

Review Group Membership

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Disclaimer:

Technology review is a brief report, prepared on an urgent basis, which draws on restricted reviews from analysis of pertinent literature, on expert opinion and / or regulatory status where appropriate. It is subjected to an external review process. While effort has been made to do so, this document may not fully reflect all scientific research available. Additionally, other relevant scientific findings may have been reported since completion of this review.

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Introduction

National immunisation programmes have effectively reduced infant and child mortality rates in developing countries. However, estimation indicates that at least 30% of the approximately one billion vaccine injections administered each year are unsafe. Due to these injections was delivered with contaminated disposable syringes or reusable syringes that were not properly sterilised, which dramatically propagate the transmission of hepatitis B, hepatitis C, and human immuno-deficiency virus (HIV). WHO estimated that unsafe injections have been linked to around 23 million new hepatitis B, hepatitis C, and HIV infections each year. Hence, concern has frequently been raised about the safety of vaccine delivery with injections, especially in low-income countries. The expansion of auto-disabled syringes for vaccination has reduced the problem of reuse of needles and syringes, needlestick injuries and unsafe disposal of sharps waste still leave healthcare workers, patients, and the community at risk.

In Malaysia, personal communication with the officer of vaccine unit, the wastage of BCG immunisation was high (14 out of 20 doses per vial), while for tetanus toxoid was 2 to 3 doses/per vial using disposable syringes (personal communication, 31 October 2013)

This review was requested by the Head of The TB/Kusta Section, Disease Control Division, Ministry of Health Malaysia following a proposal from a company to use mini syringe for BCG immunisation.

Objective/aim

The objective of this systematic review was to assess the safety, efficacy/effectiveness and cost-effectiveness of auto-destruct mini syringe for immunisation.

Results and conclusions

Limited good level of evidence showed that auto-destruct mini syringe improved vaccination coverage and reduced vaccine wastage. Theoretically, it may reduce needle stick injury and blood-borne infection which may occur through contaminated re-used needle. However, there was insufficient evidence on the safety. The cost of auto destruct syringes is more expensive than sterilized syringes, which may increase the national immunisation budget but may save the cost of vaccine wastage. However, proper training on the usage and safety measures of the syringe is required especially among the experience vaccinators.

Methods

Electronic databases were searched from inception: MEDLINE including MEDLINE In-Process & Other Non-Indexed Citations (Ovid); Pubmed; EBM Reviews, Cochrane database of systematic; EBM Reviews - Health Technology Assessment; NHS economic evaluation database.

Searches were also run in Horizon Scanning database (National Horizon Scanning Centre, Australia and New Zealand Horizon Scanning Network,

National Horizon Scanning Birmingham, EuroScan) and FDA.

In addition to the database searches, articles were identified from reviewing the bibliographies of retrieved articles and hand searching of journals.

A combination of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords free text.