

KALYANI COHORT STUDY

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Objectives and Scope

- This cohort study is designed to serve as the bedrock of studies on natural histories of various chronic diseases, their genetic and environmental underpinnings, and pharmacogenomics.
- This study will help track health and disease profiles of residents of the Kalyani area, which may be considered as representative of the peri-urban regions of West Bengal, and will provide translational benefits regarding health-service planning.
- Through the conduct of this study, a platform will be created for prospective basic and translational research on genomics of health and disease, establishment of a cohort of about 20,000 individuals drawn from villages in and around Kalyani has been initiated.

Current Status

Round-I: Completed.

- In the first round, based on a statistical sampling design, households from 7 wards – 4 from the Kalyani Municipality and 3 from the Gayeshpur Municipality – were selected. Individuals of all households in these 7 wards were contacted, their informed consent were taken and data pertaining to demography, life-style, health and disease, etc. were collected. The cohort size is 19519 individuals, with the following details:

Municipality	No. of Households	No. of Individuals
Kalyani	2746	11559
Gayeshpur	2819	7960
Total	4865	19519

- Using a sampling scheme to ensure representativeness, blood samples were collected from individuals enrolled in the cohort. These blood samples have been analyzed for various biochemical markers of health and disease.

Round-II: In progress.

- Round-II of data collection is in progress. In this round, the same data collected in Round-I are being collected on the set of 19519 individuals recruited into the cohort. These data will provide an idea of longitudinal changes in life-style, health and disease profiles. The total numbers of individuals from whom data have been collected in Round-II are:

Municipality	No. of Households	No. of Individuals (% of target)
Kalyani	2012	8186 (70%)
Gayeshpur	1826	6856 (85%)
Total	3838	14942 (75%)

- Concurrently, sampling of blood and evaluation of biochemical markers of health and disease are in progress. The total number of blood samples collected is from 4926 individuals.
- We have now initiated isolation of DNA from the blood samples collected.

- Capacity Building:
 - We have trained about 20 graduates (~50% female) in sociology, social-work and other similar backgrounds in the conduct of field-survey and data collection pertaining to health research.
 - We have trained four phlebotomists in the in situ collection of blood samples from individuals.
 - We are currently providing hands-on training to the field-investigators, two at a time for two months, in biotechnological laboratory methods, starting with isolation of DNA from blood samples.

Some Representative Results

- In an earlier study conducted in India¹, it was observed that 38.7% males and 23.3% females had serum cholesterol level more than 200 mg/dl. High cholesterol level is an important predictor of coronary heart disease². In the Kalyani-Gayeshpur cohort, we have noted that the female population in both the urban Kalyani and rural Gayeshpur show an increasing prevalence of hypercholesterolemia with increasing age, and this rises to an alarming prevalence of nearly 45% in the middle age groups. Such alarming trends have not been noted among males.
¹Sawant, AM, Shetty, D, Mankeshwar, R, Ashavaid T.F. (2008) Prevalence of Dyslipidemia in Young Adult Indian Population. Journal of the Association of Physicians of India. 2008 Feb;56:99-102.
²Park's Textbook of Preventive and Social Medicine, 18th edition
- Anaemia is the most common hematological disorder with lowering of Hb Concentration than the normal range. In the Gayeshpur-Kalyani region, the prevalence of anaemia is very high among females, compared to males. This is probably a reflection of poor nutrition, although the cause needs deeper investigation.
- Among individuals included in this cohort, both males and females show a higher prevalence of hypothyroidism.

