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Speaker's corner

Understanding the basic principles of knowledge translation

Two problems dictate why scientific knowledge needs to be translated for decision makers. The first problem is volume. Scientific findings are being published all the time. For example, there are some 17 000 new biomedical books published every year, along with 30 000 biomedical journals, resulting in annual increase of 7%.[1] As a result, decision makers such as physicians need to read on average 19 original articles each day to keep abreast of their field.[1 2] The second problem is complexity. Many of these studies use complicated designs, high power statistics, and technical jargons, which are not readily understood by people outside the field.

It has been suggested that from time to time, scientists who are effective translators must stop simply generating scientific evidence and instead translate knowledge into a product suitable for use by decision makers.[3]

The basic principles of knowledge translation are integration and simplification. Methods for integration include: narrative review,[1] systematic review,[1 4] meta-analysis,[1 5] meta-database,[6] inventory of best practices,[7] and public health observatory.[8] After integration, information must be simplified to a level that can be understood and used by the users. Knowledge translation is analogous to a regional power grid, in which generating plants from different localities contribute electricity at half a million volts. The high voltage is necessary to increase efficiency—that is, to minimise energy loss for conveyance along power lines over long distance. But then at the other end the electricity must be stepped down to the household voltage before it can be used. Similarly, complex high power technical information must first be integrated and then stepped down for communication to different audiences in the most appropriate way.

Take the example of tobacco demand reduction messages. For the policy maker, the economic and health burden on the society is easily understood. In Canada, one appropriate message is the extra burden on the society that can be removed by eliminating tobacco use for one year. This amounts to savings of $16.5 billion per year (health care costs $2.5 billion; residential care costs $1.5 billion; workers' absenteeism $2 billion; lost future earnings $10.5 billion),[9] and avoidance of 47 000 unnecessary deaths per year (30 000 men; 17 000 women).[10]

For the younger audiences, "smoking makes you ugly" is an appropriate way to convey information for smoking cessation.[11] While teenage smokers may not care about the long term morbidity and premature mortality caused by tobacco smoking, they can certainly relate to the immediate problems of smoking induced facial wrinkles[12] and hair loss.[13] They can understand the message that smoking 20 cigarettes per day is equivalent to 10 years of chronological aging.[14]

For other audiences who are interested in sports, they may not be interested in the number of years of life lost due to smoking. Instead, they should be told the number of sports games they are going to miss in their lifetime due to smoking, such as the Grey Cup (football game, annual, Canada), the Stanley Cup (hockey game, annual, USA and Canada), or even the World Cup (soccer game, every four years, global)!

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