Developing research capacity for implementation science: St. John’s Experience

WHF-EL 2016

Dr. Denis Xavier MD, MSc (Clin Epi & Biostats)
Vice-Dean (PG)
Professor and Head, Dept. of Pharmacology,
St. John's Medical College
Head, Division of Clinical Research & Training,
St. John’s Research Institute
Outline

• Introduction to St. John’s
• Our research questions
• Studies completed
• Research training
• Our contributions
History of St John’s

- 1963 – St John’s Medical College
- 1975 – St John’s Hospital
- 1989 – St John’s College of Nursing
- 2004 - St John’s Research Institute
Division of Clinical Research & Training
Our Staff

• Medical 6
  – Prem Pais, Denis Xavier, Deepak Kamath
  – Padmini Devi, Atiya Faruqui, Mangala Rao

• Technical Staff 18

• Support Staff : 3
  – Rajan C, Jagadish, Radha
A brief history

• Early 1990’s
  – Dr. Prem Pais – CERTC
  – Collaborations with Dr. Salim Yusuf, Canada
  – SY: Donation $500,000 to St. John’s research
  – First report of risk factors for heart attack in Indians – Lancet 1996

• Late 1990’s
  – ICMR task force study → INTERHEART
  – Denis Xavier – Joined in 1997

• 1999 – CREATE studies
  – First large academic network CVD in India
Evolution of our Research Questions

• In all regions of India:

1. What is the burden of heart disease & strokes?
2. What is causing them?
3. How are they treated and their outcomes?
4. How can we treat them better?
5. How can we change health systems to prevent and better treat them?
6. How to reach best systems to our people?
AREAS OF OUR WORK

• Observational studies
  – Cross-sectional Cohort, Case Control, Registries
• Clinical Trials
• Guidelines Development
• Health Policy & Advocacy
• Training
  – Health Professionals
  – Research Support Staff
Treatment and outcomes of acute coronary syndromes in India (CREATE): a prospective analysis of registry data

Denis Xavier, Prem Pais, PJ Devereaux, Changchun Xie, D Prabhakaran, K Srinath Reddy, Rajeev Gupta, Prashant Joshi, Prasulla Kerkar, S Thanikachalam, KK Haridas, TM Jaison, Sudhir Naik, AK Maity, Salim Yusuf; on behalf of the CREATE registry investigators*

Summary
Background India has the highest burden of acute coronary syndromes in the world, yet little is known about the treatments and outcomes of these diseases. We aimed to document the characteristics, treatments, and outcomes of patients with acute coronary syndromes who were admitted to hospitals in India.

Interpretation Patients in India who have acute coronary syndromes have a higher rate of STEMI than do patients in developed countries. Since most of these patients were poor, less likely to get evidence-based treatments, and had greater 30-day mortality, reduction of delays in access to hospital and provision of affordable treatments could reduce morbidity and mortality.

Funding Division of Clinical Trials, St John’s Research Institute, Bangalore, India; Population Health Research Institute (PHRI), McMaster University, Canada; Sanofi-Aventis India.

Lancet 2008; 371: 1435-42
See Comment page 1394
* Investigators listed at end of paper
Coronary artery disease in India: challenges and opportunities

Although cardiovascular disease is the leading cause of death worldwide, its epidemic shows remarkable geographic variation. While the mortality associated with the registry data from developed countries. The use of lipid-lowering treatments, β blockers, and angiotensin-converting-enzyme inhibitors was low, and few patients coronary syndrome. Widespread use of these drugs in the hospital and discharge from hospital has been the major driver of improved outcomes in acute coronary syndrome in developed countries, and initiatives to enhance quality through consistent delivery of these therapies can achieve remarkable improvements in survival.

On average, these strategies are not expensive. Most of the decline in coronary mortality in the USA is believed to be secondary to improving risk-factor profiles, and effective primary and secondary treatments of acute

Kim Eagle
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This registry is a major milestone, since it provides the first comprehensive view of the epidemic of acute coronary syndrome in India and helps to identify opportunities for improvement in care. As the Indian economy grows, there is a possibility for further increase in cardiovascular disease before we see a decline similar to that being witnessed in developed countries. Major

A problem well defined is half solved. Xavier and colleagues need to be commended for defining the challenges pertinent to the treatment of acute coronary syndrome in India. The next obvious step is to define and implement improved measures for primary prevention and more evidence-based treatment of acute coronary syndrome.
ON THE THEME
Innovative Approaches in CVD Prevention

- Smart phones EMPOWERed with Decision Support System (DSS) in prevention
- PREPARing for primary prevention
- SPREADing the message of secondary prevention
- Innovations in prevention of diabetes

Session on 25 September 2.50 PM

REGISTER HERE
CVD Obs epidemiology (~30,000)
- ICMR-National C-C in AMI [2,600]
- INTERHEART [950] [Lancet-04-07]
- CREATE ACS Registry (~20,500) [Lancet-08]
- INTERSTROKE [4,000] [LANCET 2010]

Large Clinical Trials
(170+ institutions, 60 cities >25,000)
- CREATE, 8,060, [JAMA-04, AHJ-04]
- POISE, 777 [Lancet-08]
- PRoFESS, 1,620,[NEJM-08]
- OASIS 5, 544[NEJM-06]
- OASIS 6, 1,450 [JAMA-07]
- CURRENT, 2300+ [Lancet-10]
- VITATOPS, 1450+ [Lancet-N-10]
- RELY, 650 [NEJM - 09]
- POLYCAP, 2053 [ACC’ 09,Lancet’ 09]
- AVVEROES, 200 [NEJM 2011]
- ARISTOTLE, 650 [NEJM 2011]
- OASIS-8, 500 [JAMA 2010]
- APPRAISE – 500 [NEJM 2011]
- RIVAL – 500 [Lancet-11]
- HOPE-3, 2,822 [Can J Card 2015]
- MARS – 400 [Blood Pressure 2011]
- ASPIRE, 400 [NEJM -2014]
- RECREATE, 250 [Diab Care 2011]
- RELY AF Registry, 2,450 [completed]
- TIPS-K [Circl Res 2012]
- FRIENDS-BLR-1,450 [completed]
- POISE-2 – 1,000 [NEJM]

NHLBI- UH projects
- INSPIRE – 11,001
- SPREAD - 806
- PREPARE – 8,615
- TIPS-3 (Wellcome) - 2,000
- VISION - 2,000
- MACE – 2,000
- SPECTRUM – 1,350
- ODYSSEY – 650
- DECLARE – 500
- SPIRE – 600
- MANAGE – 300
- PROGRESS – 3,000

Studies to initiate
- DIAMOND – 10,000
- INFORM – 5,000
- FRIENDS INDIA- 2,000
- ENHANCE – 200
- COMPASSION - 1,000
- CKD - 850
DCRT SUMMARY

• Studies:
  – Completed: 26; Subjects: ~55,000
  – Ongoing: 9; Subjects: ~30,000
  – To initiate: 8; Subjects: ~20,000

• Publications
  – Total: ~80
    • Lancet- 10
    • NEJM- 9
    • JAMA- 5
    • Am H J - 6
    • Lancet Neurol/DE- 3
    • Circulation- 2
Risk factors for acute myocardial infarction in Indians: a case-control study

Prem Pais, J Pogue, H Gerstein, E Zachariah, D Savitha, S Jayprakash, P R Nayak, Salim Yusuf

Summary

Background South Asians who have settled overseas and those in urban India have an increased risk of ischaemic heart disease. South Asians who have settled overseas have shown an increased risk of acute myocardial infarction (AMI) and sudden death. Smoking, hypertension, and diabetes mellitus are established risk factors for AMI. Several studies have also suggested that certain risk factors, such as those related to dietary habits, may be major contributors to AMI mortality in South Asians.

beedis (a local form of tobacco), with individuals who currently smoked 10 or more per day having an OR of 6.7 (p<0.001). History of hypertension and of overt diabetes mellitus were also independent risk factors (OR 2.69
Effects of Reviparin, a Low-Molecular-Weight Heparin, on Mortality, Reinfarction, and Strokes in Patients With Acute Myocardial Infarction Presenting With ST-Segment Elevation

The CREATE Trial Group Investigators

Approximately 15.5 million cardiovascular deaths occur every year.1 Of these, about half are likely to be due to

Context Although reperfusion therapy, aspirin, β-blockers, and angiotensin-converting enzyme inhibitors reduce mortality when used early in patients with acute myocardial infarction (MI), mortality and morbidity remain high. No antithrombotic or newer antiplatelet drug has been shown to reduce mortality in acute MI.

Objective To evaluate the effects of reviparin, a low-molecular-weight heparin, when initiated early and given for 7 days in addition to usual therapy on the primary com-
REVIEW

Prevalence, risk factors and awareness of hypertension in India: a systematic review

P Devi\textsuperscript{1,2}, M Rao\textsuperscript{1,2}, A Sigamani\textsuperscript{1,2}, A Faruqui\textsuperscript{1,2}, M Jose\textsuperscript{1}, R Gupta\textsuperscript{3}, P Kerkar\textsuperscript{4}, RK Jain\textsuperscript{5}, R Joshi\textsuperscript{6,14}, N Chidambaram\textsuperscript{7}, DS Rao\textsuperscript{8}, S Thanikachalam\textsuperscript{9}, SS Iyengar\textsuperscript{10}, K Verghese\textsuperscript{11}, V Mohan\textsuperscript{12}, P Pais\textsuperscript{2,13} and D Xavier\textsuperscript{1,2}

Indians have high rates of cardiovascular disease. Hypertension (HTN) is an important modifiable risk factor. There are no comprehensive reviews or a nationally representative study of the burden, treatments and outcomes of HTN in India. A systematic
Prevalence, treatments and outcomes of coronary artery disease in Indians: A systematic review

Mangala Rao a,b, Denis Xavier c,d,*, Padmini Devi a,b, Alben Sigamani a,b, Atiya Faruqui a,b, Rajeev Gupta e, Prafulla Kerkar f, Rajendra Kumar Jain g, Rajnish Joshi h, N. Chidambaran i, Daya Sagar Rao j, S. Thanikachalam k, S.S. Iyengar l, Kiron Verghese m, V. Mohan n, Prem Pais b

a Department of Pharmacology, St. John's Medical College, Bangalore, India
b Division of Clinical Research and Training, St. John's Research Institute, Bangalore, India
Effect of fixed dose combinations of metoprolol and amlodipine in essential hypertension: MARS – A randomized controlled trial

PADMINI DEVI¹,², DENIS XAVIER¹,², ALBEN SIGAMANI¹,², SUDHANSHU PANDEY³, TINKU THOMAS⁴, SREENIVAS MURTHY⁵, KAMAL SHARMA⁶, BALRAJ BOSCO⁷, KETAN MEHTA⁸, SINDHU JOSHI⁹, RAJEEV GUPTA¹⁰, GIRIJA SINGH¹¹, JAGADISH HIREMATH¹², CHADHA DS¹³, ASHOKAN NAMBIAR¹⁴ & PREM PAIS²,¹¹

¹Department of Pharmacology, St John’s Medical College, Bangalore, India, ²Division of Clinical Trials, St John’s Research Institute, Bangalore, India, ³AstraZeneca, Bangalore, India, ⁴Epidemiology and Biostatistics Unit, St John’s
Rationale and design of a randomized controlled trial evaluating community health worker–based interventions for the secondary prevention of acute coronary syndromes in India (SPREAD)

Deepak Y. Kamath, MD, a Denis Xavier, MD, MSc, a Rajeev Gupta, MD, PhD, b P. J. Devereaux, MD, PhD, c Alben Sigamani, MD, a Tanvir Hussain, MD, d Sowmya Umesh, DNB, e Freeda Xavier, MSc, a Preeti Girish, MSc, a Nisha George, MSc, a Tinku Thomas, PhD, f N. Chidambaram, MD, g Rajnish Joshi, MD, h Prem Pais, MD, a and Salim Yusuf, DPhil, FRCPC i
Bengaluru, Rajasthan, India; Ontario, Canada; Baltimore, MD; Tamil Nadu, and Bhopal, India

Background  There is a need to evaluate and implement cost-effective strategies to improve adherence to treatments in coronary heart disease. There are no studies from low- to middle income countries (LMICs) evaluating trained community health worker (CHW)-based interventions for the secondary prevention of coronary heart disease.
Effects of a polypill (Polycap) on risk factors in middle-aged individuals without cardiovascular disease (TIPS): a phase II, double-blind, randomised trial

The Indian Polycap Study (TIPS)*

Summary
Background The combination of three blood-pressure-lowering drugs at low doses, with a statin, aspirin, and folic acid (the polypill), could reduce cardiovascular events by more than 80% in healthy individuals. We examined the

The need to test the theories behind the Polypill: rationale behind the Indian Polycap Study

Denis Xavier,* Prem Pais, Alben Sigamani, Janice Pogue, Rizwan Afzal and Salim Yusuf, on behalf of The Indian Polycap Study (TIPS) Investigators

D Xavier is Professor and Head of Department,

Antihypertensive, lipid-lowering and antiplatelet drugs are proven to reduce cardiovascular disease (CVD) events when used in primary and secondary randomized, controlled trials that evaluated the effect of using folic acid to lower homocysteine levels showed no improvement in treated
The Polypill in the Prevention of Cardiovascular Diseases
Key Concepts, Current Status, Challenges, and Future Directions
Eva Lonn, MD, MSc; Jackie Bosch, MSc; Koon K. Teo, MD, PhD; Prem Pais, MD;
Denis Xavier, MD; Salim Yusuf, MBBS, DPhil

Comparison of Risk Factor Reduction and Tolerability of a Full-Dose Polypill (With Potassium) Versus Low-Dose Polypill (Polycap) in Individuals at High Risk of Cardiovascular Diseases: The Second Indian Polycap Study (TIPS-2) Investigators
Salim Yusuf, Prem Pais, Alben Sigamani, Denis Xavier, Rizwan Afzal, Peggy Gao and Koon K. Teo

Circ Cardiovasc Qual Outcomes. 2012;5:463-471; originally published online July 10, 2012; doi: 10.1161/CIRCOUTCOMES.111.963637
Controversies in cardiovascular medicine

Combination pharmacotherapy to prevent cardiovascular disease: present status and challenges

Working Group on the Summit on Combination Therapy for CVD†
REVIEW

Prevalence, risk factors and awareness of hypertension in India: a systematic review

P Devi¹,², M Rao¹,², A Sigamani¹,², A Faruqui¹,², M Jose¹, R Gupta³, P Kerkar⁴, RK Jain⁵, R Joshi⁶,¹⁴, N Chidambaram⁷, DS Rao⁸, S Thanikachalam⁹, SS Iyengar¹⁰, K Verghese¹¹, V Mohan¹², P Pais²,¹³ and D Xavier¹,²

Indians have high rates of cardiovascular disease. Hypertension (HTN) is an important modifiable risk factor. There are no comprehensive reviews or a nationally representative study of the burden, treatments and outcomes of HTN in India. A systematic review and meta-analysis of the epidemiological data and health outcomes of HTN in India. We searched MEDLINE...
Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE study): a case-control study

Martin J O'Donnell, Denis Xavier, Lisheng Liu, Hongye Zhang, Siu Lim Chin, Purnima Rao-Melacini, Sumathy Rangarajan, Shofiquel Islam, Prem Pais, Matthew J McQueen, Charles Mondo, Albertino Damasceno, Patricio Lopez-Jaramillo, Graeme J Hankey, Antonio L Dans, Khalid Yusoff, Thomas Truelsen, Hans-Christoph Diener, Ralph L Sacco, Danuta Ryglewicz, Anna Czlonkowska, Christian Weimar, Xingyu Wang, Salim Yusuf, on behalf of the INTERSTROKE investigators*

Background The contribution of various risk factors to the burden of stroke worldwide is unknown, particularly in countries of low and middle income. We aimed to establish the association of known and emerging risk factors with stroke in 22 countries and to make recommendations for stroke prevention.
Dabigatran versus Warfarin in Patients with Atrial Fibrillation

Stuart J. Connolly, M.D., Michael D. Ezekowitz, M.B., Ch.B., D.Phil., Salim Yusuf, F.R.C.P.C., D.Phil., John Eikelboom, M.D., Jonas Oldgren, M.D., Ph.D., Amit Parekh, M.D., Janice Pogue, M.Sc., Paul A. Reilly, Ph.D., Ellison Themeles, B.A., Jeanne Varrone, M.D., Susan Wang, Ph.D., Marco Alings, M.D., Ph.D., Denis Xavier, M.D., Jun Zhu, M.D., Rafael Diaz, M.D., Basil S. Lewis, M.D., Harald Darius, M.D., Hans-Christoph Diener, M.D., Ph.D., Campbell D. Joyner, M.D., Lars Wallentin, M.D., Ph.D., and the RE-LY Steering Committee and Investigators*
Low-Dose Aspirin for Preventing Recurrent Venous Thromboembolism

How did we build a large network
What we have done in 15 years

• Large network of clinical investigators
  – 180+ across the country.

• Team of trained & experienced coordinators and research assistants
  – Capacity to coordinate large multicentre global clinical trials

• Regulatory
  – DCGI, ICMR and HMSC, UK-MRC, NIH
What we have done in 15 years

• **IP handling** – Importation, storage, redistribution & accounting

• **Data management**
  – Develop Case Report Forms
  – Set up database
  – Handle data from over 100 sites
    • receive forms, enter data, generate queries, resolve queries, rolling database lock
NIH-UH – Center of Excellence 2008-2014

• CVD prevention and capacity building in developing countries
• One of 11 Centers globally
• ~US$4.5 million
• 3 Knowledge Translation Studies
  – CVD Prevention and Stroke Registry
  – 185 researchers / support staff in India
• 6 training programs
  – ~200 trained
Purpose of the program

• To combat non-communicable chronic cardiovascular and pulmonary diseases (CVPD), in developing countries, by
  – Conducting research on new or improved approaches, programs, and measures
    – to prevent or treat chronic CVPD.
  – Research training and
  – Enabling clinical research infrastructure development
Components of the ICRAG program

Identified three areas

1. Training
2. Infrastructure development
3. Research projects
Total numbers: Team + Research Subjects

- **Training**
  - Trainees: 350
  - Faculty + mentors: 62

- **Three projects**
  - Staff at 78 sites: 406

- **Central staff**: 51

- **Total staff in the program**: 869

- **Total research subjects**: 20,422
PREPARE

• **Rural study;** Aimed to test
  – Local community health workers (CHW) can reduce risk for heart disease

• **28 villages; 3 states** (Kar, TN, Mah)

• **Screened**
  – 8,615 in 4,780 households

• **Included**
  – 2,348 households, 3,261 participants

• **CHW interventions:**
  – 6 house visits over one year
CHW home visits
PREPARE: results

• At baseline (3261 in 2,358 Houses)
  – Households with CV risk factors: 45%
  – Smokers: 22%, chew tobacco: 56%
  – HTN – 45%; diabetes 8%

• Follow up at one year: 2,756 (91%)
  – Blood pressure reduced 1.8mmHg (p=0.01)
  – Weight reduced (BMI: -0.33, p=0.05)
  – Small reduction tobacco use (9.7%, p: ns)
Treatments and outcomes of acute strokes in India:

INSPIRE - A Large hospital Registry
Need for study

- Stroke - leading cause of mortality and disability in India.
- Yet, there are no representative data in India on
  - Patient characteristics
  - Treatments and
  - Outcomes
<table>
<thead>
<tr>
<th>Region</th>
<th>Sites</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>12</td>
<td>2147 (19.5%)</td>
</tr>
<tr>
<td>South</td>
<td>24</td>
<td>4375 (38.8%)</td>
</tr>
<tr>
<td>East</td>
<td>3</td>
<td>672 (6.1%)</td>
</tr>
<tr>
<td>Central</td>
<td>6</td>
<td>1653 (15.0%)</td>
</tr>
<tr>
<td>West</td>
<td>10</td>
<td>1137 (10.3%)</td>
</tr>
<tr>
<td>North East</td>
<td>6</td>
<td>1017 (9.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>11001</td>
</tr>
</tbody>
</table>
Training in the Center of Excellence Program
Two year mentorship program

• Young medical faculty across India
• Internal and external mentor
• Design a project with mentors
• Funds up to INR500,000 (US$10,000)
Mentees: 2 year program
Batch -1
Mentees: 2 year program
Batch -2
Summary of mentorship

- Two batches
  - $6 + 8 = 14$
- 13 started and 12 completed the project
- Research areas
  - Community/ rural studies
    - CVD risk factors, CVD in elderly, diabetes, school children education in CVD, asthma,
  - Urban/ hospital studies
    - Diabetes prevention, pulmonary rehabilitation, birth cohort, CVD and AIDS
HRM-EBM course - 2013

Participants: 91, 32 institutions, 6 countries
18 Faculty: India + Devereaux, Guyatt, Sackett, Yusuf
Workshop on Data Management and Biostatistics
March - 2014

Participants: 56 from 21 cities
UG medical students’ research training

• Presently
  – No structured training for UG medical students in research

• Two Institutions
  – Mahatma Gandhi IMS, Sevagram: 18 + 17 = 35
  – St. John’s Medical College, Bangalore: 5 x 10 = 50

• Structured training: 3/10 months
  – Research methods and biostatistics,
  – Ongoing mentorship with local faculty, and
  – Research projects – ICMR STS/SJ research grant (INR10,000*)
Summary of Training

• Total
  – Courses - 11
  – Participants – 1,100
  – Institutions - 120
  – Countries – 6
  – Faculty – from 7 institutions

• Topics
  – Research methods
    • Obs, RCT, SR/MA, Qualitative, Policy, Programs
  – Biostatistics, ethics/ regulatory,
  – Data & research management
  – Grants and publications
Our contribution...1

• Evidence from a developing country on risk factors and practice patterns for **Acute MI**
  – Indian Case control study and INTERHEART
  – CREATE Registry

• Evidence on risk factors and treatments for **Stroke**
  – INTERSTROKE (ongoing project – 5,000)
  – INSPIRE stroke registry – 11,001, 6 mo FU
Our contribution...2

- **Global RCTs** that have impacted clinical practice
  - CREATE Study – use of LMWH & GIK in Acute MI
  - OASIS 5 & 6 – use of fondaparinux in ACS

- **Representation in unique RCTs**
  - PRoFESS – largest secondary stroke prevention study
  - POISE 1 & 2; MANAGE – large RCTs in perioperative ischemia
  - TIPS -1, 2 & 3 – RCTs evaluating a “Polypill”
Our contribution...

• **Health systems research**
  – IMPACT – A fib
  – PREAPRE – Primary prevention
  – SPREAD – Secondary prevention
  – PROGRESS – worksite interventions

• **Training** in clinical research & research management
Our contribution: Training 4

- **International/ National**
  - 2-Year mentorship program
  - HRM, then HRM-EBM courses
  - Data management and biostatistics
  - Research management

- **At St. John’s**
  - UG students – 60+…
  - Faculty – mentorship 5 over 2 years each
  - Course for faculty – 136 from 34 depts
Collaborating agencies - Govt.

1. Indian Council of Medical Research
   - Task force study in Acute MI
   - Central clinical coordinating centre for MACE
   - Co - PI for biobank facility + INSERM

2. World Health Organization
   - Training of medical officers in detection of Non-communicable diseases
   - NCD guidelines for developing countries
Collaborating agencies - Govt

3. **NHLBI-UH** [USA]
   - Center of Excellence

4. **UK – MRC/ WT/ DFID**
   - PROGRESS
Collaborating agencies
Trusts, Acad, Pharma

5. Wellcome Trust

6. BMS/ Pfizer foundation

7. Academic: (10)
   - Canada: McMaster University
   - USA: Columbia, Duke University (USA)
   - Austr/ NZ: Green Lane, Royal Perth, Sydney, Monash (Mel)
   - Europe: Oxford-UK, Uppsala University (Sweden),

8. Pharmaceutical Companies (13)
   - Abbott, Aventis Pharma, AstraZeneca, BMS,
     Basilea Pharma, Boehringer Ingelheim, Cadila, Eli
     Lilly, GlaxoSmithKline, Novo Nordisk, Pfizer,
     sanofi,
What we achieved in 15 years?

- **Large network of clinical investigators**
  - 190+ across the country.
- **Team of trained & experienced coordinators and research assistants**
  - Large multicentre global clinical trials
- **Regulatory**
  - DCGI, ICMR and HMSC, NIH
- **IP handling**
  - Import, store, distribution & accounting
- **Data management**
  - Set up database – 5
  - Handle data from over 100 sites
    - receive forms, enter data, generate queries, resolve queries, rolling database lock
Online resources

- Website for CVD prevention
- LMS for CVD prevention
Know and Prevent Heart Disease

Choose your food carefully, it's in your hands to stay healthy.

Heart disease is preventable

Importance of prevention
A heart attack may be the first symptom of heart disease. By this the person has had significant damage to the heart. Don't let yourself or anyone you love reach this point. When you lower blood pressure, you lower the risk of heart attack by 20 to 25 percent and the risk of stroke by 35 to 40 percent.

What is good for your heart
GRANTS - as PI/ Co-PI

Investigator initiated : 4 (~US$7.5Mil)

1. NIH/ Ovations UH Centre of Excellence US$4.1mil
2. UK-MRC/ Wellcome Trust/ DFID: PROGRESS: GBP137,000
3. BMS/ Pfizer foundation IMPACT through Duke University, US$275,000
4. Wellcome Trust: (TIPS-3) thro PHRI, CPL US$2.7 million
Grants – as collaborator
Apx US$20 mil

1. CIHR: HOPE-3 CD$5.8 mil
2. CIHR: POISE-2 CD$3.7 mil
3. CIHR foundation grant: CD$8.4 mil
4. PHRI/ HHS: MANAGE CAD$832,500
5. NHMRC: ASPIRE AU$1.92 mil
6. NHMRC and NHF Australia : AU$2.71 mil
7. ICMR MACE INR25 L+
Summary

- Largest academic clinical and research center in India
- Research studies hospital and community based
  - in CVD → NCDs
- Obs → interventional → health systems
- Training Health research methods & research management
  - across India and other Asian/ African countries.