



Antibiotic Resistance Initiatives: **What's Happening in India?**

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It is true that India was late in initiating serious efforts to tackle antimicrobial resistance (AMR).

With more than a billion population, 75,000 hospitals, one million doctors, half a million pharmacies, and inadequate infection control facilities in hospitals, socio economic disparity and sanitation issues in the community, tackling antimicrobial resistance in the current Indian scenario is a huge and complicated task. A heavy burden of tropical infections; inadequate training on rational antibiotic use in undergraduate and post graduate medical curriculum; the absence of clinical pharmacists that support good quality prescribing; and the tendency for clinicians to focus concern only on good clinical outcomes for individual patients (regardless of their commitment to the broader public good) make the issue more intricate.^{1,2,3}

In 2011, the Indian Health Ministry published a National Policy for Containment of Antimicrobial Resistance.⁴

Unfortunately, implementation of the policy was delayed, primarily due to the well-intentioned, but unrealistic recommendation of a complete ban on over-the-counter (OTC, non prescription) sale of all antibiotics, as well as to an inadequate political will to implement the comprehensive policy.

Considering the dire significance of the AMR scenario in the country, medical societies in India came forward in a very

coordinated and focused way, compiled the “Chennai Declaration” recommendations, and mobilized stake holders—including all medical societies and the government—to initiate implementation of the National Policy. The first step was to make the necessary amendments to the National Policy in order to make it suitable to the backdrop of the Indian scenario.^{1,2,3}

The Chennai Declaration provided a practical and implementable solution suitable to the background scenario of heterogeneity of health care system in the country. The Chennai Declaration recommended a “step by step” strategy for regulating OTC sale of antibiotics, starting with second-

and third-line antibiotics.^{2,3,5}

As stated by the Declaration itself: “It is obvious that a ban of over-the-counter (OTC) sale of all antibiotics without prescription will be the ideal step.

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Currently, all antibiotics, including injectables, can be purchased OTC without prescription. It is very easy to issue an order to ban OTC sales of all antibiotics, but whether such a strict policy could be implemented is questionable. It is debatable whether we have enough drug inspectors and infrastructure to monitor OTC dispensing of all antibiotics. This should be taken into consideration while making any recommendations. An over-enthusiastic approach without proper planning will only lead to failure of the overall

strategy and may further affect success of the overall antibiotic policy. A practical approach will be to formulate a list of antibiotics with strict monitoring on the dispensing of these drugs. Step-by-step introduction of other drugs to the restricted list could be tried once the success of the first stage is ensured.”³

In 2013, in accordance with the Chennai Declaration recommendations, the Ministry of Health issued a new rule (modified H1 rule) that targets 24 antibiotics and 11 anti-

tuberculosis drugs, for which pharmacists not only must insist on a prescription by a registered medical practitioner, but also must record details about the patient, medication and the prescriber. First-line antibiotics are excluded from the H1 list and so will not come under the strict monitoring. Although pharmacists had no objection to the relatively liberal list of antibiotics, the strict norms of documentation and record keeping resulted in suboptimal success of the modified H1 rule.^{2,3,5}

In 2016, the Health Ministry published its *National Treatment Guidelines*, providing a comprehensive but practical approach to antibiotic selection to infectious disease entities prevalent in the country.⁶

Indian hospitals are especially affected by the challenge of gram-negative “superbugs.” Tens of thousands of hospitals in India, lacking the consistent infrastructure necessary for the practice of good infection control, coupled with the sheer size of the country’s gram-negative bacterial challenge, are the major deterrents to compiling uniform infection control recommendations for all hospitals. In 2017, The Indian Health Ministry published its draft *National Infection Control Guidelines* (Fig 1), a document that will guide better infection control practices and serve as a prototype for infection control manuals in all hospitals in India.⁷ A “best of the ability approach” to contain the spread of these bacteria may be the practical and implementable methodology in the Indian scenario. Hospitals with good infrastructure must

follow all precautions to the best possible extent, while hospitals with resource constraints should follow precautions to the best of their ability and affordability.

In re-emerging economies like India, improving sanitation in the community and in hospitals should be the supreme objective of an AMR action plan.

Unless we answer the sanitation question, all the other components will be futile, superfluous and cosmetic. In essence, The “Swachh Bharat Abhiyan” (Clean India Mission)—a very ambitious plan

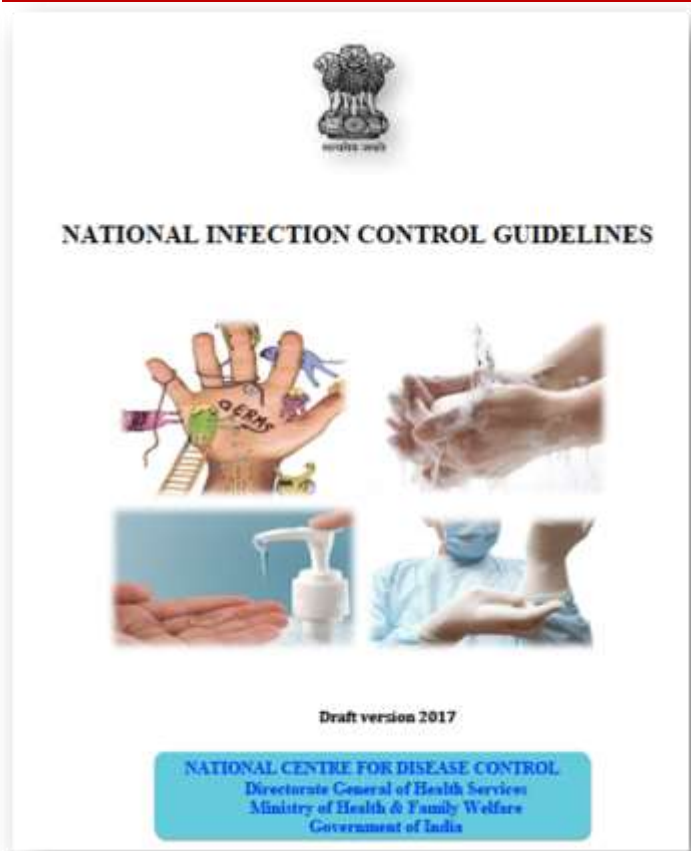
proposed by the Indian Prime Minister—will be the most important AMR initiative in the country. India’s national action plan must be centered on Swachh Bharat Abhiyan.

In 2017, India prepared a *National AMR Action Plan*,⁸ in tune with the WHO action plan. The Union Health Ministry has

“Sanitation is more important than political independence.”

Mahatma Gandhi

Figure 1. India’s draft guidelines and prototype for better infection control in all Indian hospitals⁷



Publications of Interest

called for a meeting of the health secretaries of 29 Indian states and 7 Union territories to explore ways of implementing the country's National Action Plan on Antimicrobial Resistance. In India, health care is predominantly under the jurisdiction of individual states. Even though the National Antibiotic Policy and Action Plan are prepared by the Union Health Ministry, implementation of the recommendations at the grass roots level falls on the shoulder of the states. On October 11, 2017, the Chief Minister of the Kerala state made a landmark announcement on initiation of National Action Plan implementation in that state.

Better late than never!

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Open Forum: Infectious Diseases (OFID) podcast featuring a face-off between Editor in chief Paul Sax, MD and Rebecca Plank MD, MPH (Merck) as they play a game taking turns picking the “strongest team “ of antibiotics “players”. Each in turn chooses his/her five favorite antibiotics and explains why. (25 min. with accompanying text)

Antimicrobial resistance in the next 30 years, humankind, bugs and drugs: a visionary approach by M Bassetti et al in Intensive Care Med July 21, 2017. A multinational team describes current standards of care, recent advances with AMR and prospective overview of next 30 years.

The effects of antibiotics on the microbiome throughout development and alternative approaches for therapeutic modulation by A. Langdon et al in Gemone Med (2016) 8:39. Summarizes current research on the short-term and long-term consequences of antibiotic use on the human microbiome.

Incidence, prevalence and management of MRSA bacteria across patient populations—a review of recent developments in MRSA management and treatment by A Hassoun et al in Crit Care (2017)21:211

Sparing carbapenem usage by APR Wilson in J Antimicrob Chemother 2017; provides guidance on strategies to reduce carbapenem usage.

Carbapenem-resistant *Enterobacteriaceae* in the community: a scoping review by AM Kelly in Int J Antimicrob Agent (2017); discusses the urgent public health threat posed by community-based CRE

Antibiotic resistance in acne treatment by BL Adler et al in JAMA Dermatol Clin Evidence Synopsis. Aug 2017, 153:810-11; discusses current U.S. and European antibiotic guidelines and resistance reduction strategies

Looking to nature for a new concept in antimicrobial treatments: isoflavonoids from *Cytisus striatus* as antibiotic adjuvants against MRSA, by AC Abreu et al in Science Reports (2017) 7:3777