciparum and Plasmodium vivax (though cases of malaria from Plasmodium ovale and Plasmodium malariae have also been reported from some parts of the country). P. falciparum (Pf) and P. vivax (Pv) are the most common species causing malaria in the country. While P. vivax is more prevalent in the plains, P. falciparum predominates in forested and peripheral areas. The disease is transmitted by nine Anopheline species out of which the six primary vectors are Anopheles culicifacies, Anopheles stephensi, Anopheles dirus, Anopheles fluviatilis, Anopheles minimus and Anopheles epiroticus (previously known as Anopheles sundaicus).

During the months from June to September, the country experiences the monsoon season characterized by heavy rains across different states of the

country. It is during these months that maximum transmission of malaria takes place. In the immediate post-monsoon period from October to December, collection of rainwater in pits and puddles promotes mosquito breeding and subsequently the transmission of malaria. In India, DDT and hexachlorocyclohexane (HCH) were introduced for public health use (vector control) during the 1950s, and malathion was brought in for vector control during the 35 1960s. Synthetic pyrethroids (SP) have been introduced during the last one and a half decades for IRS and impregnation of mosquito nets. This is the only insecticide group recommended for net treatment. Currently, insecticides of the organochlorine (DDT), organophosphate (malathion) and synthetic pyrethroid (deltamethrin, cyfluthrin, lambdacyhalothrin, alphacypermethrin, permethrin, bifenthrin) groups are used for the control of vectors in India.

The key strategies for prevention and control of malaria under the NVBDCP, as per the Operational Manual for Implementation of Malaria Programme 2009, are:

1. Surveillance and case management • Case detection (passive and active) • Early diagnosis and complete treatment • Sentinel surveillance

2. Integrated vector management • Indoor residual spraying • Insecticide treated bed nets (ITNs)/Long-lasting insecticidal nets (LLINs) • Anti-larval measures including source reduction

3. Epidemic preparedness and early response

Supportive interventions • Capacity building • Behaviour change communication • Intersectoral collaboration • Monitoring and evaluation (M&E) • Operational and applied field research

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TUBERCULOSIS BURDEN IN INDIA

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Data on the epidemiological situation of tuberculosis among the population of India are given, the main causes of the development of the disease and its wide distribution, the main approaches and methods of diagnosis, treatment and prevention are shown. ***Keywords:*** *tuberculosis, India, programs of control, treatment, diagnostic.*

Приведены данные по эпидемиологической ситуации по туберкулезу среди населения Индии, показаны основные причины развития болезни и ее широкого распространения, основные подходы и методы диагностики, лечения и профилактики. ***Ключевые слова:*** *туберкулез, Индия, программы контроля, лечение, диагностика.*

India has been engaged in Tuberculosis (TB control activities for more than 50 years). Yet TB continues to be India's severest health crisis. Each year about 2.2