Do Computer-generated Summaries, "The Bottom Line (TBL)" Accurately Reflect Published Journal Abstracts?

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Abstract

txt2MEDLINE allows users to search and retrieve MEDLINE/PubMed citations using SMS text messages. "The Bottom Line" (TBL) concept was developed because of the 160-character limitation of text messages. TBL algorithm generates a shortened version of the published abstract thereby decreasing the number of characters while attempting to maintain the key points of the full-length, author-generated abstract. The data seems to indicate that the TBL generally conveys the essential elements of the full abstract.

Background

The Bottom Line (TBL) project evolved from txt2MEDLINE, a search tool for MEDLINE/PubMed using SMS text messages [1]. The TBL algorithm was developed because of the 160-character limit of the SMS protocol. A system was needed to reduce the number of text messages that each citation generated. The purpose of this project was to determine whether TBL conveyed the key elements and substance of the full abstract.

Methods

The evaluation was divided into three phases: NLM personnel, National Institutes of Health clinical librarians and national participants. A Web search page was created that allowed the evaluators to compare the results showing author-generated abstracts and TBL format on the same page. On a rating tool embedded on the results page, participants determined on a 5-point Likert scale (5=strongly agree, 1=strongly disagree) for each abstract, whether they agreed to the statement, "The TBL provides the 'bottom line information' of the abstract".

Results

The twenty-six evaluators who responded to the call for participation, number of responses and ratings are summarized in Figure 1. They were requested to search "clinical topics" and review at least five abstracts each. The overall mean score was 3.8 (mode= 4) of the 329 TBL abstracts reviewed. Table 1 summarizes the results by phase of study. The TBL rating was a '4' or '5' for 218 abstracts (66% of all citations reviewed.) Analysis of search terms showed mean ratings of 3.87, 2.3, 3.5 and 3.88 for clinical topics (n=32), library related (n=4); management related (n=4) and unclassified topics (n=17) respectively.
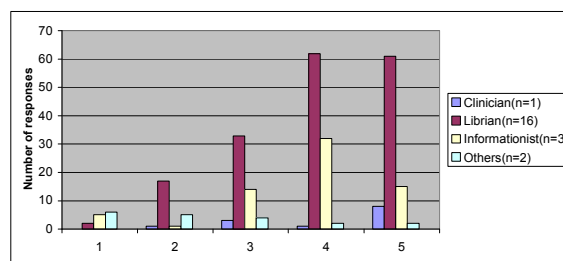

Figure 1. Agreement between TBL and full abstract among evaluators

	Phase 1	Phase 2	Phase 3	Total
Evaluators	5	4	17	26
Searches done	9	8	40	57
Abstracts Rated	79	35	215	329
Mean Rating	3.98	3.65	3.75	3.8
Mode	4	4	5	4

Table 1. Summary of evaluators, searches, ratings by phase

Conclusions

The mean rating comparing 'TBL summaries with 329 published journal abstracts was 3.8 in a 5-point Likert scale. Our data seems to provide support that a majority of the TBL's reviewed convey or maintain the key elements of the full abstract. A similar review among clinicians, who will be the main consumers of this tool, may be needed to validate the results of this study.

Reference

[1] txt2MEDLINE: Text-Messaging Access to Medline/PubMed. Fontelo P, Liu F, Muin M, Tolentino H, Ackerman M. AMIA Annu Symp Proc. 2006;259-63