



# The 2016 Annual Report



The George Institute  
for Global Health  
India

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The George Institute for Global Health is a global, not-for-profit organisation located in Australia, China, India and the United Kingdom. We are a registered charity in Australia and the United Kingdom. In India, we are registered under Section 25 of the Companies Act and recognised by the Department of Scientific and Industrial Research (DSIR), Government of India. Edited by Neena Bhandari. Photos by Nick McMahon

The George Institute for Global Health, India. Company Number: U74900TG2007NPL055085

## Our mission

Our mission is to "reduce premature and preventable death and disability caused by the complex continuum of non-communicable diseases, road traffic injuries and mental disorders."

## We will achieve this by:

- Providing the best evidence to guide critical health decisions
- Engaging with decision makers to enact real change
- Targeting global epidemics, particularly of chronic diseases and injury
- Focusing on vulnerable populations

## Our values

Our **humanitarian commitment** will spur us to tackle the health issues affecting high-risk and disadvantaged people in India.

Our **focus on excellence** will produce scientific evidence that is ethical and of the highest quality.

Our **creativity** will challenge traditional thinking and provide an impetus for new and innovative solutions to the world's leading health problems.

Our **integrity** will underpin all our work and interactions, including our collaborations with partner organisations worldwide.

Our **'can do' approach** will produce timely, effective action, even in the face of adversity or other barriers to implementation.

Our **emphasis on impact** will ensure our work has real consequences for those who are most vulnerable to disease and injury.

## Our partners

Partnerships with institutions, organisations and individuals sharing our vision, allow us to extend our reach across the country in urban and rural settings alike. Through these partnerships, we draw on a wide range of expertise to develop and implement activities to address a range of health issues.

The George Institute for Global Health, India, has collaborations with over 60 national and international institutions as well as strong ties within our global offices in Australia, China and the United Kingdom.

### Indian Council of Medical Research (ICMR)

ICMR has contributed to a number of events organised by The George Institute, India, through its many organisations and continues to support a number of projects conducted by the Institute



of students and researchers, and develop collaborative public health projects. A large number of undergraduate students from the University were trained in public health research methodology and subsequently faculty from the university have been involved in other training activities. Mentoring and internship of students has also been a focus of the collaborative activities. The University and George Institute have also collaborated on projects on yoga and falls in elders and adolescent health.

### Public Health Foundation of India (PHFI)

The George Institute, India and Public Health Foundation of India have a Memorandum of Understanding and work jointly on a number of projects to promote collaborative research and capacity development activities. Initial joint activities focus on urban health and disability due to chronic diseases and injury. A number of projects have been conducted in collaboration with PHFI on hypertension, salt reduction, and stroke management.



### Post-Graduate Institute for Medical Education and Research, Chandigarh

The George Institute, India, has reached an agreement with the Post-Graduate Institute for Medical Education and Research, Chandigarh to undertake joint research, exchange of faculty and students and develop collaborative public health projects. Collaborative projects on kidney disease, injury prevention and stroke management have been undertaken with them.



### University of Hyderabad

The George Institute, India, has a Memorandum of Understanding with the University of Hyderabad, India. The purpose of this academic and research partnership is to increase public health research capacity through training



### Christian Medical College, Ludhiana

The George Institute, India, has a Memorandum of Understanding with CMC, Ludhiana. Collaborative projects exist in the areas of neurology.



## Our global affiliations



# From the Executive Director



I am delighted to present to you the latest Annual Report of The George Institute, India. 2015-16 has been yet another year of considerable growth and success, particularly in our efforts to reach out to stakeholders to address the urgent need to tackle the growing burden of non-communicable diseases (NCDs) in India. Besides initiating new research projects around cardio-metabolic disease and injury or trauma care, we stepped up our advocacy, communication and development efforts, thereby creating broad synergy to address this growing NCD menace.

SMAR*thealth*, our primary healthcare program that uses a combination of technology and task-sharing to provide a mhealth led solution to tackle cardiovascular diseases at the primary healthcare level, has been extended to Haryana and neighbouring countries including Bangladesh, Sri Lanka and Indonesia through our collaborator research network. The SMAR*thealth* CVD study is progressing well and expected to close on schedule.

Our renal and cardio-metabolic unit investigates the current public health challenges thrown up by the growing burden of these conditions. Starting from prevalence and pattern of cardio-metabolic risk, we aim to identify the unique risk factors responsible for development and/or progression of these conditions and the economic and social cost of treatment of these diseases. Using a variety of approaches including large scale cohort-studies, use

of big data approaches on large data sets, we will gain better understanding of these diseases, develop arguments to support policy and define steps to early detection, prevention and management. Our implementation research program aims to find evidence around innovative, affordable and scalable solutions for their control.

In our research relating to mental health, neurology and trauma, we continued to generate evidence around the suitability of new strategies using a combination of technology and task-shifting in identifying the burden of common mental conditions in the rural community. The ATTEND trial exploring the efficacy of family-led rehabilitation of stroke victims is progressing well and recruitment is scheduled to end ahead of target. Our work on mapping the burden of fractures following road injury, rehabilitation of trauma survivors and mapping the care pathways of hip fracture victims in the rural community is progressing well. We are in the process of creating new programs of research and advocacy around broadening Women's health agenda, expand the NCD focus to investigate the NCD-infection interface, and developing an mhealth Innovation Incubation Center.

Advocacy and policy influencing efforts are an integral part of our work that cuts across all research areas. In close collaboration with the UNICEF, University of Oxford and Reuters Foundation, we developed a module for training



A portrait of Professor Vivékanand Jha, a man with grey hair and glasses, wearing a dark suit and a red tie. The background is a warm orange and yellow gradient. A white diagonal line cuts across the image from the top left to the middle right.

**“...The burden of non-communicable diseases is continuously on the rise in India as indicated by the latest Global Burden of Disease data...”**

journalists and media students on critical appraisal skills for improving the quality of health reporting. We also organised a roundtable dialogue on women's health issues advocating for a life-course approach to addressing their health and well-being.

We launched an innovative tool that can guide consumers towards making healthier food choices. FoodSwitch India, an innovative smartphone app, permits users to scan the bar code of a packaged food item and get its nutritional information as well as provide information about healthier food choices.

We continued to focus on training, capacity building of our staff as well as the wider research community. Training is targeted at all levels – from PhD opportunities to our researchers, supporting research students from collaborating institutions, to developing new models of teaching for primary care physicians and non-physician healthcare workers. Our research methodology workshop is designed to cater to the wider skill development of the community by providing them with ongoing mentorship.

None of this would be possible without the continued dedication and commitment of the Institute researchers and staff, an extensive network of national and international collaborating partners and the willingness of thousands of individuals and hundreds of communities to volunteer for

participation in our activities. Our efforts have also received immense boost from our supporters and funders. We are grateful to all of them – in particular to the Australian High Commission, Department of Biotechnology, Pfizer Foundation, Qualcomm India, Baxter Healthcare, UNICEF, Wellcome Trust/DBT India Alliance, Navajbai Ratan Tata Trust, ORBIS International and European Foundation for Studies of Diabetes for their support.

We live in exciting times – and strongly believe that improving the healthcare of population at large requires both discovery and implementation research, followed by effective communication policy and stakeholder engagement to convert the findings into actionable. We believe in working with all stakeholders – government, corporate organisations, civil society and NGOs to reach the new Sustainable development Goal that endeavours to ensure healthy lives and promote well-being of all.

*Vivekanand*  
**Professor Vivékanand Jha**

Executive Director,  
The George Institute for Global Health, India

# Primary Healthcare



India's large population relies on the primary healthcare system to provide every day health services. A key resource of the primary healthcare system are the non-physician healthcare workers. They form the vital link between the consumers and the primary healthcare system. Drawn from within the community, their reach and familiarity with the community is a great asset that can be leveraged to improve healthcare delivery.

In order to address the critical health issues and disease burden that the vast rural population is facing, we have been able to leverage technology to overcome the gaps at the primary healthcare level by designing, implementing, and evaluating a series of efficient, low-cost and sustainable interventions. Our research has shown how these interventions can be delivered successfully, and the potential barriers and facilitators.


Starting from CVD, the project provides evidence for the prevention and management of all non-

communicable diseases (NCD) in India, but also has lessons for other developing countries and regions worldwide to effectively combat the emerging disease burden.

Components of this program include integration of mhealth based electronic decision system to enable physicians and non-physician health workers to provide high-quality care and developing health applications for ordinary users. We are expecting greater development in this area through partnership with communities and government.

New programs of research in primary care include issues around women's and adolescents' health conditions. In the former, we plan to focus on developing a life-course approach and for the latter, we would examine unique models of healthcare including those through social media.





## Using SMARThealth to manage CVD in rural India

Research show CVD is the leading cause of young adult deaths and the diseases put enormous economic burden on households in rural areas.

The efficacy of SMARThealth is currently being evaluated through a step-wedged randomised controlled trial (RCT) involving around 250 Accredited Social Health Activists (ASHAs) and 18 primary healthcare (PHC) doctors in 54 villages of West Godavari district in Andhra Pradesh.

Cardiovascular diseases have become a major cause of premature death and disability in India. Existing primary healthcare services are not equipped to manage CVDs, which require early intervention and regular monitoring throughout a person's lifetime.

The wide gap between research and policy has made the situation even worse for effective implementation of strategies to deal with CVDs.

In villages, reliable access to healthcare required to prevent and manage CVDs is wanting. This is where SMART (Systematic Medical Appraisal Referral and Treatment) Health India, an android-based app, can deliver low-cost, high-quality healthcare.

The app records blood pressure, blood sugar and other heart disease risk factors like age, gender, smoking status, and then analyses the data to indicate the extent of CVD risk in a person. The blood pressure instrument and glucometer are blue tooth enabled and can transfer readings to the app. The app has an in built risk-ometer which calculates and displays risk projection over a 10 year period.

SMART Health provides the healthcare worker with personalised evidence-based clinical decision support to manage a person's condition. Based on the analysis and recommendations from the app, the healthcare worker can recommend precautionary measures, such as lifestyle changes, and refer those at high risk to doctors. The doctors can use the app to provide algorithm driven evidence based treatment. All health worker activities are complemented by regular monitoring, supervision and an Interactive Voice Recorded (IVR) system enabled feedback mechanism that provides timely messages to Accredited Social Health Activists, doctors and community members to adhere to treatment guidelines.

The app's two key components – task shifting and the use of mobile-based technology for identification, referral and management of CVDs, save time and resource. It complements the Government's existing primary healthcare infrastructure, and the work of health professionals including ASHAs and PHC doctors.



## Overcoming barriers for diagnosis to better treat hypertension

The Control of Hypertension In Rural India (CHIRI) project, aims at conducting a survey to compare the prevalence and barriers to receiving healthcare by people suffering from hypertension across three sites in rural India; and develop a suitable intervention strategy.

The findings from the study will contribute to preventing, managing and treating hypertension cases in rural settings globally.





High blood pressure, or hypertension, is the leading contributor to the global burden of disease and mortality. By 2025 about 215 million Indians will be suffering from hypertension, significantly increasing the burden of chronic diseases resulting from hypertension, especially in the country's 70% rural population.

Diagnosis and treatment of hypertension is fraught with barriers at individual and systems level, varying according to epidemiological, demographic and economic transition of different populations.

The project has two phases. In Phase One, a baseline cross-sectional study was conducted to obtain information about the prevalence, awareness, treatment and control of hypertension. Qualitative studies, comprising focus group discussions among individuals with hypertension and in-depth interviews with healthcare providers, were being undertaken to identify the barriers. Additionally, a survey was conducted to determine the availability, affordability and accessibility of medicines for hypertension, Type 2 Diabetes mellitus, and secondary prevention of cardiovascular diseases and identify barriers to availability and supply of those drugs.

Phase Two focuses on a feasibility study of an intervention program to improve control of hypertension based on the findings of the cross-sectional survey and qualitative studies. The intervention has two basic components: peer or group-based education and support for self-management of blood pressure; and improving access to health services.

Comprehensive assessment of the barriers to control of hypertension will provide important information for developing an intervention program tailored to the specific needs of each area included in the study. It would also help in addressing the current deficiencies in managing hypertension in other rural areas of the country.

The project will also determine the feasibility of using ASHAs in delivering a community group-based self-management program for hypertension.

# Kidney and cardio-metabolic diseases



The epidemic of cardio-metabolic diseases is escalating worldwide including in India. The rapid socioeconomic transition is believed to have contributed to this rise with individuals being increasingly exposed to energy-dense diets, high stress levels, and sedentary work habits.

High blood pressure, blood glucose, serum cholesterol, and increasing obesity are risk factors for cardiovascular disease, kidney diseases and diabetes.

Our research projects investigate the prevalence and pattern of cardio-metabolic risk, identify the unique risk factors responsible for development and/or progression of these conditions and the economic and social cost of treatment of these diseases. Using a variety of approaches including large scale cohort-studies, use of big data analysis on large data sets, we hope to arrive at a better understanding of these diseases, develop arguments to help develop policy and

define steps to early detection, prevention and management. We develop and test innovative models of care delivery for management of these conditions both at the community level and also in those with established disease conditions in real world situations.

We also plan to expand the scope of conditions to respiratory diseases, and common infections and reproductive health conditions, in particular their interface with chronic non-communicable diseases.





## Clinical and economic impacts of dialysis

The interim analysis indicates that outcome of patients on dialysis for Chronic Kidney Disease is affected by clinical as well as economic and social factors.

The evidence from this pilot study will be useful in informing policy around the planning and expansion of the National Dialysis Services Program announced in India's 2016 annual budget.

The George Institute for Global Health has conducted a prospective (longitudinal) cohort study of dialysis outcomes on 117 patients at the Post Graduate Institute of Medical Education, Chandigarh, and the Medanta Hospital in Gurgaon (Haryana).

The aim of this first ever study of its kind in India was to evaluate the outcomes of patients undergoing haemodialysis, which is a process of purifying the blood when the kidneys are not functioning normally.

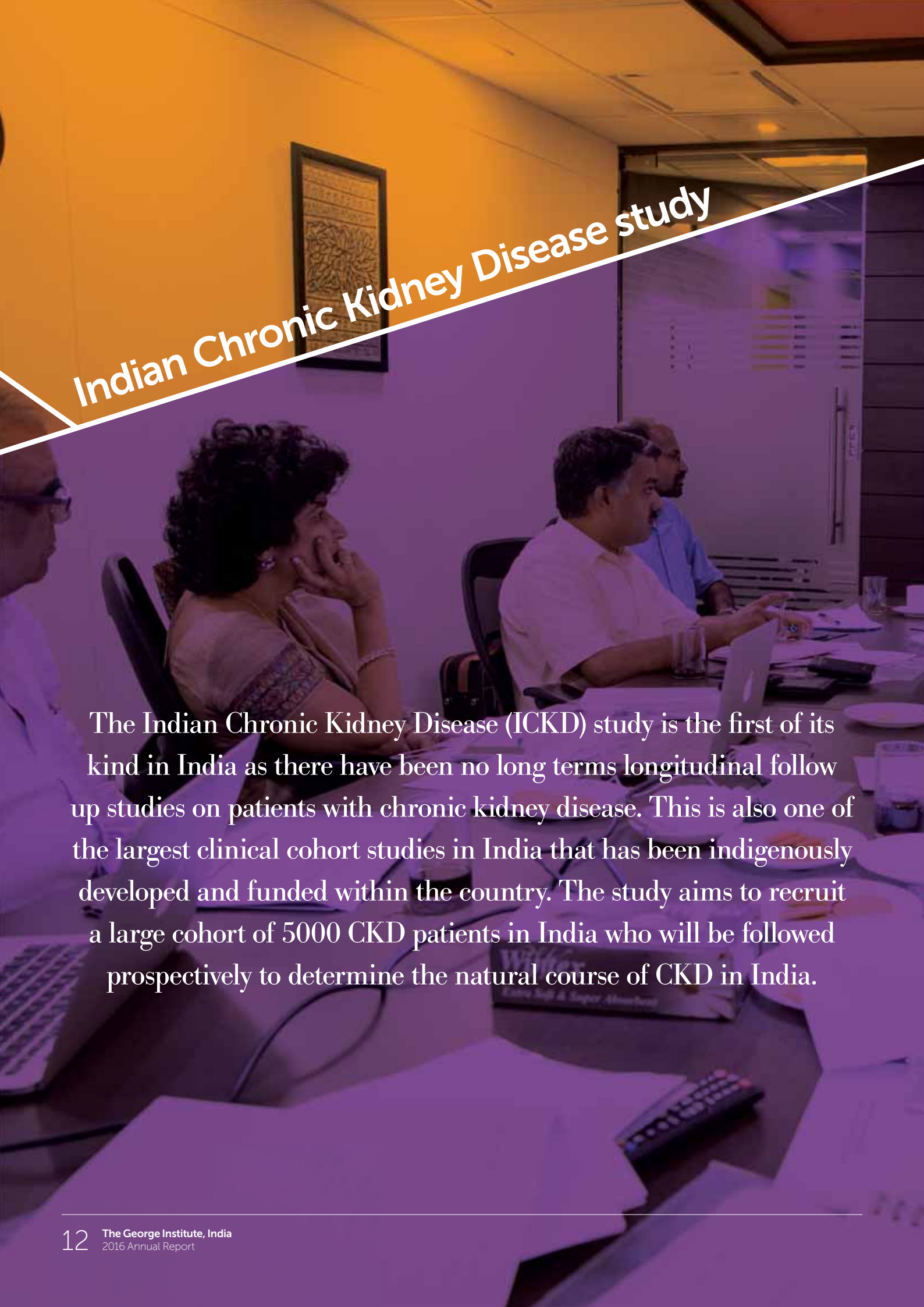
The researchers used an easy, secure, web-based data collection tool that was customised to monitor and follow the patients for a year from January 2015 to 2016. Data was collected on the impact of the treatment modalities, comorbidities and quality of life.

While diabetes and hypertension is responsible for 27% and 26% of kidney failure respectively, the study reveals the huge economic disparity and its impact on the patient and his/her family. Regular treatment had a positive impact on the economic well-being of the family, but many patients were forced to give-up dialysis for financial reasons.

The results of the baseline assessment of these patients were presented at the Indian Society of Nephrology Conference last December and several nephrology centres expressed their interest to participate in the study.

Currently, a larger multicentre study is underway across the country to determine if there are any regional or geographic differences that must be considered while designing strategies for the management of end-stage kidney diseases.





# Indian Chronic Kidney Disease study

The Indian Chronic Kidney Disease (ICKD) study is the first of its kind in India as there have been no long terms longitudinal follow up studies on patients with chronic kidney disease. This is also one of the largest clinical cohort studies in India that has been indigenously developed and funded within the country. The study aims to recruit a large cohort of 5000 CKD patients in India who will be followed prospectively to determine the natural course of CKD in India.



Chronic kidney disease (CKD) has become a growing public health problem worldwide, with a serious socioeconomic impact. CKD results in mortality mainly due to progression to end-stage renal disease and a disproportionate increase in the risk of cardiovascular disease with almost 30-fold increase in death due to cardiovascular events. Recent advances suggests the possibility of using biologically relevant biomarkers to develop prediction algorithms for outcomes in patients with CKD. However, there are no large longitudinal studies comparing the differences in racially, geographically and genetically different populations. This study is the first of its kind in India as there have been no long term longitudinal follow up studies on CKD patients. This is also one of the largest clinical cohort studies in India that has been indigenously developed and funded within the country.

With funding from the Department of Biotechnology, Government of India, the ICKD study aims to recruit a large cohort of 5000 CKD patients in India who will be followed prospectively to determine the natural course of CKD in India, and compare with that in other countries and to establish valid associations between biomarkers and disease progression. To date the study has recruited 554 patients across eight nephrology referral sites in India and these subjects are being followed up at regular intervals.

The study involves collecting biological samples with an exploration of genetic markers of kidney disease severity, progression, and elevated risk for CVD. Apart from opportunities for gene expression profiling and genotyping, the study will also include additional approaches of modern technologies such as proteomics and metabolomics to identify yet unknown biochemical and genetic biomarkers of CKD progression and CVD complications.





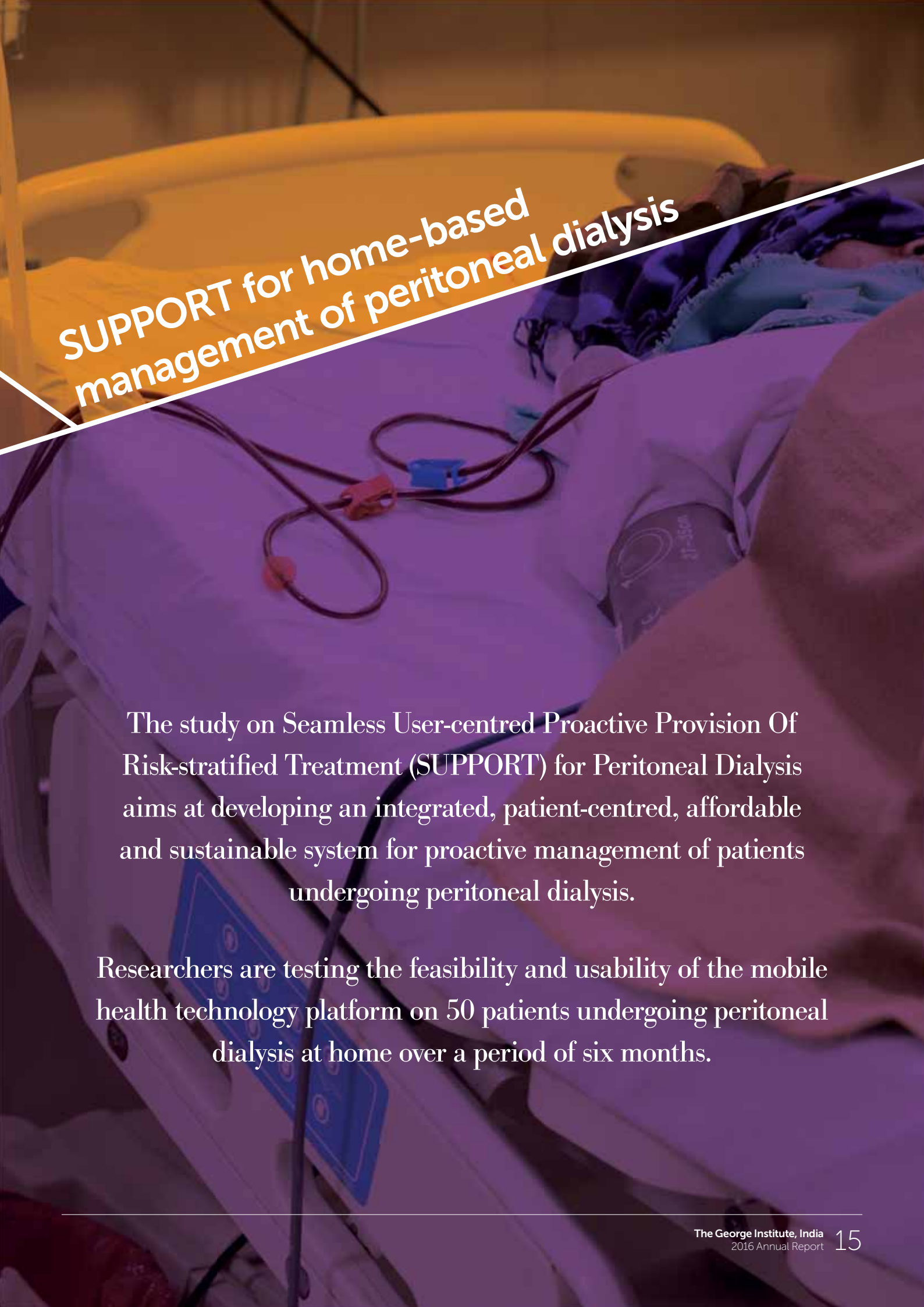
Nearly two lakh Indians require kidney transplant each year and many more need dialysis for end-stage kidney diseases. The popular and often recommended treatment for these patients is haemodialysis in the end stage

The study's objective is to develop and field test a mobile health application, designed with inputs from end-users, which would "SUPPORT" the person undertaking peritoneal dialysis at home. The application, uploaded on a seven inch tablet, would provide a virtual simulation of the actual care provision scenario.

In the next phase, more information would be collected to gauge which parameters and methods were most acceptable to patients and also provide caregivers a remote monitoring solution for home-based management of chronic kidney disease







## SUPPORT for home-based management of peritoneal dialysis

The study on Seamless User-centred Proactive Provision Of Risk-stratified Treatment (SUPPORT) for Peritoneal Dialysis aims at developing an integrated, patient-centred, affordable and sustainable system for proactive management of patients undergoing peritoneal dialysis.

Researchers are testing the feasibility and usability of the mobile health technology platform on 50 patients undergoing peritoneal dialysis at home over a period of six months.



## Early detection, management and treatment of diabetes

The George Institute for Global Health has designed an intervention program called IMPACT Diabetes - an Innovative mhealth led participatory approach to comprehensive screening and treatment of diabetes - that will deliver low-cost, community-based screening, early detection, management, treatment and prevention of diabetes related complications.

One of the main objectives of the project is to ensure that those most in need receive affordable treatment and generic blood pressure drugs that improve sugar control. In combination with statins, these treatments can reduce the risk of diabetic complications by at least half.





Diabetes mellitus is one of the leading causes of death, disability, reduced productivity and crippling healthcare expenditure in India. Approximately 69 million Indians have diabetes, but most are unaware of having the disease that puts them at a high risk of developing cardiovascular, eye and kidney complications.

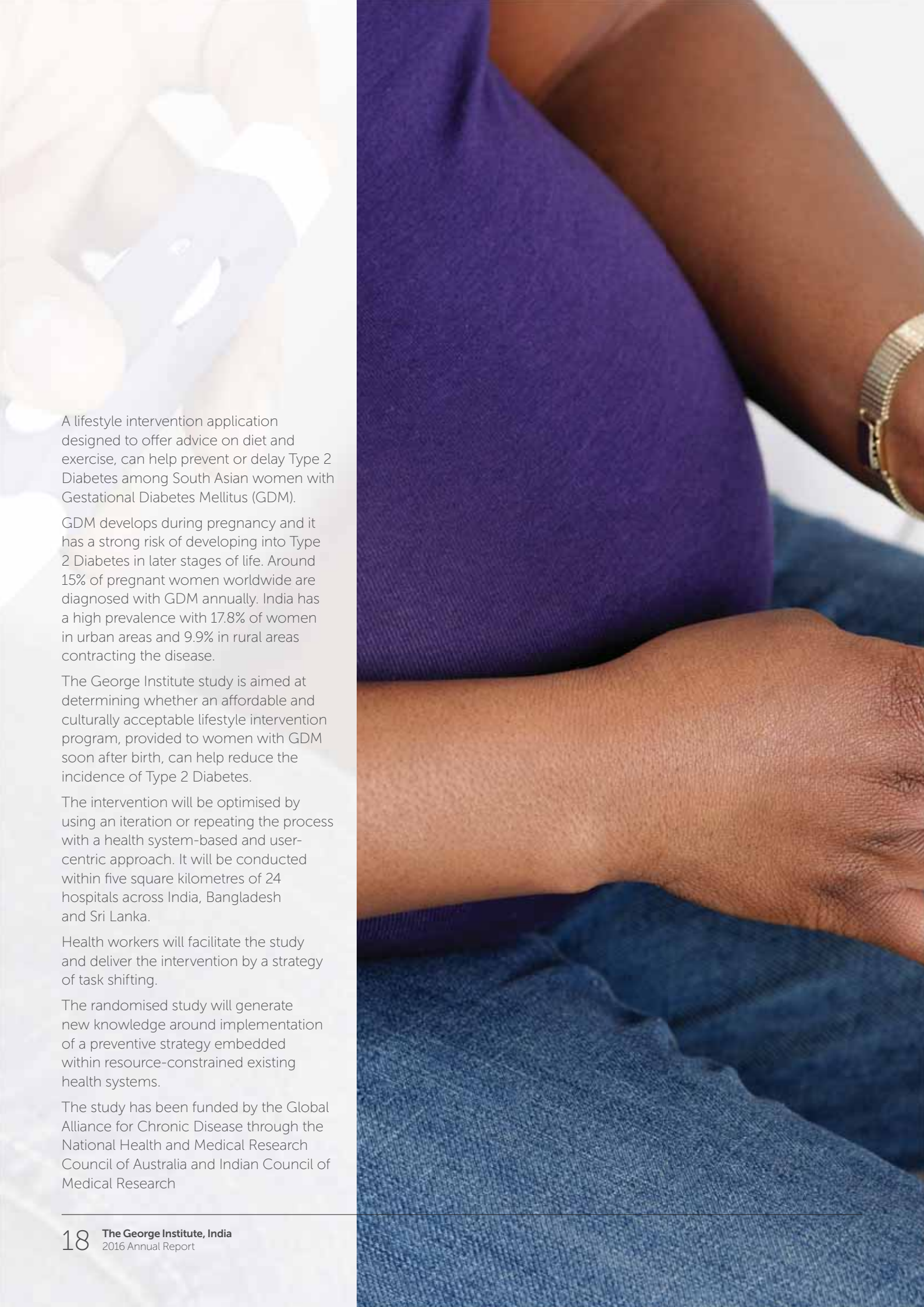
Effective and affordable primary healthcare is a must for early detection of diabetes and prevention of complications related to uncontrolled sugar levels in the blood.

In this ground breaking approach, the frontline community health workers would be trained in using a tablet-based clinical decision tool to screen and test for risks associated with diabetes. Persons with high blood sugar levels would be referred to the primary healthcare centre for confirmation of the diagnosis, evaluation of complications and initiation of treatment.

Diabetics would be regularly examined at home by ASHAs, who would monitor their blood pressure, advise on lifestyle modifications, and refer them to the doctor at appropriate intervals all guided by the clinical decision support system to ensure treatment compliance and prevent any complications from the disease.

Research is currently being undertaken in four Primary Health Centre areas in Rohtak District (Haryana) and West Godavari District (Andhra Pradesh).





A lifestyle intervention application designed to offer advice on diet and exercise, can help prevent or delay Type 2 Diabetes among South Asian women with Gestational Diabetes Mellitus (GDM).

GDM develops during pregnancy and it has a strong risk of developing into Type 2 Diabetes in later stages of life. Around 15% of pregnant women worldwide are diagnosed with GDM annually. India has a high prevalence with 17.8% of women in urban areas and 9.9% in rural areas contracting the disease.

The George Institute study is aimed at determining whether an affordable and culturally acceptable lifestyle intervention program, provided to women with GDM soon after birth, can help reduce the incidence of Type 2 Diabetes.

The intervention will be optimised by using an iteration or repeating the process with a health system-based and user-centric approach. It will be conducted within five square kilometres of 24 hospitals across India, Bangladesh and Sri Lanka.

Health workers will facilitate the study and deliver the intervention by a strategy of task shifting.

The randomised study will generate new knowledge around implementation of a preventive strategy embedded within resource-constrained existing health systems.

The study has been funded by the Global Alliance for Chronic Disease through the National Health and Medical Research Council of Australia and Indian Council of Medical Research



## Delaying diabetes whilst pregnant

Lifestyle InterVention IN Gestational Diabetes (LIVING) is a trial focused on reducing the impact of diabetes for pregnant women. Despite the high incidence of GDM in India, only 17.5% of women are aware about the disease and its complications. The Indian data suggests that around 35 to 40% of women with GDM run the risk of developing Type 2 Diabetes within five years of giving birth.

The success of the intervention program could help prevent or delay the development of Type 2 Diabetes in more than a quarter of a million South Asian women over five years after giving birth, if the program gets scaled up across the region.



# Mental Health, Neurology and Trauma



Mental health is one of the biggest causes of disability and carries enormous economic burden in India. It is estimated that one in five Indians are suffering from some form of mental health condition. Especially in the productive years of age, 20 to 40, mental health illness rates are very high. Until recently, mental health has been absent from the conversation in healthcare research. Our research in neurological conditions is around improving outcomes using large scale collaborative research. An example is improving the outcomes of stroke victims using family-led models of rehabilitation, as in the ATTEND trial

Road trauma in India is a significant health and socioeconomic burden, which requires urgent attention. An area of focus is to develop evidence around development of better organised systems of trauma care to reduce this growing cause of death and disability – especially in the young. We bring in global expertise of our researchers, and evidence generated elsewhere in the world to India.



# Narrowing the treatment gap in mental healthcare

The Systematic Medical Appraisal, Referral and Treatment (SMART) Mental Health Project aims at developing a potential strategy to narrow the treatment gap, by enabling the available primary healthcare workers, through provision of an affordable and accessible electronic clinical decision support system (CDSS).

Funded by Grand Challenges Canada and Wellcome Trust-Department of Bio-technology India Alliance, is running in 42 villages in the West Godavari district of Andhra Pradesh. The study has been completed in 30 scheduled tribe villages and researchers are currently collecting data from the remaining 12 non-scheduled tribe villages.

India is facing a huge burden of mental health illnesses and associated stigma, but it has few trained professionals to provide the necessary care and treatment. Many people suffering from mental disorders go undiagnosed and untreated, especially in rural communities.

The project is also exploring ways to reduce the stigma by increasing awareness about mental health issues; facilitating identification of common mental disorders such as depression, suicidal risk and stress; and increasing access to mental health services.

To make optimum use of the resources available, the project is using task shifting, whereby the ASHAs are taught to identify common mental disorders and primary healthcare doctors are trained to diagnose and provide treatment by using a mobile technology-based CDSS.

The CDSS is programmed to facilitate continuity of care and follow-up, by sharing clinical information between the ASHAs and doctors, using an algorithm-based tracking and monitoring system. While the ASHAs are using standard screening tools to identify people with likely symptoms of common mental disorders, the primary healthcare doctors are using the World Health Organization's tool, mhGAP-IG, to clinically diagnose and treat patients.

As part of the program a large mental health awareness and anti-stigma campaign was organised across all the villages using a multimedia approach involving printed materials, video shows, drama, and community based door-to-door campaign. The program was well received by the community and a formal evaluation of it was conducted in two villages.

The main objective of the project is to increase access to mental health services to more and more people at the primary healthcare level.





## Family-led rehabilitation after stroke in India

Immediate medical attention is a must in managing stroke patients and it can help reduce significant burden on public health and families in developing countries, but many affected people have no or limited access to rehabilitation services.

ATTEND is a low-cost, innovative randomised controlled trial, which engages family members to provide care and rehabilitation to stroke survivors under the guidance of healthcare workers in low- and middle-income countries.





The incidence and prevalence of stroke is increasing with low- and middle-income countries accounting for 87% of the 20 million cases worldwide. In India, about 1.5 million people suffer a stroke and 500,000 of them are affected by stroke-related disability each year.

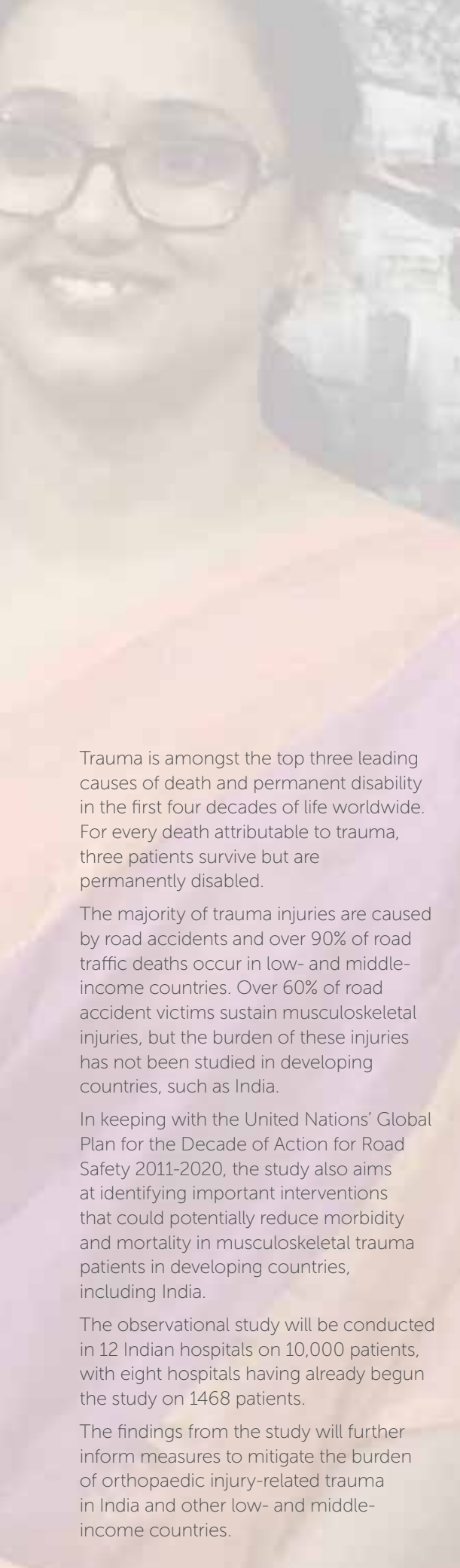
Treatment is also often delayed because majority of people are unaware of stroke, which is a block or break in blood vessels of brain, damaging a part of the brain and/or impairing its abilities to control the body function.

The trial, one of the largest ever home-based stroke rehabilitation studies, involves 1200 patients with mild to moderate stroke-related disability across 14 hospitals in India. The study is aimed at determining whether stroke recovery at home given by a trained family member is an effective and affordable strategy when compared to usual care. Further, the study will establish if a trained family caregiver, can assist with a home-based rehabilitation program, to reduce the length of hospital stay, reduce death or dependency and caregiver burden.

If this model of rehabilitation is found to be effective, safe and affordable, it could be used in other developing countries with appropriate cultural adaptations, and also become a part of routine care for disadvantaged populations in high-income countries.

The results from the trial, being conducted by senior researchers from India, Australia, and the United Kingdom with funding from Australia's National Health and Medical Council, are expected to be released during the 2016 World Stroke Congress in Hyderabad.





Trauma is amongst the top three leading causes of death and permanent disability in the first four decades of life worldwide. For every death attributable to trauma, three patients survive but are permanently disabled.

The majority of trauma injuries are caused by road accidents and over 90% of road traffic deaths occur in low- and middle-income countries. Over 60% of road accident victims sustain musculoskeletal injuries, but the burden of these injuries has not been studied in developing countries, such as India.

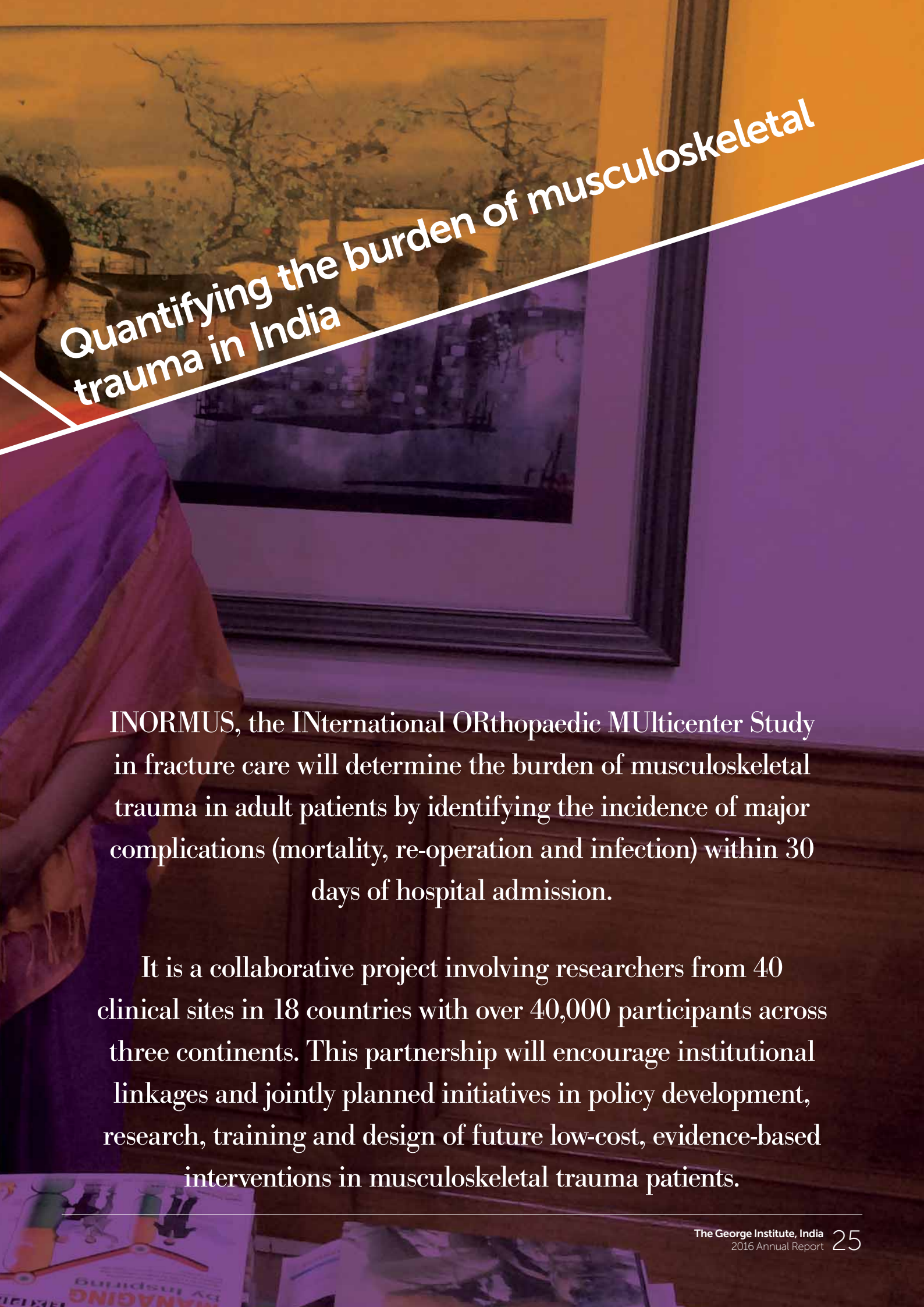
In keeping with the United Nations' Global Plan for the Decade of Action for Road Safety 2011-2020, the study also aims at identifying important interventions that could potentially reduce morbidity and mortality in musculoskeletal trauma patients in developing countries, including India.

The observational study will be conducted in 12 Indian hospitals on 10,000 patients, with eight hospitals having already begun the study on 1468 patients.

The findings from the study will further inform measures to mitigate the burden of orthopaedic injury-related trauma in India and other low- and middle-income countries.





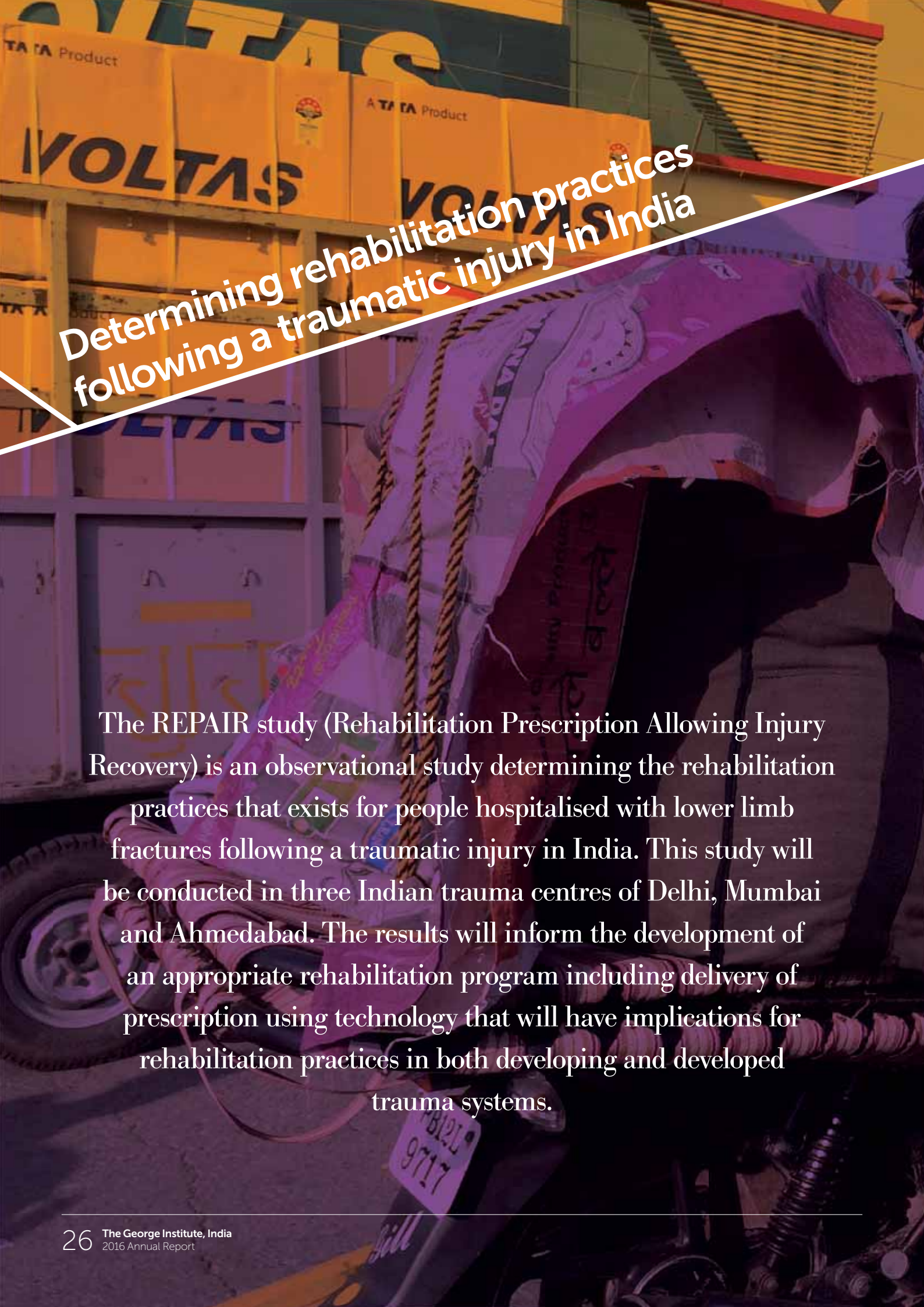


## Quantifying the burden of musculoskeletal trauma in India

INORMUS, the INternational ORthopaedic MUlticenter Study in fracture care will determine the burden of musculoskeletal trauma in adult patients by identifying the incidence of major complications (mortality, re-operation and infection) within 30 days of hospital admission.

It is a collaborative project involving researchers from 40 clinical sites in 18 countries with over 40,000 participants across three continents. This partnership will encourage institutional linkages and jointly planned initiatives in policy development, research, training and design of future low-cost, evidence-based interventions in musculoskeletal trauma patients.





## Determining rehabilitation practices following a traumatic injury in India

The REPAIR study (Rehabilitation Prescription Allowing Injury Recovery) is an observational study determining the rehabilitation practices that exists for people hospitalised with lower limb fractures following a traumatic injury in India. This study will be conducted in three Indian trauma centres of Delhi, Mumbai and Ahmedabad. The results will inform the development of an appropriate rehabilitation program including delivery of prescription using technology that will have implications for rehabilitation practices in both developing and developed trauma systems.






India faces very real challenges ensuring all injured people can obtain life-saving early care, timely treatment of injuries, and restoration of function and independence. Recovery after trauma to the fracture of a lower limb is multifactorial and is, in part, reliant on effective rehabilitation from the time of injury to long after discharge from the hospital.

Evidence suggests that early rehabilitation can result in achieving better health outcomes, reduce costs by shortening hospital stays, reduce the risk of disability, and improve quality of life. Physiotherapy is one of the important prescriptions within rehabilitation, targeting pain management and relief, prevent pressure sores, endurance and gait training, therapeutic exercise, equipment recommendation, and home modification in order to achieve optimal functional outcomes.

As part of the Australia-India Trauma Systems Collaboration program, the Rehabilitation Prescription Allowing Injury Recovery (REPAIR) trial intends to involve in-hospital assessment to predict and define the rehabilitation goals for each patient and start, in parallel with acute medical care, working towards the patient's mobility, functional, occupational and family goals.

However, in India, comprehensive rehabilitation services are still emerging and the extent of these services is unknown. Therefore, it is important to conduct an observational study determining the rehabilitation practices that exist for people hospitalised with lower limb fractures following a traumatic injury in India.

This study will be conducted in three Indian trauma centres of Delhi, Mumbai and Ahmedabad. The results will inform development of an appropriate rehabilitation program including delivery of prescription using technology that will have implications for rehabilitation practices in both developing and developed trauma systems.



High blood pressure is the leading cause for non-communicable diseases in India. Of the 2.3 million deaths from cardiovascular diseases, 24% are attributed to high blood pressure each year. The number of people suffering from hypertension is anticipated to double from 118 million in 2000 to 213 million in 2025.

The George Institute, India, along with the Public Health Foundation of India and the Centre for Chronic Disease Control, have completed a survey of dietary salt intake in urban and rural areas of the states of Delhi, Haryana and Andhra Pradesh. Additionally, an analysis has been undertaken of stakeholders involving government, industry, consumers and civil society organisations; and a quantitative evaluation of packaged foods sold in supermarkets in Delhi and the Andhra Pradesh capital, Hyderabad.

The study, which uses the 24 hour urine assessment method, was conducted on 712 persons in Delhi and Haryana and 840 in Andhra Pradesh. Overall urinary salt excretion was estimated to be 8.59g/day in Delhi and Haryana and 9.46g/day in Andhra Pradesh. Intake was highest in urban slum areas, followed by rural areas, and it was lowest in slum areas of Delhi and Haryana. In Andhra Pradesh, the result was not significantly different across the areas of residence.

Out of a total of 5,686 individual products included in the analysis, only 43% products met the national Food Safety and Standards Authority of India guidelines for nutrition labelling, and only 34% products had labels with sodium content.

The project has been funded by the Global Alliance for Chronic Disease through the National Health and Medical Research Council of Australia.







## Developing evidence for saving lives through reduction in salt consumption

Evidence shows that high salt intake is a leading cause of high blood pressure. India, along with other member states of the World Health Organization, have committed to 30% reduction in mean salt consumption by 2025 to control the growing epidemic of non-communicable diseases.

The data makes a strong case for India to adopt a national salt reduction strategy. Further, the evidence from other jurisdictions and extensive modelling suggests that a salt reduction program is a cost-effective way of curbing the growing incidence of not only hypertension, but also related diseases such as stroke and heart attacks, chronic kidney disease and diabetes thereby saving lives.

# Advocacy and Policy



Advocacy efforts are an integral part of the research of The George Institute, India, in particular the implementation research. We wish to highlight how the evidence generated from research can be quickly translated into policy, including empowerment of the non-conventional healthcare workforce.

Our efforts are targeted to all stakeholders – central and state governments, funding agencies, non-government organisations, consumer organisations, corporates and business houses, global health organisations, media personnel and educational institutions.





## FoodSwitch India

The innovative app, FoodSwitch, can guide consumers towards making healthier food choices and preventing diet-related non-communicable diseases. FoodSwitch India was launched in December 2015 at an event held at the residence of the Australian High Commissioner to India.



Foods high in salt, sugar and fat have led to an upsurge in diet-related non-communicable diseases, such as heart diseases, stroke and diabetes apart from increasing incidence of obesity in India.

Many packaged foods sold in Indian stores are high in salt, fat, sugar and energy density, but food labels are confusing and difficult to understand. Most labels are restricted to a nutrition information panel. The FoodSwitch app allows consumers to easily interpret the nutrition information of packaged food items and suggest healthier alternatives.

When a consumer scans the barcode of the product, the nutrition information for energy, total fat, saturated fat, sugars and salts is displayed in an easy-to-interpret colour-coded traffic-light label. The app then provides a list of similar healthier alternatives and also informs the consumer on whether the product is vegetarian or non-vegetarian.

The app identifies healthier choices by comparing the overall nutritional value of foods using the Health Star Rating nutrient profiling system, which was jointly developed by Australian and New Zealand Governments in partnership with industry, public health and consumer groups.

FoodSwitch India has a database of about 10,000 packaged food products commonly sold by retailers in India. As new products come on the market, FoodSwitch users can contribute to the database through crowd-sourcing images of new products.

The data behind the FoodSwitch India app will be used to support public health initiatives designed to improve the nutritional value of packaged foods in India, and monitor the food industry for compliance to such initiatives.

# Women's Health Century

Women suffer more, are treated less  
and have poorer health outcomes

## discussion

Centre

15, 2016

Women's health agenda was first articulated in the Fourth World Conference on Women held in Beijing in 1995. The Beijing Declaration discussed a road map for gender equality and women's empowerment with focus on reproductive and sexual reproductive health (SRH) issues, which were the main killers of women then.

Twenty years later, the women's health landscape has changed dramatically. SRH outcomes have shown noticeable improvements around the world. The Global Burden of Disease (GBD) study has shown that the contribution of communicable, maternal, neonatal and reproductive diseases, to deaths amongst Indian women had declined from 53% of 1990 to less than 30% in 2013.

PROF. VIVEKANAND JHA





On the other hand, non-communicable diseases (NCD) have emerged as the largest killers of women in India - responsible for 60% of all deaths amongst women in 2013, up from 38% in 1990. The only age group where NCDs are not the top cause is the under 15 category. Their contribution is about 40% in the 15-49 year age group, and >75% after the age of 50.

The most common causes of death in women, are now ischemic heart disease (known as heart attack), stroke, chronic respiratory diseases and diabetes. Small independently done studies in different parts of the country have corroborated these findings. NCDs, like heart disease, back and neck pain, depression and respiratory diseases cause major disability amongst women in India. Finally, we now know that a number of pregnancy related complications increase the risk of NCDs developing later in life in the affected women and babies born to them, suggesting the need to develop a life course approach to dealing with women's health issues.

Realising the need to provide stronger evidence to demonstrate the benefits of pursuing such a broader life-course agenda for women's health, The George Institute, India, organised a roundtable discussion entitled "Framing issues of Women's health in the 21st Century" supported by the Indian Council for Medical Research. The roundtable underscored the need for governments, intergovernmental agencies and NGOs to broaden their focus to include health issues related to NCDs failing which the ongoing health investments will lead to diminishing returns and will not benefit a majority of women.

The roundtable had a wide range of stakeholders from the academia to the civil society participating and voicing their views on gender disparities in awareness, access and quality of care. The roundtable recommended that there is a need for

- Strategies to reshape the women's health agenda by taking a life course approach and include prevention and management of non-communicable diseases and injuries;
- Strategies to ensure a gendered approach to the analysis of health data;
- Strategies to reduce gender disparities in awareness, risk factors, access to care and quality of care for women.

## Oxford-India Programs



The George Institute, India, works closely with the University of Oxford to develop joint research projects that aim to improve bilateral exchange of knowledge and build capacity in healthcare research and implementation in India and UK. The George Institute leads the Oxford-India

health Research Network, which promotes these exchanges. Future plans in this program include setting up of Oxford-India scholarships and lectures which will facilitate exchange at multiple levels – faculty, mid-level researchers and students.



*The*  
**OXFORD  
INDIA  
LECTURE**





## Oxford-India Health Research Network

The Oxford-India Health Research Network (OIHRN) is an informal network comprising established and emerging researchers and students at the University of Oxford, engaged in or aiming to establish collaborations with health researchers and health research organisations in India. The OIHRN works in support of the University's broader commitment to building relationships between the University of Oxford and partners in India. The Network was established in early 2012, and has members from across disciplines, at the University. OIHRN organises India focussed meetings and workshops, and alerts its members regularly about funding opportunities for collaborative research with India.



## Small steps towards big data for health in India

There is severe lack of evidence on the use of health services in India. Current evidence on quality and outcomes of care from India is limited and restricted to studies conducted at tertiary level and teaching hospitals. However much of the actual health services delivery happens in settings like private and small hospitals which are rarely included in research projects and are poorly regulated. As a result, there is little evidence-based support available to policy makers, administrators and payers on demand as well as the supply side of health services in India. The situation is no better in other LMICs.

The Big Data initiative at The George Institute for Global Health focuses on identifying, collating and analysing existing clinical, administrative and community-based datasets from India to build a region specific evidence-base on utilisation, quality and outcomes of hospital care. The goal is to build a health databank, and develop data processing and analytic systems to audit existing data and enable prospective monitoring based on big data philosophy.

Our first project under this initiative audited insurance claim data from the Rajiv Aarogyasri Community Health Insurance Scheme (RACHIS) in Andhra Pradesh and Telangana. RACHIS provides free of cost access to hospital care through state-funded insurance to 68 million beneficiaries, an estimated 81% of the state's population. This project audited hospital claim data from four consecutive years of coverage from mid-2008 to mid-2012 for all 23 districts in the erstwhile state of Andhra Pradesh.





## Adolescent Health

We aim to undertake a series of exploratory studies, using both quantitative and qualitative methodologies, to gain a better understanding of adolescents' perceptions of their health risks and the approaches that might be employed to manage these risks.

# The George Institute for Global Health, India



The George Institute, India is proud to boast some of India's finest health and medical researchers as members of its Research Advisory Committee (RAC) – an independent body that provides high-level research recommendations. Meeting in Delhi last year, the RAC provided positive feedback on the 2014-15 research program in India.

The committee appreciated the growth of the Institute and its involvement in quality research. While acknowledging the steps taken by the Institute to improve its profile in India and facilitate research capacity development, they stressed upon leveraging local funding opportunities and increasing the national profile of the Institute.



# Our Directors



## **Professor Vivekanand Jha**

Executive Director  
The George Institute for Global Health, India.  
James Martin Fellow,  
The George Institute for Global Health, University of Oxford

Professor Vivekanand Jha is the Executive Director, The George Institute for Global Health, India, and James Martin Fellow at The George Institute for Global Health at the University of Oxford.

Prior to joining The George Institute, he was Professor of Nephrology and Head, Department of Translational Regenerative Medicine and Officer-In-Charge, Medical Education and Research Cell at the Postgraduate Institute of Medical Education and Research in Chandigarh, India. Vivek serves on the international advisory boards of several organisations, including membership of the WHO Expert Advisory Panel on Human Cell, Tissue and Organ Transplantation, and the executive committee of the International Society of Nephrology.

He is a councillor of the International Society of Nephrology, a member of the education committees for the International Transplantation Society and International Society of Peritoneal Dialysis. He is a physician with a specialisation in the area of kidney diseases and he focuses on emerging public health threats globally and in India. He is particularly interested in using multi-disciplinary approaches and innovation to address the major challenge posed to humanity by non-communicable diseases.



## **Professor Anushka Patel**

Chief Scientist,  
The George Institute for Global Health and Professorial Fellow

Professor Anushka Patel is a Professor of Medicine at The University of Sydney and a cardiologist at Royal Prince Alfred Hospital in Sydney, Australia. Anushka undertook her medical training at the University of Queensland, with subsequent postgraduate research degrees from Harvard University and the University of Sydney.

As the Chief Scientist of the George Institute for Global Health, Anushka has a key role in developing and supporting global strategic initiatives across the organisation. Anushka's personal research interests focus on developing innovative solutions for delivering affordable and effective cardiovascular care in the community and in acute care hospital settings.

Anushka currently leads research projects relating to these interests in Australia, China and India. She is supported by a Senior Research Fellowship from the Australian National Health and Medical Research Council (NHMRC).



## **Dr. Pallab K. Maulik**

Deputy Director and Head of Research and Development,  
The George Institute for Global Health, India.  
Senior Research Associate,  
The George Institute for Global Health, University of Oxford

Dr Pallab K. Maulik joined The George Institute, India as the Head of Research and Development in early 2010. Dr. Maulik brings a wealth of experience to the Institute, in particular expertise in mental health.

Dr. Maulik has worked with the World Health Organisation (WHO), Geneva on Project Atlas and other mental health programs, and clinically as a psychiatrist in India and Australia. After training as a psychiatrist at the All India Institute of Medical Sciences, New Delhi, Dr. Maulik received training in public health at the London School of Hygiene and Tropical Medicine, as well as Johns Hopkins School of Public Health where he studied his Masters and Doctoral training. He is a Wellcome Trust-DBT India Alliance Intermediate Career Fellow.

His particular research interests include social determinants of health, especially mental health services, mental disorders, international mental health, and intellectual disability.



## **Amit Khanna**

Director, Finance and Operations,  
The George Institute for Global Health, India

Amit joined the Institute in 2013 as Director of Finance and Operations. Prior to joining our team, he worked in the services industry with companies providing services such as auditing and consulting, shipping and logistics, online classifieds/ advertising, internet and technology based solutions.

He instantly connected with George Institute's mission and values and is very passionate about being instrumental in driving policy changes in India. Amit holds a degree in Commerce from Delhi University and is a member of the Institute of Chartered Accountants of India.

# Advisors, Funders and Collaborators

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## Members of the Research Advisory Committee include:

### **Dr. K. R. Thankappan (Chair)**

Professor and Head, Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram

### **Dr. G Gururaj**

Professor and Head, Department of Epidemiology, National Institute of Mental Health & Neurosciences, Bengaluru

### **Professor S.V. Madhu**

Department of Medicine, Division of Endocrinology & Metabolism, University College Of Medical Sciences & Guru Tegh Bahadur Hospital, New Delhi

### **Professor Prathap Tharyan**

Director, South Asian Cochrane Centre, Christian Medical College, Vellore

### **Dr. Jeyaraj Durai Pandian**

Professor, Department of Neurology, Christian Medical College, Ludhiana

### **Dr. Usha Raman**

Associate Professor and Head, Department of Communication, University of Hyderabad

### **Dr. Rajapurkar Mohan Manohar**

Director, Postgraduate Studies & Research, Department of Nephrology, Muljibhai Patel Urological Hospital, Nadiad, Gujarat

### **Dr. D.K Shukla**

Head (NCD), Indian Council for Medical Research

### **Somil Nagpal**

Senior Health Specialist, Global Practice on Health, Nutrition and Population, World Bank

## Key Funders

Department of Biotechnology

Indian Council of Medical Research

National Health and Medical Research Council (NHMRC)

University of Oxford

Wellcome Trust - DBT India Alliance

Baxter Foundation

UNICEF India

Grand Challenges, Canada

The George Institute for Global Health

## Key India collaborators

Apollo Group of Hospitals

Care Group of Hospitals

Fortis Group of Hospitals

Centre for Chronic Disease Control, New Delhi

Christian Medical College and Hospital, Ludhiana

Guru Tegh Bahadur Hospital and University College of Medical Sciences, New Delhi

Indian Institute of Public health, Bhubaneshwar

Indian Institute of Public Health, Hyderabad

Post-Graduate Institute of Medical Education and Research, Chandigarh

Public Health Foundation of India, New Delhi

Rishi Valley Health Centre, Chittoor

Sanjay Gandhi Post-Graduate Institute of Medical Sciences, Lucknow

Sree Chitra Tirunal Institute of Medical Sciences and Technology

University of Hyderabad

## Key International collaborators

Imperial College, London

King's College, London

London School of Health and Tropical Medicine

Monash University

University of Oxford

University of Sydney

World Health Organisation, Geneva



# Our Financials

## Balance Sheet as at 31st March 2016. (All amounts in INR)

Particulars	2016	2015
<b>SOURCES OF FUNDS</b>		
1. Shareholders' Fund		
I. Share capital	2,56,24,920	2,56,24,920
II. Reserves & surplus	2,73,00,375	2,10,42,705
2. Non-current liabilities		
I. Long-term borrowings	-	57,748
II. Long-term provisions	26,68,547	13,88,409
3. Trade payables	57,99,504	23,94,729
4. Current liabilities		
I. Short-term borrowings	57,748	3,26,116
II. Other current liabilities	3,51,81,030	3,12,87,304
III. Short-term provisions	3,74,096	58,487
<b>Total</b>	<b>9,70,06,220</b>	<b>8,21,80,418</b>
<b>APPLICATION OF FUNDS</b>		
1. Non-current assets		
I. Fixed assets		
- Tangible assets	73,46,646	84,28,495
II. Long-term loans and advances	67,74,979	64,94,292
2. Current assets		
I. Cash and bank balances	4,55,20,788	2,83,78,266
II. Short-term loans and advances	3,11,49,407	3,45,38,742
III. Other current assets	62,14,400	43,40,623
<b>Total</b>	<b>9,70,06,220</b>	<b>8,21,80,418</b>

## Income & Expenditure account as at 31st March 2016. (All amounts in INR)

Particulars	2016	2015
<b>INCOME</b>		
Project Funds & Grants	11,91,20,858	9,51,31,927
Other Income	29,47,106	10,73,036
<b>I Total Income</b>	<b>12,20,67,964</b>	<b>9,62,04,963</b>
<b>EXPENDITURE</b>		
Employee Benefit Expenses	4,56,00,038	3,93,82,965
Finance Cost	43,667	61,928
Depreciation and Amortisation expense	23,01,380	26,11,905
Operating and Other Expenses	6,78,65,209	5,17,13,235
<b>II Total Expenditure</b>	<b>11,58,10,294</b>	<b>9,37,70,033</b>
<b>III Excess of Income over Expenditure (I-II)</b>	<b>62,57,670</b>	<b>24,34,930</b>
<b>IV Tax Expense</b>	<b>-</b>	<b>-</b>
<b>V Balance carried to Reserves (III-IV)</b>	<b>62,57,670</b>	<b>24,34,930</b>

# Our team

Y. Govind Babu	Administrative Manager	Sudha Kallakuri	Research Assistant
T. Naga Jyothi	Administrative Officer	Vivekanand Jha	Executive Director
Praveen D	Program Head Primary Healthcare Research	Oommen John	Senior Research Fellow
Pallab Kumar Maulik	Head, Research & Development	V Vamshi Krishna	Statistical Programmer
T. Rajani	Administrative Officer	Alpana Saha	Head of Fund Raising
Abdul Ameer	Project Manager	Rajesh Arora	Finance Manager
Kishor M	Research Fellow	K Suresh Babu	Research Fellow
Mohammed Alim	Research Fellow	Chetanya Raj Singh	Accounts Executive
Amit Khanna	Director, Finance & Operations	Neeti Sharma	HR Manager
Shailaja Chilappagari	Senior Biostatistician	Bhanu Bangari	Android Developer
Sudhir Raj Thout	Research Associate	Abhinav Bassi	Research Fellow
Krishnaswamy Kannan	Communications Manager	Devan Pericherla	Sr.IOS Developer
Lalit Yadav	Research Fellow	Chetan C Purad	Clinical Lead
N Balaji Rao	Senior Project Supervisor	Mohan Kohli	Program Manager
Rachna Kapoor	Executive Assistant to ED's office		
D Ram Babu	Project Supervisor		
D V Siddhardha Kumar	Research Fellow		





# Contact Us

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India