ABSTRACT

# Epibasket: a prototype web tool aimed to speed up and standardize the epidemiological investigation of an outbreak

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## Objective

This paper describes how the ideas and tools of e-commerce can be translated to the investigation of outbreaks: epidemiologists will 'shop' the best available items for their questionnaire, enhance the chances of producing interoperable questionnaires, and speed up the whole process.

## Introduction

The detailed analysis of the epidemiological literature on the 2003 SARS epidemic published in peer reviewed journals has shown that a majority (78%) of the epidemiological articles were submitted after the epidemic had ended, although the corresponding studies had relevance to public health authorities during the epidemic. The conclusion was that to minimize the lag between research and the exigency of public health practice in the future, researchers should consider adopting common, predefined protocols and ready-to-use instruments to improve timeliness, and thus, relevance, in addition to standardizing comparability across studies.[1]

## Methods

The basic idea of the method is to avoid the epidemiologists faced to an outbreak to reinvent the wheel, and to provide them an online 'catalogue' of the 'best' items to include in their questionnaire. At the present time, the prototype concerns the psychobehavioral studies performed during an outbreak. We have shown[1] that they accounted for 19% of the studies made during the 2003 SARS epidemic. Questionnaires concern knowledge, attitudes, behaviors, and psychological and social impacts. The catalogue of possible questions was constituted from the comprehensive review of the relevant papers ($n = 59$) published during the SARS epidemic. The 1962 variables collected in these papers were standardized with the aid of usual medical terminolo-gies (for example, MeSH, UMLS, SNOMED, CDISC standards and so on). The user interface was built by adapting a freely available software used for e-commerce (Prestashop[2]). The queXML tool[2] was used to generate the questionnaire with the selected items in pdf format, and/or to generate a file that could be used with online survey development tools (for example, LimeSurvey, an open source free software[2]) to create an online questionnaire.

## Results

In the present prototype, the epidemiologist 'shops' the items and puts them in a 'shopping basket'. At the end, he gets a paper questionnaire or a file of questions. Each item is documented (Figure 1). The parallel with e-shopping can be pursued to provide a 'value' for each item (for example, the



**Figure 1** Description of an item from the online catalogue (users get the definition, MESH terms, and list of papers having used it).

value might include the Impact Factor of the journals that have published the papers having previously used the variable). This may be useful, for example, at the time of choosing between two multidimensional scales of risk perception.

## Conclusions

The concept of EpiBasket could increase the rapidity of the data collection in the case of an outbreak, and help to standardize the data collected. Moreover, the constitution of a catalogue of 'important' items for investigative epidemiologists during an outbreak could be a collective work of ISDS.

## References

1 Xing W, Hejblum G, Leung GM, Valleron AJ. Anatomy of the epidemiological literature on the 2003 SARS outbreaks in Hong Kong and Toronto: a time-stratified review. *PLoS Med* 2010;**7**:e1000272.
2 See www.prestashop.com, quexml.sourceforge.net/, and www.limesurvey.org.