CHAPTER 5
RESEARCH DESIGN

5.1. There is a great diversity in the Student Health Insurance Programs (SHIP) implemented worldwide, evaluation questions, data available and paucity of research studies carried out in this field. Hence, information needed to structure and solve the problem at hand was acquired using appropriate research methodology. The researcher chose the representative sample, collected relevant data, applied appropriate research tools and techniques for analysis and interpreted the data after scientific investigation of the problem. To achieve the objectives outlined earlier, test the hypotheses validity and thereby comment on the overall impact of Health Insurance, the researcher used a combination of appropriate methodologies, both quantitative and qualitative.

5.2. CONFIDENTIALITY, CONSENT & INDEPENDENT ETHICS COMMITTEE (IEC) APPROVAL:
All the research participants were fully informed about the procedures involved in the research and they consented voluntarily to participate in the study. Participants’ confidentiality was assured and it was impressed upon them that information divulged would be utilized only for this research study. The researcher submitted research proposal to the Independent Ethics Committee (IEC). IEC reviewed and approved the proposal. After IEC approval (Appendix ‘2’) and permission from the management of the focal HEI of the research, the primary data was collected in the academic years 2011-12 and 2012-13.

5.3. PROCESS-BASED METHODOLOGY:
When a Health Insurance program has been operational for over a decade and has evolved dynamically over the years, the methodology of process-based evaluation is able to analyze the impacts of the Health Insurance initiative and changes. A pilot study was conducted to test the questionnaire. The pilot study questionnaire
was administered to all stakeholders including students (both insured & uninsured), medical officers, consultant / healthcare providers consultants (healthcare providers), administrative officers, officers of the insurance companies & Third party administrators (TPAs). Feedback was obtained as regards objective of administering this questionnaire, ease of understanding the questions, the time needed to complete it etc. The modified questionnaire is hence a fall out of the questionnaire used in the pilot study. Thus the process-based methodology (including pre testing of the questionnaire) to understand Health Insurance Program at the focal HEI of the researcher was implemented as follows:

![Flow Chart of Research Methodology](image)

**Figure 2: Flow Chart of Research Methodology**

5.4. **RESEARCH STUDY DESIGN**:

The present study is a randomized, exploratory & a descriptive research study. Qualitative and quantitative data was collected and analyzed in consultation with a
biostatistician to formulate the research design, to achieve the objectives outlined earlier, test the hypotheses validity and thereby comment on the overall impact of Health Insurance. Questionnaires with missing / incomplete information, ambiguous responses were not compiled. Only questionnaires with complete data were coded and included in the study.

5.5. DATA COLLECTION AND TOOLS OF ANALYSIS

The primary data were obtained from an interview & analysis of the responses obtained to a pre-tested questionnaire that was personally administered to the stakeholders. Their responses were corroborated for authenticity through additional sources e.g. website, publications and in some cases through personal interaction with the authorities by the researcher. In order to obtain a global perspective and understanding of health insurance for students in other HEIs and to share with like-minded research workers/organizations involved in similar research study, a blog was also hosted [http://healthinsurance4student.blogspot.in/2012/02/student-health-insurance-at-pune.html](http://healthinsurance4student.blogspot.in/2012/02/student-health-insurance-at-pune.html). The blog presented a basic introduction of the research study undertaken and invited views from the global community.

Secondary data was obtained by accessing the websites of HEIs in India & abroad to collate the information about the Health Insurance plans implemented for students across these institutions. Both print & electronic media was accessed through books, records, newspapers, published censuses, data archives, research articles by other researchers and other statistical data.


An email alert was created on Google Scholar for ‘evaluation of ‘health insurance" for students at higher educational institutes’ & ‘Health Insurance for students at Higher Educational Institutes’ (Responses are as attached as Appendix ‘3’) & on EBSCO alert for ‘The Impact of Health Insurance on Health. How does health insurance affect health”? (Responses are attached as Appendix ‘4’).

The questionnaire was directly administered by the researcher herself. The purpose of the study explained in detail. All questions were explained and the responders were counseled as regards the expected response, without trying to influence / bias the response in any way. Further the availability of the research worker herself ensured the requisite sanctity/ seriousness to the entire exercise; as a result of which, the
incomplete responses were minimized. This methodology facilitated a direct contact between the researcher and the responders. Responses were collected, collated and analyzed immediately after the questionnaire was administered, thereby nullifying the probability of tampering / manipulation of the data.

5.6. **SELECTION CRITERION**

Students were selected on the basis of the following criteria:

**Inclusion Criteria:**
- Readiness to participate voluntarily
- Availability of primary data.
- Accessibility of data.

**Exclusion Criteria:**
Educational institutions having on campus Medical Colleges were excluded from the study since the responses from such educational institution would be in the affirmative and this may vitiate the statistical analysis.

5.7. **POPULATION AND SAMPLE**

Characteristics of the Population: All students aged 19 to 24 years who were covered under health insurance and students in the same age group who were not covered under health insurance at Higher Educational Institutes (HEIs).

5.8. **STUDY DURATION:**

Academic Year 2011-12 and Academic Year 2012-13

5.9. **RESEARCH DESIGN:**

With the above process based methodology, the researcher conducted the study under two broad sections.
Figure 3: Research Design

5.9.1. SECTION I:

5.9.1.1. Evaluation of Student Health Insurance Program (SHIP) at focal HEI:

The purpose of evaluation of SHIP was to determine the level of preparedness of the focal HEI, implementation of the SHIP and studying the overall impact of the SHIP on the basis of certain indicators which emerged as a fall out of the questionnaire administered to all stakeholders outlined above. Evaluation of SHIP entails an analysis of the benefits & inefficiencies in the delivery mode of the Health Insurance program. The researcher identified constraints that need corrective action to measure efficiency and effectiveness of the outcomes of SHIP at the focal HEI. The survey follows the evaluation process as preparedness, implementation and impact indicators of the SHIP at the focal institute of the researcher. Each of these three parameters were studied on the basis of the knowledge of the stakeholders.

5.9.1.1.A PREPAREDNESS: The researcher distributed a pre-tested questionnaire to test the knowledge of the following stakeholders to study the preparedness about health insurance program:
Campus Medical Officer (n= 30); Campus Medical Officers responded after briefing session on SHIP by the researcher. (Appendix ‘5’)

Administrative Officers (n= 75); all Administrative Officers representing 27 different constituent institutes of the focal HEI responded after briefing session on SHIP by the researcher. (Appendix ‘6’)

Consultants (Healthcare providers) (N=57); 13 (i.e.23%) Consultants offering healthcare services during hospitalization responded. (Appendix ‘7’)
Officers of Non-Life insurance companies & Third Party Administrators (TPAs) in India (N= 53); A questionnaire was administered to Officers of 24 Insurance Companies and Officers of 29 TPAs in India. Unfortunately only 5(i.e,10%) Officers of Insurance Companies& TPAs responded, despite all attempts by the researcher. Their responses were substantiated for authenticity by the researcher, through additional sources e.g. website, official publications of the institution and in some cases through personal interaction with the authorities. (Appendix ‘8’)

5.9.1.1.B IMPLEMENTATION: All insured students at the focal HEI were briefed by the researcher about ‘SHIP’ during the induction process of academic year 2011-12 & 2012-13.

Image 4: Awareness Session for Students at Focal HEI
A pre - tested questionnaire (Appendix ‘9’) was circulated to 1,618 randomly selected (N= 18,329) insured students (age 19 to 24 years) at the focal HEI after the briefing session about ‘SHIP’. The researcher then studied awareness about health insurance program amongst these insured students.
5.9.1.1.C IMPACT: A pre-tested questionnaire (Appendix ‘10’) was circulated to 120 randomly selected insured and hospitalized students (N= 255) of the focal HEI. The researcher assessed the impact of health insurance program with respect to awareness of students’ knowledge about the health insurance policy, processes, use and outcomes.

5.9.1.2. Study & Evaluate Use & Outcome of Existing Health Insurance Data Management System at the Focal HEI. : The researcher evaluated use and outcome of existing health insurance data management system. Link of an online questionnaire on Likert scale of 1 to 5 (Appendix ‘11’) was mailed to medical officers and administrative officers at focal HEI. 16 individuals entered their experiences in the structured online forms. Use and outcome variables were converted into the following components.

Usability was determined by ease of use, security, flexibility, reliability, efficiency, service response, technical support, ability to make changes and overall satisfaction.

The outcome of EHRs system was evaluated as outcome score & that included reduction in human errors, workload of doctors, number of phone calls, incidences of incomplete detail submissions, improvement in terms of ‘mistake free’ data submission. Time saved in data management for insurance was also considered to measure outcome.

5.9.2. SECTION II:

5.9.2.1. Study of Students’ Knowledge about Health Insurance across Select HEIs in India:

A common National entrance test [Symbiosis National Aptitude Test (SNAP)] is conducted by the focal HEI of the researcher, as a mandatory pre requisite to admission to all the post graduate programs at the focal HEI. 78,830 aspirants attempted in 30 cities across India. Finally 5,198 students got admitted to the various post graduate programs at the focal HEI of the
researcher! A pre-tested questionnaire (Appendix ‘12’) was then administered to and responses obtained from 1,347 randomly selected freshmen who represented a pan India cohort.

5.9.2.2. Comparison of Insured Students’ Knowledge with Awareness Session with Insured Students’ Knowledge without Awareness Session.

A pre-tested questionnaire was personally administered by the researcher to 1,618 randomly selected insured students who had attended the awareness session. This formed the Study Group.

A pre-tested questionnaire was personally administered by the researcher to 205 randomly selected insured students who had not attended the awareness session. This formed the Control Group.

A comparative study of knowledge of insured students who had attended awareness session with insured students who had not attended awareness session on health insurance has been undertaken.

5.10. STATISTICAL ANALYSIS PLAN:

5.10.1. SECTION I:

- Evaluation of the SHIP: This research study will depict the preparedness, implementation & impact of health insurance with regards to awareness amongst various stakeholders, need for training, health insurance processes and satisfaction levels of healthcare services delivered. The analysis in percentage (%) will testify implementation and impact of the health insurance at focal HEI & assess effectiveness of the health insurance at the focal institute of the researcher.

- To Study & Evaluate Use & Outcome of Existing Health Insurance Data Management System at the Focal HEI: The researcher calculated composite scores for usability and outcome of electronic health record data management system. The formulae were as follows:

  Usability score = [(total usability points /45* no of participants) *100]
  Outcome score = [(total outcome points /30* no of participants) *100]

  The cumulative scores were calculated as ‘percentage’ for both the variables.
5.10.2. **SECTION II**

Statistical Package for the Social Sciences (SPSS) software, version 16.0 was used to analyze the coded data. At 95% confidence interval, p values less than or equal to 0.05 were considered significant. Chi-square test was used for comparative study as mentioned below:

- To analyze the significant difference of knowledge between the Insured students with Uninsured students at select HEIs in India.
- To analyze the significant difference of knowledge between the Insured students *with* awareness sessions & insured students *without* awareness session.