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Introduction

Typhoid remains a public health challenge in developed and underdeveloped countries. *Salmonella typhi* is a human-restricted pathogen which are spread via ingestion of contaminated food and water and by food handlers who are carriers. Persistent infection by the organism results in chronic carrier status among the host which may last for decades and if untreated, remain for life. These chronic carriers are known to shed the bacteria in faeces and urine, and act as the crucial reservoir for the persistence of typhoid infection within the community. Typhoid carriers can be detected by rectal swabs and bile culture, Polymerase Chain Reaction (PCR) and Vi antigen serology with stool culture as the gold standard. However, stool or rectal swab culture has disadvantages of low carrier detection rate due to intermittent release of the organism, low culture isolation rate from stool, being tedious and costly tests. Bile culture for carrier status showed good sensitivity but is traumatic. PCR test depends on viable *S. typhi* or sufficient DNA concentration in the specimen tested. Typhoid carrier test [REDACTED] has been utilised for typhoid carrier detection merely in Kelantan State. Hence this review is requested by the Food Water Borne Disease Control Program Officer, Ministry of Health to review its evidence for the detection of typhoid carriers in an attempt to expand its use nationwide in the battle against typhoid.

Objective/Aim

The objective of this systematic review was to assess the diagnostic accuracy and effectiveness, as well as the safety and cost-effectiveness of typhoid carrier test (previously known as [REDACTED]) in detecting typhoid carriers.

Results and Conclusions

The search strategy yielded only one article on diagnostic accuracy of typhoid carrier detection test ([REDACTED]) in detecting typhoid carriers, which was a diagnostic study, with no evidence retrieved on its safety and cost-effectiveness. There was limited retrievable evidence which was of fair level to support the use of typhoid carrier test ([REDACTED]) in the detection of typhoid carrier. However, the evidence showed that [REDACTED] appeared beneficial in the detection of typhoid carriers, following its good diagnostic value (100% sensitivity and specificity), compared to stool culture and PCR positive. It may have the potential benefit to be used as a feasible typhoid carrier detection tool due to the ease of performing compared to stool culture and PCR, as well as cheaper in price.

Methods

Systematic literature search was conducted. Electronic databases were searched through the Ovid interface: MEDLINE(R) In-process and other Non-Indexed Citations and Ovid MEDLINE(R) 1948 to present. EBM Reviews - Cochrane Central Register of Controlled Trials – March 2014. EBM Reviews - Database of Abstracts of Review of Effects (1st Quarter 2014). EBM Reviews - Cochrane Database of Systematic Reviews - 2005 to March 2014. EBM Reviews - Health Technology Assessment – 1st Quarter 2014. NHS economic evaluation database – 1st Quarter 2014. EMBASE – 1988 to 2014 week 18. Searches were also run in PubMed. Google was used to search for additional web-based materials and information. The search was limited to publication year from 2009 to current. No other limits were applied. Additional articles were identified from reviewing the references of retrieved articles. Last search was conducted on 8 May 2014.