Improving participation in Cancer Screening Programs:

A review of social cognitive models, factors affecting participation and strategies to improve participation

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The *Victorian Cancer Action Plan (2008-2011)* identified increasing participation rates in population-based cancer screening programs as one of its key priority areas. To inform its activities, the Victorian Department of Health commissioned a review of the relevant literature in 2009. It was organised into three volumes.[1] This summary provides a brief overview of the three volumes.

The relevance of Social Cognition Models

This review focused on the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB) and its forerunner the Theory of Reasoned Action (TRA). Items located in the preliminary scoping of the literature relating to cancer screening were scrutinised to identify those that contained some reference to social cognition models. The reference lists of those items were examined to identify further relevant references. This was supplemented by an internet search to capture grey literature.

Social cognition models are relevant for population-based cancer screening, as they can be used as frameworks for organising factors associated with cancer screening. A major drawback is their lack of detail about issues that are fundamental in designing strategies to increase screening rates, such as identifying and targeting perceptions, beliefs or attitudes. The TPB model suggests that:

(i) Issuing invitations to screen will strengthen the relationship between attitudes and intentions;

(ii) Activities that successfully change intentions will succeed in changing behaviour but the impact on behaviour will be much smaller than the effect on intentions;

(iii) People who are inclined to screen but who do not attend are the major reason why intentions do not align with behaviour;

(iv) Whether the activities should target attitudes, social norms or perceived behavioural control (self-efficacy) depends, to some extent, on the screening test, and there was nothing to indicate that targeting all three factors will produce a greater effect;

(v) Financial incentives appear to have the largest impact on intentions; and

(vi) Financial incentives and social encouragement/pressure/support appear to have the greatest impact on behaviour.

[1] The full review is contained in three stand-alone volumes:

1. *Social Cognition Models: A Review of their Relevance for Understanding Participation in Cancer Screening*
2. *Identifying Hard to Reach Groups: Review of the Factors (Including Barriers) Associated with Cancer Screening*
3. *Knowledge Translation: A Review of Strategies to Increase Participation in Cancer Screening*

The reports are available from http://vccr.org/stats.html as a download from the Research and Evaluation Reports section.

Factors associated with cancer screening

This review concentrated on population screening programs for breast cancer, cervical cancer and colorectal cancer (mainly but not exclusively FOBT). Over 1,500 pertinent primary studies were identified however it was not possible to examine them all due to time and resource constraints. The literature which formed the evidence base consisted of: (i) monitoring data contained in the reports of relevant screening programs; and (ii) twenty-six literature reviews mostly (but not exclusively) published between 1999 and 2009 inclusive.

Twenty-six factors were reviewed. Despite some discrepancies between the two data sets and the earlier and later literature, there were several implications for population-based cancer screening programs in Victoria.

1. Reliable demographic data corresponding to monitoring data available from the cancer screening programs can be used to identify, broadly, which groups are non-adherent to screening guidelines. This will assist in targeting strategies.
2. Engaging people at the time of the first screen and ensuring they have a positive experience is likely to enhance repeat screening within and across screening programs. This is particularly so if social networks are to have a positive influence on the uptake of screening.
3. Recently arrived immigrants are less likely to participate in screening mammography and Pap tests. Engagement of this group will need to address a complex range of issues relating to health literacy, English language skills, fatalism, modesty, embarrassment and shame; and medical mistrust.
4. Literacy is likely to be low among some non-adherent groups, although the specialised nature of health-related information means that even those with good literacy skills may have reduced health literacy levels. In addition, individuals with reduced health literacy are less likely to seek out and/or engage with health-related literature and information. This poses a challenge for screening programs.
5. Using strategies that address fear, worry, and anxiety issues as a way of reducing people's generalised cancer worries and fear of the screening process itself would have a positive impact on screening uptake. Strategies for achieving this will need to take into account the psychological and cultural factors underpinning these feelings.
6. Recommendations from a doctor during visits to their usual source of care, outpatients or primary care doctors was found to be associated with screening uptake, as was the provision of female health care providers and interpreters**.**
7. Lack of evidence in relation to the common sense notion that physical and mental health will affect screening uptake does not mean that these factors are not important.

Strategies to increase participation in cancer screening

The review focused on strategies aimed at increasing uptake in population-based screening programs for breast cancer, cervical cancer and colorectal cancer (mainly but not exclusively FOBT). A small amount of other reviewed literature examined the impact of strategies to increase screening for other conditions.

One hundred and fifty-four peer-reviewed primary studies and 43 literature reviews and meta-analyses formed the basis for this review. Sixty-eight percent of the primary studies related to activities in the United States. This has implications for the applicability of some of the strategies in Australia, which only represented nine percent of the reviewed studies. Bearing this in mind, the following conclusions were reached regarding strategies aimed at the general population and/or health care providers:

- Increased uptake telephone invitations and reminders, message framing using GP endorsement, telephone and face-to-face counselling, economic incentives, prompts for health care providers.
- Increased uptake to a lesser extent or for which evidence was less compelling: mailed invitations and reminders with clarification about the practicality of (i) including an appointment time and (ii) using multiple-method strategy to address decreasing returns on multiple reminders, such as follow-up telephone calls to those who do not respond; changes in the test procedures, (but further clarification is needed about what changes are needed for which screening test).
- Didn't have a clear impact: face-to-face education, videos for educational purposes, multi-strategy education initiatives, coaching, mass media campaigns, worksite campaigns, and multi-component strategies, provider strategies using education, audit and feedback, provider strategies combined with screening population strategies.
- Didn't increase uptake: face-to-face invitations and reminders, message framing strategies using tailoring, risk, loss/gain, other framing; using print material as a stand alone educational strategy, community campaigns.

Strategies targeting hard-to-reach groups were examined, however the small number of available primary studies made it difficult to discern trends.

Strategies for increasing uptake for Indigenous groups include coaching, community interventions, and multi-component interventions. Alongside these methods, counselling was also used positively for targeting other ethnic groups. Counselling, financial incentives, procedures and multi-component strategies targeting low income groups reported increased uptake. Education, and invitations and reminders targeted non-urban groups reported increased uptake.

Although there were individual studies that demonstrated the effectiveness of particular strategies for improving participation rates among men, there was no clear evidence about which was the most effective strategy, especially within the Australian context. It was also pointed out that not all men are the same and may not behave similarly. It is unlikely that all men will be engaged through one particular technique or strategy.