



# Ontario Health Study

## ABOUT THE ONTARIO HEALTH STUDY

The Ontario Health Study (OHS; [www.ontariohealthstudy.ca](http://www.ontariohealthstudy.ca)) is Canada's largest population-based, precision medicine health cohort study that serves as a platform for investigating the environmental, lifestyle, clinical and genetic factors associated with risks of chronic diseases. Along with four other cohorts, the OHS is part of a pan-Canadian study called the Canadian Partnership for Tomorrow Project (CPTP; <http://www.partnershipfortomorrow.ca>).

## RESEARCH PLATFORM

The OHS is designed to be a research platform that enables and facilitates research for investigators across Ontario. The OHS is committed to making data and biological samples collected available to scientists to pursue research in the public good. Access to OHS data by the scientific community was launched July 1, 2015. Scientists may submit proposals for access to the data and biological samples collected by the Ontario Health Study. To access OHS and CPTP, researchers are referred to the CPTP portal hosted at the OICR (<https://portal.partnershipfortomorrow.ca>) where instructions for access, application forms, and CPTP policies for usage and publication are available. To collaborate with the OHS, researchers can contact OHS operations directly (<https://ontariohealthstudy.ca/en/contact-us>). The OHS and the CPTP have supported well-over 100 access requests, funding applications and collaborative initiatives utilizing the biologics and data.

By making data and biological samples available to the research community, new studies will be facilitated, and the full value of the platform can be explored.

The Ontario Health Study aims to:

1. Identify the key factors which determine and promote health by collecting epidemiological, clinical, biochemical, and genetic data on a range of conditions of public health and economic importance;
2. Collect and store biospecimens from participants for future studies of biomarkers and genetic risk factors;
3. Integrate the data obtained from participants to determine the key "interactive factors" that have the greatest likelihood of promoting individual and community health;
4. Enable an integrated approach across many disciplines to investigate the environmental, social, behavioural and genetic factors underlying susceptibility, progression and the effective treatment of common, chronic adult diseases and changes in physical and mental function;
5. Enable opportunities to reduce disease burden and to improve community health.

Over 230,000 participants aged 18 years of age or older have been recruited to date. Individuals are eligible to participate regardless of their health history or prevalent conditions. Informed consent for all participants allows for re-contact studies as well as linkage to clinical administrative data. Biologics include cell-free blood serum and plasma, red blood cells, and buffy coat specimens while DNA has already been extracted on a subset of samples. The OHS is still actively recruiting and re-contacting participants and collecting biologics through private medical laboratories and community-based assessment centres.

## ABOUT THE DATA

The OHS data has been harmonized with the other CPTP cohorts across Canada, creating a dataset with over 315,000 participants, approximately 50% of whom have provided a blood sample. Working in concert with the CPTP, the OHS is genotyping and sequencing a subset of blood samples to create a rich dataset that will greatly enhance the value of the CPTP resources available for future research. This initiative will provide researchers a resource of single nucleotide polymorphisms (SNP's), for genome-wide association studies (GWAS) of cancers and other diseases or health related conditions.

OHS data are further enriched by the participation of subsets of OHS participants in ancillary studies. The Canadian Alliance for Healthy Hearts and Minds examines the impact of individual, socio-economic and other environmental factors leading to cardiac and vascular disease. OHS participants taking part in this study complete additional detailed questionnaires related to diet and cardiovascular disease risk, and undergo cognitive testing and MRIs of the brain, heart, carotid artery and abdomen. The OHS also supports the Ontario Sleep Health Study, which assesses the impact of sleep and circadian disruption on the health and wellbeing of Ontarians. OHS participants in this study complete sleep questionnaires, and obtain 10 days of actigraphy and one night of overnight respiratory monitoring. All new data collected from OHS participants in these ancillary studies will become part of the OHS database, and will become available to the research community.

The OHS also affords unique opportunities to measure the health behaviours and outcomes of its participants via record linkage. Participants have agreed to link their questionnaire responses and biological samples to their administrative health records. The OHS will establish data linkages with disease registries (e.g., the Ontario Cancer Registry) and the administrative databases (e.g., insurance billing records) at the Institute for Clinical and Evaluative Sciences to follow participants for future disease endpoints, and to capture a rich array of clinical data to support health services research. This will allow OHS to follow participants both actively and passively via linked administrative health data for their entire lifespan. Additional self-reported information will be collected through supplementary questionnaires to collect detailed information about diet, mental health, physical activity and environmental exposures.

The OHS and CPTP are already recognized as exemplar cohorts, and have advised, shared protocols and provided policies to programs worldwide including the National Institute of Health (NIH) funded Precision Medicine Program, H3Africa Program, and new cohorts being developed in Russia, Singapore and China, while also supporting extensions to genomics programs such as the Genotype-Tissue Expression Project (GTEx). Both OHS and CPTP are members of the NIH's National Cancer Institute (NCI) cancer cohort consortium.

## CONTACT INFORMATION

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