We have made enormous advances in understanding cancer etiology over the past four decades—both at the cellular level through basic research and at the population level in our awareness of the environmental, personal, and behavioural antecedents to cancer.

The cohort, or prospective, longitudinal approach to observation is the “gold standard” for etiologic studies. The costs of enrolment and follow-up in a cohort study can be very high depending on the number of participants and length of observation. Cohort design (as the design of choice for cancer etiology studies) is beyond the scope and/or interest of traditional operating-grant competitions. However, a population-based cancer cohort constitutes a core infrastructure for cancer research, in particular, for epidemiology and prevention.

Ultimately, the Alberta Population-Based Cohort Study will include a representative sample of 50,000 healthy, adult Albertans aged 35–69 who will regularly contribute information about their health, lifestyles, and illnesses over a long follow-up period (i.e., age 85 or death)—contributing in this way to the study of cancer causation and prevention.

We will establish this Alberta population-based cohort in a series of phases. This first phase focuses on the feasibility aspects of the research design. Approximately 10,000–12,000 participants will be enrolled as members of the envisioned cohort. The feasibility study’s objectives are to develop, test, and evaluate various ways of completing the steps needed to create a large cohort, and to collect information from participants throughout Alberta. Phase One will be completed between 2000 and 2003.

Specific studies during this time include assessing different methods for recruiting cohort participants, obtaining baseline measures, tracking and retaining people over time, and determining the acceptability and feasibility of obtaining biologic samples from participants. Three feasibility studies are described below.

### Study One
The first pilot study involves using random-digit dialing (RDD) to recruit a random sample of 2,400 participants, divided equally between the David Thompson and Calgary Regional Health Authorities, during October, November, and December 2000.

The Population Research Laboratory, University of Alberta (under contract to the Cohort Study), conducted the telephone recruitment. RDD was an efficient way to obtain a sample of people who were representative (e.g., in age and gender) of adults within their health region. We plan to repeat the recruitment procedure in several other health regions in the spring of 2001 (aiming to recruit 7,500 people).

### Study Two
This study tests the use of a self-administered, mailed survey for obtaining baseline measures and informed consent. (We sent the baseline survey to participants in February 2000.)

Obtaining baseline measures in longitudinal studies with frequent follow-up can be costly. For this reason, we first evaluated the most cost-effective strategy for data collection, i.e., a self-administered, mailed questionnaire. The survey is a composite of existing questions/tools/scales that can be self-administered through a mailed survey.

Baseline data collected from participants includes information about general health, reproductive and family history, smoking, diet, physical activity, psychosocial health, body measurements, and self-care behaviours specific to prevention and early detection.

We selected the components of the baseline survey after consulting with cancer epidemiologists. The survey reflects current knowledge and emerging hypotheses about cancer etiology. As well as asking for the information above, the survey also includes questions about the use of cancer-screening services and programs, tobacco and sun exposure, and social support, spirituality, and stress. To maximize the response, we used standard procedures for distributing the mailed survey and contacting non-respondents.

Baseline measures are the foundation of a large amount of information on participants’ “exposures” to known or potential etiologic factors and to intervening or confounding factors such as health behaviours and practices, social environment, and family history. The researchers will use repeated measures to document participants’ exposure experience over the long follow-up period.

Individuals are fully informed about the study’s purpose and the consequences of participating.

### Study Three
The third study focuses on obtaining biologic samples, specifically blood, from consenting cohort participants. We will collect blood from a widely dispersed group of participants. Their blood will be stored for future analysis.
Blood analysis will significantly improve the quality of exposure information. For example, blood analysis allows us to correlate exposure history and biologic measures (e.g., alpha-tocopherol levels as a correlate of vitamin E exposure). Blood is also the best source for studies of gene-environment interactions (e.g., the interaction between exposure to heterocyclic amines, such as those found in cooked meat, and NAT-1 polymorphism types).

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