

### S3. Possible predictors of successful cancer prevention programs

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Finding the optimal use of health care resources requires the reliable estimation of the costs and the consequences of health care. Acquiring these estimates may not be difficult for some common treatments. More difficult is the optimization of resources in the area of diagnostics and there have been many fewer attempts to optimize resource use in the area of prevention. There are two major problems in optimizing resources for prevention: 1) the lack of available outcome data at initiation of the program and, 2) the difficulty in acquiring long follow up data. A strategy to select prevention programs according to possible predictors of success might be useful.

The few analyses of cancer prevention in the literature have been directed toward the most frequent malignant diseases (as assessed by incidence) such as cancer of the breast, colon, lung, and prostate. We argue that incidence is a poor marker for selecting secondary prevention programs. Incidence may be a misleading indicator for two reasons: 1) incidence of disease does not predict

high or increasing incidence of an efficient management and good health outcomes, and, 2) incidence rates do not separate clinically relevant from irrelevant disease. This traditional concept of secondary prevention may produce more harm than good by detecting pseudo-disease (clinically unimportant disease that leads to unnecessary treatment) or due to a lack of efficient consequences (no treatment or only ineffective or inefficient treatment available).

We propose an outcomes model that differs from the traditional strategy “more screening increases the chance of cure”. The outcomes strategy suggests that “better disease management justifies new prevention programs”. Indicators for better disease management are available effective and efficient treatments as well as high quality screening (sensitivity & specificity) techniques. The traditional and the new concept will be discussed using various clinical examples.