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# Representation and Evaluation of Disability in Port-au-Prince, Haiti: Methodological Report

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## Presentation of organisations involved in the study

### **FIRAH (International Foundation of Applied Disability Research)**

Founded in 2009 and state-approved, FIRAH is a foundation entirely dedicated to applied disability research.

The actions of the foundation are based on two complementary lines which serve the mission of the foundation:

- The calls for projects which aim to select and finance applied research projects with the involvement of field stakeholders including DPOs and researchers.
- The Resource Center which aims to create a network between researchers and field stakeholders in order to disseminate and enhance the applied research carried out internationally. This collaborative project gathers a network of partners (organizations) and members (individuals) in order to create a new and useful tool and improve the social participation of persons with disabilities.

FIRAH works for the concrete implementation of the Convention on the Rights of Persons with Disabilities principles.

All the information about FIRAH, its calls for projects and the Resource center are available on [www.firah.org](http://www.firah.org)

### **Handicap International**

Handicap International is a not-for-profit non-governmental organisation which has worked with people with disabilities for over 25 years.

Its expertise in the field of disability is acknowledged internationally and the organisation has already published analyses of disability in other countries (Afghanistan, Mozambique, Indonesia and West Africa). Handicap International has been working in Haiti since 2008, and was therefore already in place when the 2010 earthquake hit. It immediately took up an active role in managing the victims, in particular the large number of amputees. Its in-depth knowledge of the local network of disabled people's organisations, health structures and local authorities mean the logistics were already in place to deploy the study, host the additional staff required and find competent local interviewers for this project.

### **London School of Hygiene & Tropical Medicine (LSHTM)**

The LSHTM is the United Kingdom's national school of public health. It is a world-leading centre for research and postgraduate education in public and global health. It is the largest establishment of its kind in Europe and its expertise covers a range of disciplines from epidemiology and statistics to economics and health policy. It is one of the United Kingdom's top research institutes.

### **International Centre for Evidence in Disability (ICED)**

The ICED is a Research Centre, founded in 2010 and based at the London School of Hygiene & Tropical Medicine. Its researchers have extensive experience in carrying out disability and incapacity studies in low-income countries. It has notably undertaken research to assess the impact of disability on various aspects of daily life, in particular poverty, quality of life, activities and participation using both quantitative and qualitative approaches. The ICED's expertise also includes the analysis of health systems in low-income countries in fragile situations, as is the case in Haiti. The ICED provides academic support and contacts with governmental and non-governmental organisations, in order to work with local contributors and translate the results into practical applications. The ICED members already work in close collaboration with Handicap International and the Christoffel Blind Mission.

## **I. Aims and Objectives**

The overall aim of this study was to assess the magnitude of disability and service needs in Port-au-Prince, Haiti, and to assess the extent to which people with disability in Port-au-Prince, Haiti are exercising their rights according to the principles and contents of the UN Convention on the Rights of Persons with Disabilities. This aim was achieved by conducting a population based prevalence survey, a disability study and through undertaking a nested case-control study comparing people with disability to those without disability.

The objectives of the study were:

- 1.** To estimate the prevalence and types of disability, and the proportion attributed to the earthquake in Port-au-Prince, Haiti
- 2.** To estimate the unmet need for services for people with disabilities in Port-au-Prince, Haiti and identify barriers to the uptake of services
- 3.** To assess activities and participation and the extent to which People with Disabilities access mainstream education, health, employment and livelihood opportunities compared to non-disabled peers.

## II. Methodology

### Study Design

A population-based prevalence survey of disability was undertaken in sixty randomly selected clusters across Port-au-Prince, Haiti. A disability study was also conducted with persons identified to have a disability to assess the cause of disability, age of onset, awareness and use of rehabilitation services and barriers to usage and the use and source of assistive devices. A nested case control study was undertaken to compare persons identified with a disability according to the case definition in this study to controls without a disability. One age-sex and cluster matched control without disability (i.e. not meeting the case definition) was selected for every case identified (see fig. 1).

### Sampling and recruitment

The National Population and Housing Census of Haiti from 2003[1] was used as the sampling frame and clusters were selected with probability proportionate to their size. The study focused on the Ouest administrative department of Port-au-Prince specially the five communes including Carrefour, Delmas, Pétionville, Tabarre and Port-au-Prince. Due to changes in population size since the 2003 Census, adjustments were made within the sampling frame to reflect the level of population growth during the period since the National Census.

Sixty clusters were randomly selected from the sampling frame using specialist the Rapid Assessment of Avoidable Blindness (RAAB) software[2]. The sixty "clusters" were the lowest level of administrative geographic unit in Haiti, known as "Section de Enumeration (SDE).

### Compact segment sampling

Households within clusters were selected through compact segment sampling[3], whereby one segment of a cluster was selected and all the households were visited door-to-door, and all eligible people (i.e. residents for at least 3 months of the previous year) were included until the target size of 50 people was reached. Using this two-stage sampling method ensured that all people in the study region had an equal chance of selection.

### Power calculation

We conservatively estimated that the prevalence of disability among people  $\geq 5$  years was 5% based on other studies using the Washington Group (WG) questions [4-7] and prevalence estimates identified in the 2003 National Population and Housing Census of Haiti of 1.5%[1] and other surveys conducted in Haiti that estimated disability prevalence at 7% and 10.5% respectively[8, 9]. Therefore, a conservative estimate of 5% was taken based on these studies. Therefore, a sample size of 3000 (60 clusters of 50 people per district) was required to estimate the prevalence with a precision of 20%, 95% confidence, a design effect of 1.4 and 15% non-response. This sample size would give rise to approximately 150 people with disability of whom we expected that 40 would be children and 110 adults. The sample size was sufficient to estimate accurately

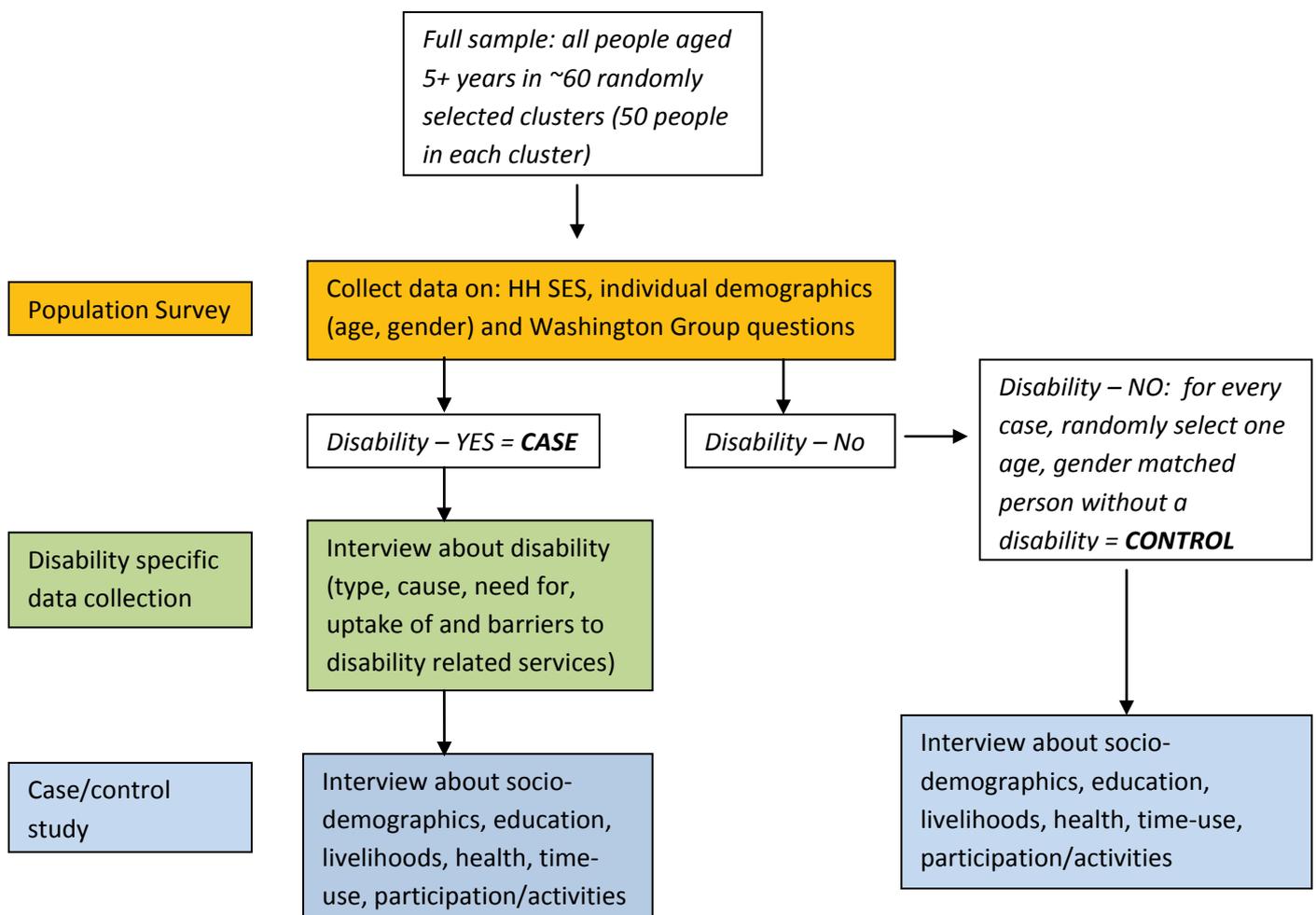
the prevalence of disability, and to identify enough adults. However the sample size was insufficient for the children. We therefore undertook case-finding using local key informants to identify one extra child case (and control) in each cluster, to produce a similar sample size for the children as for the adults.

### Case finding

The data collection interviewers were trained to undertake active case finding after fully completing and locating and interviewing the required 50 individuals in the selected segment in each cluster. Case finding was undertaken by the team leader of each team and the data collectors visiting a different randomly selected segment of the cluster than the one that they had located the 50 individuals in (one of the segments not chosen).

Once in this segment, the supervisor's and interviewers role was to identify local key informants in each segment and ask them to whether there was a child with a disability living in the area. The household with the child with a disability was then located and identified and the study was explained and informed consent was taken if the household head agreed to the study. The household questionnaire, disability study and case control questionnaire were then administered to the head of household and the child identified to have a disability in the presence of an adult.

**Figure 1: Overview of the survey process**



### III. Disability measurement using the Washington Group Short Set of Questions

In order to be able to address the various aspects of disablement with respect to equalisation of opportunity for people with disabilities, it is therefore necessary and important to identify persons who are at greater risk than the general population of experiencing limited participation in society.

The recommended short set of questions on disability proposed by the WG will identify the majority of the population with difficulties functioning in basic actions; difficulties that have the **potential** to limit independent living or social integration if appropriate accommodation is not made. The recommended short set was developed according to the Fundamental Principles of Official Statistics and is also consistent with the WHO ICF. The WG questions have been shown to produce internationally comparable data. A further strength of the questions is that they were developed for administration using Census methodology[10].

The short set of WG questions contains six questions. The questions cover six core functional domains or basic actions: seeing, hearing, walking, cognition, self care and communication. The short set of questions and the four response categories for each set of questions is featured below:

#### **Washington Group Short Set of Questions on Disability**

**Introductory phase:** The next questions ask about difficulties you may have doing certain activities because of a HEALTH PROBLEM

1. Do you have difficulty seeing, even if wearing glasses?
2. Do you have difficulty hearing, even if using a hearing aid?
3. Do you have difficulty walking or climbing stairs
4. Do you have difficulty remembering or concentrating?
5. Do you have difficulty (with self-care such as) washing all over or dressing?
6. Using your usual (customary) language, so you have difficulty communicating, for example understanding or being understood?

The response categories were as follows: No, no difficulty, Yes, some difficulty, Yes, a lot of difficulty or Cannot do at all. The severity scale is used in the response categories in order to capture *the full spectrum of difficulty in functioning from mild to severe*[11].

## IV. Data collection methods and instruments

### Population-based prevalence survey

On arriving at the household, an informant from the selected defined as the household head or the person primarily responsible for the household was interviewed about household members residing in the house for the past three months of the past year. Household members did not have to be related by blood and included those who commonly ate meals together under one roof. This did not include domestic workers or persons paying rent to reside in the household. The household questionnaire included questions on the household members residing in the house, their age, gender, relationship to the household head. Further questions included including those socio-economic characteristics including the main type of roof, wall and floor material, number of rooms in the household excluding, type and location of the toilet facility, main source of drinking water, lighting and electricity and household asset ownership.

All household participants aged  $\geq 5$  years were screened for disability. For the purpose of this study, we defined persons with disabilities as *“people who have long-term physical, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others”*. We identified cases with disability using the Washington Group (WG) screening questions. Using this tool we asked the household head or person primarily responsible for the household if people living within the household experienced difficulties with any of 6 activities (seeing, hearing, walking or climbing stairs, remembering or concentrating, washing all over or dressing, communicating) as a result of a health problem that lasted at least 6 months or was permanent. These were rated by the responder (“no difficulty”, “some difficulty”, “a lot of difficulty”, “unable”).

**Case definition and selection of controls:** Disability was defined as answering “some” difficulty with at least **two** activities or “a lot of difficulty/unable” to do any **one** activity above. One age- sex and cluster matched control without disability (i.e. not meeting the case definition) was then selected for every case identified. Controls and cases were matched by age ( $\pm 1$  year for children  $< 16$ ;  $\pm 3$  years for adults  $\geq 16$ ).

### Disability study

People identified with disability were interviewed to assess the cause and need for disability-related services, as well as uptake of and barriers to disability-related services. If a household member was absent then he/she were screened through a proxy, and an attempt was made to revisit the house later in the day. All participants age 9-15 were interviewed in the presence of an adult. A proxy respondent was used for children aged 5-8 years or people unable to communicate.

### Nested case control study

A nested case control study was undertaken to compare cases with disability to controls without disability. Disability was defined as answering “some” difficulty with at least **two** activities or “a lot of difficulty/unable” to do any **one** activity above. One age-sex and cluster matched control without disability (i.e. not meeting the case definition)

was then selected for every case identified. Controls and cases were matched by age ( $\pm 1$  year for children  $< 16$ ;  $\pm 3$  years for adults  $\geq 16$ ).

All consenting participants underwent detailed interviews. Proxy respondents were used for children aged 5-8 years or people unable to communicate. The interviews included questions on:

- Socio-demographics: age, gender, marital status, highest educational level achieved and literacy (participants  $> 16$  only).
- Educational participation (participants age  $< 16$  only): current attendance and grade, type of school attended, barriers to attendance, number of school-days missed in previous month, and number of times repeated a grade at school.
- Livelihoods (participants aged  $\geq 16$ ): paid work undertaken or sought, type of work (including self-employment) and barriers to working.
- Health: health care visits during past 4 weeks and year, barriers to seeking health care. Women aged 15-45 only: number and ages of children, number of antenatal visits and place of delivery for last child.
- Participation/activities: for adults we will use questions used by SINTEF[4-7] on activity limitation and participation restriction and for children, the Pediatric Quality of Life Inventory was used (PeDsQoL).
- Environmental Factors (for all study participants): assessing barriers to participation in relation to environmental factors in the past 12 months and the frequency in which they experienced the particular barrier and the magnitude of the problem if it occurred.

Questions on education, employment, health care were largely derived from relevant modules in the World Bank Living Standards Measurement Survey, Demographic Health surveys, and Multiple Indicator Cluster Surveys. These questions and topics were expanded and assessed for local relevance and appropriateness through discussion with local disabled people organizations, other experts and through pilot testing. Other studies that used the Washington Group to assess disability status were referred to.

## V. Ethics

Ethical approval for the study was sought and obtained from the LSHTM and the Ministry of Health in Haiti. Informed oral consent was obtained from all survey participants. Informed written consent will be obtained from all cases and controls, after explanation of the interview content. For people age <16 or those with intellectual impairment consent was sought from a family member, who was present during all interviews. All people with a disability requiring services were referred as appropriate.

We ensured the validity of the study through the following actions: a) use of population based cases and controls to improve the generalisability of results; b) use of validated questionnaires which were appropriately pilot tested; c) adequate training of interview and survey staff; d) routine supervision of teams and daily checking of data quality.

## **VI. Study Coordination and Organisation**

The overall study coordination and planning was conducted in the months prior to the survey and finalisation in the two weeks before the training period. In this time period, the survey instruments were tested in both the Handicap International Physical Rehabilitation Centre and also in one cluster (SDE). During the field test in the cluster, all field staff were present and any amendments to the questionnaires were made and finalised. Training for the fieldwork in Haiti was approximately one week which included an introduction to the overall study and study components, and training on survey methodology including the population based household survey, the disability and nest case control study, overall study protocol, field testing and consent taking procedures.

### **Survey instrument development and design**

The survey instruments were developed prior to the fieldwork in collaboration with researchers based at LSHTM and Handicap International. All survey instruments including the study protocol were produced in English and then translated into French and Haitian Creole. Where French versions of any standardised questions were already available, these versions were used in the French version of the survey instruments. A field guide was also produced detailing and explaining all of the survey instruments. The three study questionnaires were translated into Haitian Creole for use and administration in the field. Copies in French were also available to each field team. The survey questionnaires were pilot tested prior to the survey both in the Handicap International Rehabilitation Centre and in the field. The questionnaires were then finalised and printed.

### **Geographic maps**

The Haitian Ministry of Statistics and Informatics, Geographical Information Unit were conducted and visited prior to the study to order and obtain maps detailing the 60 'SDEs' or "clusters" as termed in this study. These maps contained key landmarks, for example, roads, rivers and other key geographical features that were used to help identify the a randomly chosen segment in each SDE. Each SDE was assigned a number from 1 to 60 and this was used to identify each SDE. The LSHTM researcher was responsible for the management of maps and the division of each SDE map into segments for compact segment sampling and to ensure that each map had clear instructions to the team leader on how to locate and access the randomly selected segment.

### **Security**

The disability coordinator at Handicap International informed the relevant Ministries, government personnel in each commune/SDE and security personnel including the local police that the study would be taking place in their local area during the data collection dates. All field staff were provided with a letter from Handicap International detailing that they were employed to work on the study and had a photo identification badge to identify themselves once in the field.

## VII. Data Collection

### Overview

The data collection for this study was conducted between February to April 2012 in collaboration with the Handicap International, Haiti office, and two research staff from the London School of Hygiene and Tropical Medicine (LSHTM), one of whom was based in Haiti for the full duration of the survey fieldwork period and the other, who provided support during the training period. Full support in the form of a disability coordinator and project manager were provided by Handicap International to support the study. Logistical and technical support was also provided by Handicap International. The researcher from LSHTM was responsible for overseeing and co-ordinating the study and data collection including training of data collection staff in collaboration with the study coordinator employed by Handicap International, preparation of study questionnaires and study protocols, organisation of the logistics including geographic maps of the individual SDEs, security and transport and overall logistics. The LSHTM researcher was also responsible for the development of the study databases in Access and training and management of data entry staff on the Access databases and validation of the data using Epi-Info.

### Training

A total of 16 field staff were employed to work on this study that had previous experience of conducting surveys or working with international organisations. The coordination of the staff included four teams comprised of one team leader and three data collectors. A one week long period of extensive training was provided for all field staff on the study and survey methodology and other specific aspects of the study. This included an overview and introduction to disability in both the global and country context, concepts and models and an introduction to the study, organisation and logistics of the study, security procedures of Handicap International and within the field and training on cholera awareness and hygiene practice whilst in and after leaving the field.

A day by day training programme focused on providing an introduction and overview of sampling procedures, the study methodology and specific focus on the components of the study including the household questionnaire and specific training on the use of the Washington Group questions in this study and case and control definitions, disability study and case control study components, ethics and consent procedures, study protocol training and including two days training in the field in one cluster with each of the four teams having a study coordinator for in-field support. Training was conducted by the two LSHTM researchers and the Handicap International study coordinator. All training was conducted in Creole with the assistance of a translator.

### Data collection and field administration

The data collection teams consisted of four teams (One team leader and three data collectors) who visited one cluster per day and were given an envelope numbered with the cluster to visited, a map detailing the selected segment of the SDE to be visited, all of survey instruments including the household questionnaire, disability questionnaire and case control questionnaires, a household log sheet to list all household visited and

to log household members. A checklist of the questionnaires administered and a control list form to list all eligible controls and a form detailing all cases and matched controls and a study protocol. To ensure study procedures, all team members had to meet at 7.00am each morning at the Handicap International office and the team leader's responsibility was to ensure that the team had all the required study documents and maps for the assigned SDE "cluster" and selected segment that they were assigned to visit each day.

The team leader was briefed each morning on the selected cluster and segment of the cluster that their team had been assigned to go to and instructions on how to locate the segment within the cluster.

### **Data quality and assurance**

Each team was regularly accompanied by the study coordinator, disability coordinator to the field to ensure study co-ordination and check questionnaires and data quality. When this was not possible, team leaders and data collectors could contact the study coordinator, disability coordinator and LSHTM researchers for advice and guidance on any problems or difficulties encountered in the field.

In each of the 60 clusters, 50 people aged  $\geq 5$  years were identified. Two of the sixty clusters had to be re-selected due to changes in the population demographics of those areas, e.g. Pétionville, which has changed significantly since the National Population Census in 2003 from a residential district to a business district area. The study questionnaires including the household questionnaire for the population based prevalence study was administered to the head of household or person primarily responsible for the household and the disability status of each household member was ascertained.

Individuals who were identified to have a disability during this study were appropriately referred to, and made aware of existing services within their geographical area. They were also given details of the services available through Handicap International. If the case or control was absent during data collection, the data collection team arranged an appropriate time and took contact details to go back and collect the required information. Each team member was responsible for checking their questionnaires in each household before they moved on to the next household. The team leader was overall responsible for checking the completeness and accuracy of all study questionnaires before leaving the assigned segment of the cluster and also after conducting case finding.

A series of "mop up" days were arranged each week to go back to collect clusters where case or controls were absent. At the end of each day, the team leader of each team was responsible to bring back all study materials used in each cluster back to the Handicap International office.

## VIII. Data Entry and Data Management

### Database development and training

Two data entry operators were employed to work on the study that had extensive experience in data entry and data management. Three access databases were developed by the LSHTM researcher based on the three survey questionnaires and each data entry operator had three databases in which to enter data: a household questionnaire database, a disability questionnaire database and a case control questionnaire database. The data entry operators were trained on each database and on Epi-Info.

### Data processing and data entry

Each of the three separate questionnaires were double entered into Access daily by the two data entry operators separately and were compared using Epi-Info software to correct for any errors in the entered data between the two entries. A daily log of all households visited and the number of forms administered including those that were missing was entered into an excel spreadsheet and a log of all the entered SDEs by both data entry operators to ensure all forms had been double entered.

This detailed all 723 households including those households indentified through case finding (n=58), questionnaires administered or outstanding, case-control status, contact details and any further notes which were used by the data entry team to check the number of questionnaires received against what they had and where any outstanding questionnaires were required or planned to be undertaken. Data entry commenced at the beginning of the survey for a period of six weeks.

### Data validation

The data entry resulted in finalised databases for the household questionnaire, disability questionnaire and case control questionnaire, three Access databases for each data entry person that had been validated and checked using Epi-Info to check for any errors which were then corrected. The finalised databases for both data entry persons were correct and sent to the LSHTM researcher in the UK, who also subsequently checked and compared the study databases to ensure accuracy between the two versions of each database. One final version of each database was then used for data analysis resulting in one household questionnaire database, one disability study database and one case control database. The three finalised databases were cleaned and prepared for analysis using Stata 12.0.

### Statistical analysis

The three quantitative datasets was analysed using Stata 12.0. A number of different analyses were undertaken including basic descriptive statistics including summary statistics, for example, basic frequencies including percentages, mean values for continuous variables including 95% confidence intervals, contingency tables and the Pearson's chi-squared test ( $\chi^2$ ) for association between categorical variables, Student's t-test, two sampled t-test to assess for a difference in means and the Fisher's exact test, a statistical significance test used for the analysis of contingency tables, particularly when sample sizes are small[12]. The prevalence of disability was also

estimates and frequencies of the types of disability. The specific analysis for each form of data is described below in further detail.

### **Population based prevalence survey**

The analysis of the population based prevalence data from the household questionnaire was presented in three forms and excluded households and individuals (children) identified via case finding. The three forms were as follows and the specific analysis performed for each of the three forms is also described:

#### **1. Household level analysis**

The analysis of this dataset included analysis of 665 households including 559 households without a person with a disability and 106 households with a person with disability. This analysis included prevalence of the number of households with a disability, assessment of the distribution of households by geographic commune, presence of a child less than 16 years of age, presence of a senior adult > 60 years old, mean household dependency ratio, female headed household status and socio-economic status using chi-squared tests, fisher's exact tests and t-tests.

#### **2. Household roster analysis (all individuals enumerated in the household n=3390)**

This analysis included basic descriptive statistics of the sample by age as defined by three age categories of 5-18 years, 19-59 years and 60 years and above for the whole sample.

#### **3. Analysis of individuals screened for disability using the Washington Group questions (those aged $\geq 5$ years) (n=3132)**

This analysis included calculation of the prevalence of disability in the sample including 95% confidence intervals based on the case definition of disability in this study. Further analysis included calculation of the prevalence of disability in the sample based on the use of different definitions and thresholds to illustrate the prevalence using different definitions of disability. Further analysis included basic descriptive statistics of the sample by age as defined by three age categories of 5-18 years, 19-59 years and 60 years and above for the whole sample screened for disability, those not identified to have a disability and those identified to have a disability and chi-squared tests for association to compare those without a disability to those with a disability.

### **Disability study (n=178)**

This analysis focused on the 178 people identified to have a disability as per the definition used in this study including an assessment of the cause and type of disability for on all those identified to have a disability including those identified through case finding and also separately for those identified through case finding. The analysis included basic descriptive statistics on the type and cause of disability and age of onset. Further analysis included analysis of those earthquake/non earthquake as a cause of disability by gender and age, basic descriptive statistics on access to and use of rehabilitation services and barriers to usage, analysis of the gap in the need and use of

services between those who needed a service and those that had actually used it. Further analysis included basic descriptive statistics on the use, need and source of assistive devices.

#### **Nested case control study (n=356)**

This analysis included basic descriptive statistics of the sample. This sample included all persons identified to have a disability including those children identified through case finding n=178 and 178 age-gender matched controls. The analysis included cross tabulations between cases identified to have a disability and controls in the domains of education, health and reproductive health, livelihoods, activity limitation and participation restrictions and environmental factors and chi-squared tests for association. Further analysis also included detailed analysis of activity limitation and participation restrictions based on scoring the maximum score in each of nine domains (four for activity limitation and five for participation restrictions) and calculation of the maximum score possible on each domain and the mean value for cases and controls together with p values from the two sampled t-test. A similar approach was also taken for the analysis of the data on the 12 environmental factors with mean scores for cases and controls and p values from the two sampled t-test.

## IX. Key study considerations

### Population based prevalence survey

- Prevalence of disability varies according to measurement and definition used[13].
- Disability according to case definition in this study was 4.1% (95%CI 3.4-4.7). Estimates as high as 17.8% using different thresholds using broader definitions or as low as 0.5% using the most severe definition.
- Security considerations meant that particular areas within the sample frame had to be excluded and also temporary shelters and camps (nine camps excluded representing 15% of the population). This affects the generalisability and representativeness of the survey.
- Areas excluded from the sampling frame due to security included the following *Sections Communales*: **Carrefour**: 13eme Corail Thor, 9eme Bizoton, **Delmas**: 1ere Varreux, 2eme Varreux, 5eme Saint-Martin, **Port-au-Prince**: 8eme Martissant. All areas had substantial population sizes.
- Sampling frame was based on the most recent 2003 National Housing and Population Census of Haiti. The increase in population growth was applied to the sampling frame to reflect changes in population size. However, the sampling frame is a major limitation of this study due to possible changes in population size and movement since the earthquake.

### Disability study

- 178 persons with a disability identified.
- The cause and type of disability was analysed for all those identified to have a disability and also for presented separately for children identified through case finding to ensure full representation of the cause and type of disability.

### Nested Case control study

- Included 178 persons identified to have a disability and 178 age-gender and cluster matched controls without a disability.

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## **Representation and Evaluation of Disability in Port-au-Prince, Haiti: Methodological Report**

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This document presents the methodology used to assess the magnitude of disability and service needs in Port-au-Prince, Haiti. The survey process was divided into three phases:

1. a population-based prevalence survey, to get an estimation of disability prevalence in the study area
2. a disability study, to collect specific data on disability from people with disabilities
3. a nested case-control study to compare people with disabilities to those without disabilities.

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