

Acting Upon Evidence: Progress Towards the Elimination of Unsafe Injection Practices in India

Pediatricians know well that health care injections brought much public health benefit in the 20th century, particularly through providing a vector to administer life-saving vaccines. However, health care injections have also turned into a health hazard. First, physicians and other prescribers have an excessive recourse to injections for conditions that do not require medications or that could be treated orally. Second, nurses and other injection providers engage in unsafe injection practices. Among these, reuse of injection devices in the absence of sterilization is of particular concern. A safe injection is one that is medically indicated and that does not harm the recipient, the provider (*e.g.*, through needle stick injury) or the community at large (*e.g.*, through unsafe management of sharps waste). WHO estimates that in the year 2000, in developing and transitional countries, the population received on average 3.4 injections per year. Of these, 39% were given with injection devices reused in the absence of sterilization(1). The combination of injection overuse and unsafe practices creates dangerous opportunities for the transmission of bloodborne pathogens. As per the Comparative Risk Assessment component of the recent update of the Global Burden of Disease study, reuse of injection devices in the absence of sterilization may have accounted for 22 million hepatitis B virus (HBV) infections, 2 million hepatitis C virus infections and 260,000 HIV infections in the

year 2000. These infections would lead to a heavy burden of chronic liver diseases and AIDS with the loss of nine million disability-adjusted life years between 2000 and 2030(2). This heavy burden is preventable through the implementation of national policies based upon (*a*) behavior change among patients and health care workers to decrease injection overuse and achieve safe practices(3) (*b*) provision of equipment and supplies to ensure injection device security(4) and (*c*) sharps waste management(5). Interventions for the safe and appropriate use of injections are efficacious and highly cost-effective, with a cost per day under the threshold of one year of annual income in all world regions(6).

In India, in the late 1990s, reports suggested that unsafe injections were a substantial public health problem. First, in Tamil Nadu, a review of the practices of the Registered Medical Practitioners (RMP) suggested a high frequency of unsafe practices, including reuse of injection devices in the absence of sterilization(7). Second, an injection frequency survey conducted in Haryana indicated a high number of injections per person and per year(8). Third, case control studies pointed to unsafe health care injections as a risk factor for viral hepatitis(9,10). Finally, the preliminary results of WHO's Global Burden of Disease study pointed to South Asia as a region where unsafe health care injections were a major source of infection with bloodborne pathogens. Stakeholders in India reacted swiftly to this compelling evidence. First, India hosted the 2001 edition of the global meeting of the Safe Injection Global Network (SIGN) alliance in New Delhi(11). Second, the India injection

safety coalition was formed to coordinate actions of various national and international partners(12). Third, Government of India with the support of the World Bank sponsored a large national assessment that was conducted by India Clinical Epidemiology Network (India CLEN) at All India Institute of Medical Sciences (AIIMS). Fourth, the Indian Medical Association (IMA) was the initial sponsor in 2001 of a statement of the World Medical Association (WMA) that called in 2002 for the role of physicians in the prevention of injection-associated infections(13) and published in July 2004 an injection safety policy statement(14). As a reflection of IMA's commitment to injection safety, the August 2004 issue of the Professional Protection Linked Social Security Scheme (PPLSSS) of IMA, Tamil Nadu, was entirely dedicated to injection safety, underlining the importance of this topic from professional and liability points of view. Altogether, these initiatives created an unprecedented momentum for injection safety in India. In December 2003, a team from India CLEN reported the preliminary results of the national assessment to Government of India. The conclusions of the preliminary report suggested that (a) the quality of the data was such that the results provided could not be questioned, (b) unsafe injections were common in India and (c) there was a need for India to engage into a new policy for the safe and appropriate use of injections. One of the relatively surprising features of the results made available by India CLEN was that unsafe injections affected the whole of India. They were observed in all states, in the public and the private sector, in immunization and in curative services. This public health problem took center stage and was discussed in the parliament. Few months later, key decisions were made and a switch from unsafe sterilizable injection equipment to auto-disable injection devices will

progressively be implemented in the country. Auto-disable syringes are single-use syringes that have been specially modified to be inactivated after one use through plunger breaking, plunger blocking or needle retraction. Two manufacturers - a national and an international one - produce these types of syringes in India. The national immunization program will spearhead efforts for safer injections in the various States and soon, the public sector will be able to provide safer immunization through a safer delivery system, for an overall benefit in terms of prevention of death and disability. Throughout this process, public health professionals in India showed remarkable leadership in the way they made use of evidence to leverage important and courageous political decisions.

While acknowledging these early successes at the policy level, one must realize that India's initiative against unsafe injections is at its beginning. Immunization injections only represent a minority of all injections. In addition, a limited proportion of the Indian population seeks care from public providers. Thus, there is only so much that the public immunization system can do. The majority of unsafe and unnecessary injections are administered in the private sector for curative purposes. Hence, clinicians, particularly in the private sector, can play a major role. For most clinical situations, oral medications are just as effective as injections(15,16). Surprisingly, most physicians around the world and in India underestimate what they could do to make injection use safer and more rational. While they often realize that injections are overused, they believe that excessive injection use is a consequence of patients' preferences and that there is nothing they can do about it. In fact, a large body of evidence suggests that prescribers can effectively influence injection use(6,17). What most physicians take as a

widespread preference for injections among patients is in fact only the opinion of a minority of the population that voices its preference strongly(17). Pioneering work conducted in Indonesia by the International Network for the Rational Use of Drugs (INRUD) indicated that once physicians understand that patients do not prefer injections they are able to modify their prescription practices and reduce injection use(17). Most patients around the world are open to alternatives to injections if their doctors take the time to explain to them that an oral medication will be sufficient or that they do not require any treatment at all(17-19). Interactional group discussions—the method used to get patients and their doctors to talk to each other in Indonesia(17) was replicated in Pakistan(20), Tanzania(21), and Cambodia(22). In these three countries characterized by a marked injection overuse, prescribers were also able to substantially reduce their use of injections(20) (Pr Massele and Chean Men, personal communication, 2004). In addition, in Pakistan, doctors were not only successful at reducing injection use, but they also had an impact on the safety of injection practices(20).

The Indian Academy of Pediatrics (IAP) has been a key member of the India injection safety coalition since its beginning in 2001. In fact, IAP was one of the earliest members of the global SIGN alliance since its inception in 1999. Constant mobilization of their members contributed to the success of the advocacy efforts in India so far. This year, IAP went further to propose recommendations to achieve the safe and appropriate use of injections in the country(23). Given the leadership of the Academy and the capacity of its members to act upon evidence, one has the right to expect drastic changes in the way Indian pediatricians recommend and use

injections for their patients. Changes are even likely to spill over the informal private sector through role modeling. This will ultimately take care of the consumer demand for injectable medications: Injections will ultimately become something people think twice about. This will achieve huge benefit in terms of death and disability for the future generations. As pediatrician know well, an infection with HBV during childhood leads to cirrhosis and hepatocellular carcinoma much later in life during adulthood. Thus, pediatricians' efforts to achieve the safe and appropriate use of injections today will have a major impact to protect the adult who is in every child in India.

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EDITORIAL

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EDITORIAL

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