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FOUNDATION

Democracies Working Together



Apollo
HOSPITALS

CANADA INDIA HEALTH CARE SUMMIT 2017

March 30 – 31

New Delhi

Together Making a Difference in the Health of Citizens

SUMMIT REPORT

Editors

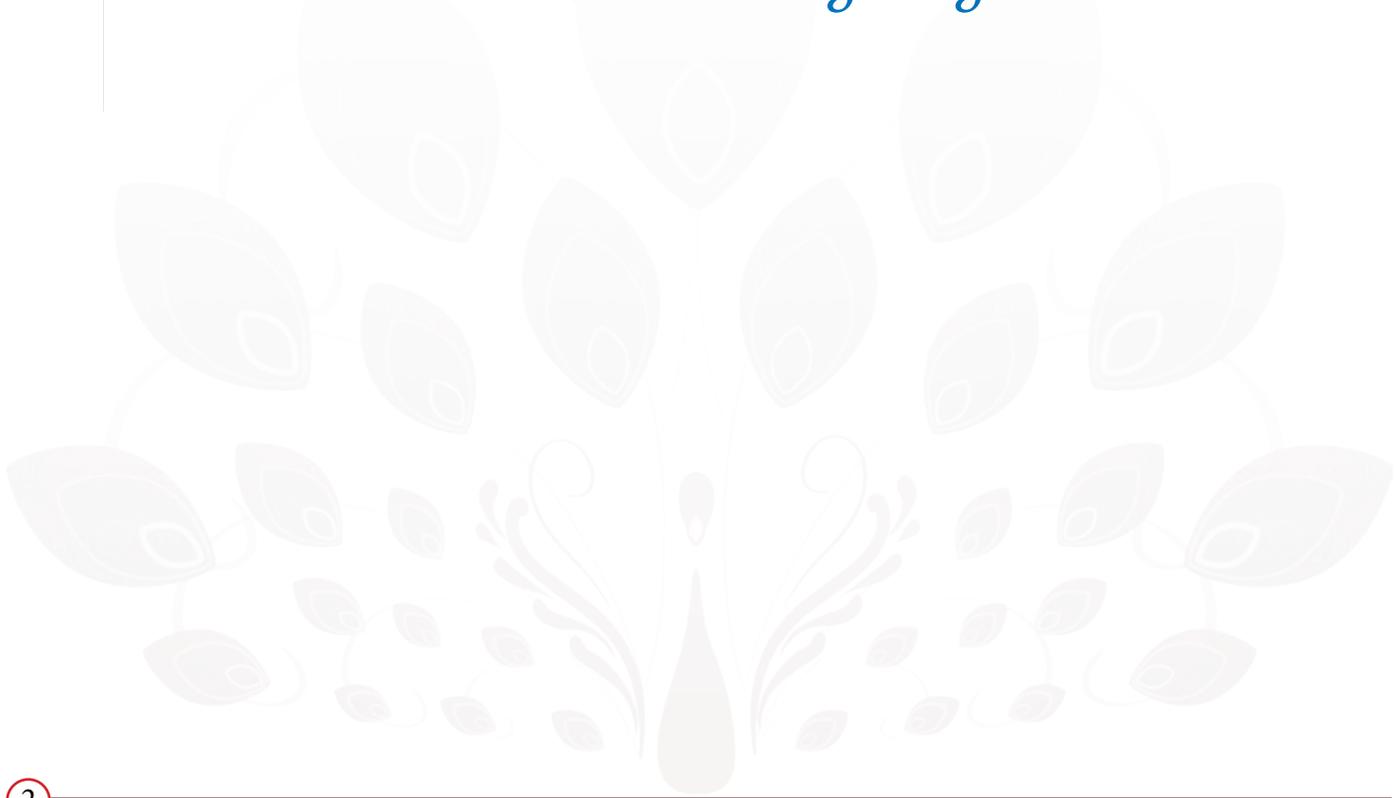
Arun Chockalingam & V.I. Lakshmanan



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ACKNOWLEDGEMENTS

Canada India Foundation and the organizers of the Canada India Healthcare Summit express a deep sense of gratitude to the Governments of Canada, India and Ontario for their strong support for the Summit right from the beginning. Canada's Minister of Health, the Honorable Jane Philpott and the Canadian High Commissioner to India, His Excellency Nadir Patel encouraged us throughout the planning process as well as at the Summit itself in New Delhi, March 30–31, 2017. Likewise, the Government of India extended all necessary support to secure visas for Canadian delegates. In this regard, the timely support of the Ministries of External Affairs, Home Affairs, and Health and Family Welfare is gratefully acknowledged. The Ministry of Health and Welfare also participated in the Summit and special thanks are due to Dr. Soumya Swaminathan, Secretary, Department of Health and Welfare (Research) & Director General of the Indian Council of Medical Research for providing a keynote address. We also gratefully appreciate the support of High Commissioner of India to Canada, His Excellency Vikas Swarup and his greetings to the Summit.

Ontario's Ministry of International Trade helped the Summit both as a co-sponsor and as active participant in planning and execution. We express our sincere thanks to Minister Honorable Michael Chan and his department for their keen involvement. We appreciate the help of Ms. Linda Brock from the Ministry of International Trade in the design of promotional materials for the Summit.

We thank the Honorable Eric Hoskins, Ontario's Minister of Health and Long-term Care for his constant support over the years and for his special message to the Summit delegates.

The Apollo Hospitals Group in India joined the Summit as a co-sponsor and helped to execute the Summit in many ways and we deeply appreciate their support. We are very grateful to Mr. Mohandas and Ms. Raji Chandru of Apollo Hospital Group for their help in coordinating the event logistics, and to Dr.

Preetha Reddy, Executive Vice–Chair of the Apollo Hospital Group for delivering a keynote address.

The success of the Summit can be attributed in large part to the financial sponsors, particularly Apotex Canada which came in as the Platinum Sponsor. We thank Dr. Jeremy Desai, CEO of Apotex for his support and for giving the keynote address. We are also most grateful to Process Research ORTECH and William Osler Health System for their financial support to the Summit.

We are indebted to all the speakers and moderators for their outstanding intellectual contributions and volunteers for their dedicated efforts to ensure the success of the Summit.

A special word of appreciation to Mr. Kalyan Sundaram for his untiring efforts throughout the planning, execution and post–Summit processes. We also acknowledge the timely transcription of all lectures to develop this report by Mr. Alexander Gomes.

The report has been produced with care to transmit the outcomes of the sessions and to synthesize the key recommendations for action at levels of governments from both countries. It is our hope that this report will serve as a blue print for Federal and Provincial governments of Canada and the Union and State governments of India to seize the opportunity to establish collaboration in different facets of healthcare that would enable and empower the citizens of both countries.

Chair	Dr. V.I. Lakshmanan , Vice–Chair and CEO, Process Research ORTECH Inc., Canada
Co–Chair	Mr. Ramesh Chotai , President, Bromed Pharmaceuticals, Canada
Co–Chair	Mr. Rahul Reddy , Senior Vice President, Apollo Hospitals Group, India
Co–Chair	Mr. Akhil Tyagi , Dir., South Asia, Ontario Ministry of International Trade, Canada
Co–Chair	Dr. Arun Chockalingam , Professor & Special Advisor, Global Health, York U, Canada
Co–Chair	Ms. Kavitha Subramanian , Private Equity Investor, India

EXECUTIVE SUMMARY

Canada India Foundation (CIF) hosted its second Canada India Health Care Summit in New Delhi, India March 30-31, 2017, in partnership with Government of Ontario Ministry of International Trade and Apollo Hospitals, India. The first Summit was held in Toronto, Ontario, Canada in May 2015. Over 150 people from both Canada and India were active contributors in this two-day Summit. Participants included policymakers, government officials, academics, business entrepreneurs, civil society leaders, healthcare practitioners and researchers.

The two great democracies, Canada and India, have much in common and the two governments are ready for joint ventures in many fields including health and health innovation. The presence of Ontario's Health Minister Hon. Eric Hoskins, via video message, the Canadian High Commissioner to India, His Excellency Mr. Nadir Patel, the Canadian Health Minister's representative Dr. Robyn Tamblyn, Health Secretary (Research) and Director General of the Indian Council of Medical Research Dr. Soumya Swaminathan, and a message from the High Commissioner of India to Canada His Excellency Mr. Vikas Swarup, attests to the fact that there is a high level of engagement between the two countries.

There were over fifty speakers – about twenty-five from each country – who addressed the assembly concerning various topics of health care, starting with South Asian Health Issues, Distant and Rural Healthcare, Wellness Aging and Quality Care, Investment in Healthcare, Pharmaceuticals and Medical Equipment, Digital Health, Healthcare Research and Innovation, Health Policy and finally to encapsulate the prognosis of the Healthcare sector – Going Forward. These two days of lively deliberations underlined the need for collaboration in each of the aforementioned topic areas to make the people of both countries as an extension to global citizenship.

The South Asian diaspora in Canada is an estimated 1.3 million strong. They are engaged in all walks of life and contribute significantly to the growth of their adopted country as

Canadians. All of them have an affinity for their motherland India. In the last two decades, there has been significant progress in India, both economically and intellectually, resulting in an improving lifestyle. One common concern in both countries is the health of people of Indian origin. As India advances and the life expectancy more than doubled since independence, it too is catching up to the burden of noncommunicable diseases (NCDs) such as heart disease, stroke, diabetes, cancer and lung diseases. The Indian diaspora living in Canada shares many of the same NCD related problems. Therefore, the strategy developed and tested in one country can be adopted for another setting. The *best practices* developed through research demonstration projects must be scaled up to the benefit of all.

The global life expectancy is increasing and so are the populations of Canada and India. As our societies are living longer they face not only the challenges of NCDs but also the issues attached to aging. The aging population must have a greater quality of life. Several techniques tried in both countries ranging from *behaviour modification* to *eating right* with nutritious foods need to be scaled up at the local, regional and national levels in both countries.

Both India and Canada face the challenges of rural and distant health care. Use of technology, especially tele-health, will alleviate not only the cost of care but also patient discomfort due to travel long distances. With current advances in wide band communication technology (3G & 4G) tele-medicine offers instant feedback to patients (especially seniors) in remote locations. Many more innovations, through telemedicine and other technologies, are yet to unfold.

There is an unprecedented opportunity for investments in health care. Based on World Health Indicators (<http://data.worldbank.org/indicator/SH.XPD.PCAP>) the healthcare needs of India alone will reach \$300 billion CAD by 2030 (from the current 1.1% GDP to about 5% in 2030) and the current national health care expenditure in Canada is about \$235 billion CAD (about 11% of its GDP). The most recent Health Policy of the Government of India doubled the health care allocation from 1.15% to 2.5% of their GDP (from USD 123 to 267 in the next 5 years) . The health industry provides strong return on investment.

The pharmaceutical and medical equipment sector will do very well over the next decade and beyond. As people live longer and the disease burden keeps increasing, everyone will be looking for ways to mitigate their disease-induced disability using medication. India, with its strong generic medicines manufacturing sector, now garners 10% of the global market. Canada feels the pinch of the escalating cost of pharmaceutical coverage for all citizens. Innovative medical equipment is a new avenue for entrepreneurs to find innovative solutions and simultaneously curtail the ballooning cost of medicines and associated sufferings.

Digital solutions play an important role in improving the health of people through specialized applications, the use of mobile technology for health messaging, health education and health coaching. Use of *internet-of-things (IoT)* provides an enormous opportunity in both Canada and India to find novel methods and algorithms to harvest *Big Data* and thereby help develop progressive health policies.

For any country to advance, it must invest in research. Fortunately, both Canada and India have strong health research agencies (Canadian Institutes of Health Research – CIHR and the Indian Council of Medical Research – ICMR) and it is encouraging to learn that they collaborate to fund and find solutions for issues of common interest. The level of research funding must be gradually increased on an annual basis so that new research can reveal better methods for detection, prevention, management and control of diseases—keeping people healthier for longer. Research must reach the common man and thus research must be transformed to innovation to produce things – be it pharmaceutical or medical technology based equipment/devices or health communication devices.

India aspires to introduce Universal Health Coverage (UHC) so that its citizens can be relieved of out of pocket expenditures in many instances. Canada is a world leader in Universal health care with a thriving single payer system. India can learn through intense collaboration with Canada to develop and roll out an accessible, affordable and portable UHC. Besides UHC, India could exchange notes with the Canadian healthcare system on the delivery of ethical medical care right from primary care centres to tertiary care centres, be it public or private hospitals.

Going forward, the Summit identified several opportunities for collaborations as described in the Recommendation Section.

Canada India Foundation serves as a catalyst to engage people from both countries to interact and collaborate to develop unique policy approach appropriate for Canada and India. The opportunities certainly exist and creating a better healthcare for all citizens is a real possibility.

RECOMMENDATION HIGHLIGHTS:

1. Value of integrated family support for emotional comfort. Minimizing institutional care through telemedicine and old age care services.
2. Use of Canadian technologies, advanced scientific research and established procedures and protocols with manufacturing and production with excellent human resources available in India, the collaboration can result in high efficient low-cost reliable services not only for the large population of India (over 1.2 billion) and Canada but will open up a very large global market.
3. Investments in research – by both public and private sectors – especially clinical and population research to take advantage of large population in India and its changing demography.
4. Use of Indian traditional medicine which are based on natural products, free from chemicals and very cost effective, for prevention of chronic diseases in the Canadian and global context. Further research to document empirically the findings of generational transmission of knowledge, especially Ayurvedic, homeopathic and Siddha medicines, as well as yoga, is highly recommended.



High Commissioner

HIGH COMMISSION OF INDIA
10 SPRINGFIELD ROAD
OTTAWA, ONTARIO K1M 1C9
Phone: +1-613-744-2406;
+1-613-744-0909
Fax: +1-613-744-0913
E-mail: hc.ottawa@mea.gov.in;

20 March, 2017

Message

I am happy to learn that Canada India Healthcare Summit is being held in New Delhi on March 30-31, 2017.

Canada and India are natural partners based on shared values. The Indo-Canadian community has played an important role in consolidating our ties with Canada. Although our partnership with Canada extends to virtually every sector, healthcare is one area where the potential is enormous. The Summit is expected to discuss important areas of healthcare such as distant and rural care, South Asian health issues, digital health, wellness, aging and quality care, pharmaceuticals and share best practices in developing a sustainable healthcare environment and identify collaboration opportunities. Partnership between Canadian tradition of universal healthcare with its strong medical institutions and India's leadership in production of high quality and low-cost generic drugs can be mutually beneficial.

I commend the healthcare institutions from Canada which are participating in the Summit and look forward to many more Canadian healthcare organizations collaborating with healthcare institutions in India.

I wish to congratulate the Canada-India Foundation for organizing the Summit in partnership with Apollo Hospitals and look forward to the Summit's recommendations, which I am confident, will help propel the India-Canada partnership in the important area of healthcare.



(Vikas Swarup)



March 28, 2017

I'm pleased to extend my best wishes to Canada India Foundation (CIF) for a successful Canada India Healthcare Summit, taking place in New Delhi on March 30-31, 2017. CIF plays an important role in organizing thematic forums highlighting opportunities for collaboration between Canada and India.

The Summit will address important areas of healthcare such as health issues, distant and rural healthcare, digital healthcare, pharmaceuticals, wellness, research and innovation and healthcare policy, all areas in which Canada has world-leading expertise and technology. Canada has been a model healthcare nation with its early and pioneering adoption of the concept of universal healthcare and continues to be a world leader. The healthcare institutions from Canada participating in this summit are examples of that leadership. At the same time, India has made advances in its healthcare system but much remains to be done and in this regard both Canada and India can learn from each other and help each other.

I look forward to hearing the insights and recommendations of health industry professionals and leaders on how Canada and India can work together to avail of the opportunities and address the challenges.

Congratulations to Canada India Foundation on organizing this summit, and I look forward to supporting the CIF's important work both in Canada and in India.

Sincerely,

Nadir Patel
High Commissioner

Canada

WHY CANADA INDIA HEALTH CARE SUMMIT ?

Both Canada and India have their respective healthcare challenges. However, there are some commonalities shared. The Summit deliberations offer some potential opportunities to collaborate and arrive at effective, economical and efficient solutions.

Canada's Healthcare Challenges

Care in the Community: Canada's single payer healthcare system faces a new challenge as there are more senior citizens (over the age of 65 years) than the young (children below the age of 14) in 2017. The trend is expected to continue and will put a strain on Canada's healthcare system.

Mental Health: The number of Canadians with mental illness in one form or another continues to increase. As the population ages, Canada feels the increasing incidence and prevalence of dementia.

Accessible and Affordable Prescription Drugs: The cost of prescription drugs in Canada is on the rise and so is healthcare expenditure. Innovative solutions and the use of generic, cheaper drugs are needed to contain the escalating prices.

Health Innovation: Providing Universal healthcare and paying for the costly tests and evaluation is a major challenge and a threat to the economy. Innovative and cost-effective solutions for diagnosis and prevention are very much desired.

India's Healthcare Challenges

India also faces the above four challenges as in Canada, but at a higher magnitude. This is further compounded by the lack of resources to cover healthcare in India. While Canada allocates 11% of its GDP for healthcare, India spends a meagre 1.15% of its GDP. With private sector investments and citizens'

out of pocket expenses, the total healthcare expenditure is still below 5% of India's GDP.

Although demographically India has an advantage of a much younger population, the proportion of the older population is still 8% and, in absolute numbers, is a staggering 100 million plus Indians over the age of 65. In the next 10 years India needs to invest in affordable and accessible housing for the senior citizens. Here is an opportunity for India to learn from the *Best Practices* of Canada both on seniors' housing and seniors' healthcare delivery.

As India is trying to introduce Universal Health Coverage to all its citizens, the experience of Canada could be relevant and educational for India to take advantage of.

Design of the Summit

The incredible intellectual, social and human capital available in Canada and India triggered the imagination of the organizers to bring together thought leaders, policymakers and entrepreneurs to address the above challenges from different perspectives to arrive at meaningful solutions. The essence of Keynote speakers' views and visions, enthusiastic collaborations and solutions offered by focused session speakers are summarized in the following sessions. The Summit recommendations are provided at the end of this report.



SUMMIT PROGRAM

March 30, 2017

8:00-8:45 am

Registration, Breakfast, Networking

8:45-9:45 am

OPENING SESSION

Welcome

Dr. V.I. Lakshmanan

Chair, Canada India Healthcare Summit

Vice-Chair and CEO, Process Research ORTECH, Ontario, Canada

Opening Remarks

His Excellency Nadir Patel

High Commissioner of Canada to India

Keynote Address

Dr. Jeremy Desai

CEO and President, Apotex, Canada

9:45-10:30 am

PLENARY SESSION

Keynote Speakers

Mr. R. Chandrasekaran

Executive Vice-Chairman, Cognizant India

Padma Bhushan Dr. M.B. Athreya

Founder, Athreya Management Systems, India

10:30-10:45 am

Health Break

10:45 am-12.30 pm

SOUTH ASIAN HEALTH ISSUES

Moderator:

Mr. Rahul Reddy

Senior Vice-President, Strategic Relations and New Initiatives, Apollo Hospitals, India

Speakers:

Mr. Rohit Kapoor

Chief Growth Officer, Max Healthcare, India

Dr. Gopal Bhatnagar

Assistant Professor of Surgery, University of Toronto, Ontario, Canada

Dr. Arun Garg

Program Medical Director, South Asian Health Institute, Fraser Health, British Columbia, Canada

Prof. J.S. Thakur

Professor, Community Medicine, PGIMER Chandigarh, India

Dr. Naveed Mohammad

Vice President, Medical Affairs, William Osler Health Centre, Ontario, Canada

Dr. Kalpana Gupta

Professor, Department of Medicine, Boston University School of Medicine, USA

12.30-1.15 pm

LUNCH

1:30 -2:45 pm

DISTANT AND RURAL HEALTHCARE

Moderator

Dr. Ed Brown

CEO, Ontario Telemedicine Network, Canada

Speakers:

Mr. K. Chandrasekhar

CEO, Forus Health, India

Mr. Sankara Raman

Hon. Secretary, Amar Seva Sangam, India

Mr. V. Ponraj

Advisor to (Late) Dr. Abdul Kalam, 11th President of India

Mr. Soura Bhattacharyya

Founder/CEO, Lattice Innovations, India

2:45- 4:00 pm

WELLNESS, AGING, QUALITY CARE

Moderator

Dr. Grant Pierce

Executive Director of Research, St. Boniface Hospital, Manitoba, Canada

Speakers

Dr. Paul Oh

Medical Director, Toronto Rehab, University Health Network, Ontario, Canada

Prof. V.V. Muthusamy

Emeritus Professor of Cardiology, Tamil Nadu Dr. MGR Medical University, India

Ms. Cynthia Hastings-James

Co-Founder, Cookson-James Loyalty Inc., Ontario, Canada

Dr. A.P.S. Suri

President, Indian Podiatric Association, India

Dr. Rajeev Manhas

Head, Department of Health Sciences, Baba Farid University, India

4:00 – 5:00 pm

INVESTMENT IN HEALTHCARE

Speakers

Ms. Kavitha Subramanian

Investment Consultant, India

Ms. Srividya Jagannathan

Life Sciences Lead, International Finance Corporation (IFC), India

Mr. Arvind Vijn

Director, India and South East Asia Services, Deloitte Canada

6:00 – 7:00 pm

Reception

7:00 – 9:00 pm

DINNER

Hosted by Apollo Hospitals

March 31, 2017

7:30-8:30 am

Registration, Breakfast, Networking

8:30-9:00 am

Welcome

Mr. Anil Shah

National Convenor, Canada India Foundation

Founder/CEO, Ni-Met Metals, Canada

Keynote Address

Padma Bhushan Dr. Srinath Reddy

President, Public Health Foundation of India

9:00-9:30 am

Wellness Demo

Ms. Niharika Tugnait

9:30-10:30 am

PHARMACEUTICALS/MEDICAL EQUIPMENT

Moderator

Mr. Ramesh Chotai

President, Bromed Pharmaceuticals, Canada

Speakers

Mr. Rav Kumar

Managing Director, Apotex India

Mr. Vishwanath Swarup

Commercial Director - Hospitals Business, Abbott, India

10:30-11:00 am

Keynote Speaker

Dr. Preetha Reddy

Executive Vice-Chair, Apollo Hospitals, India

11:00–Noon

DIGITAL HEALTH

Moderator

Mr. Sridhar Mosur

CEO, Pixel Health, Canada

Speakers

Mr. Sanjay Tugnait

CEO, Capgemini, Canada

Mr. Vijay Thirumalai

Founder, HCue, India

Dr. Michael Greenberg

Co-Founder/CEO, Fio Corp, Canada

Dr. Sunil Chacko

Head, India-Japan Program, MDI Gurgaon, India

Mr. Annamalai Radhakrishnan

Founder, Shri Aura Technologies, India

Noon – 1:00 pm

NETWORKING LUNCH

Hosted by Government of Ontario

1:00 – 1:30 pm

Lunch Keynote Speaker

Dr. Soumya Swaminathan

Secretary, Dept. of Health Research, Ministry of Health and Family Welfare, Govt. of India

1:30-2:15 pm

HEALTHCARE RESEARCH AND INNOVATION

Moderator

Barj Dhahan

Director, IC-Impacts, British Columbia, Canada

Speakers

Dr. Ronald Heslegrave

Corporate Chief of Research, William Osler Health Centre, Ontario, Canada

Dr. Malay Sharma

Director of Gastroenterology, Jaypee Hospital, India

Dr. Sadhna Joshi

Associate Professor, Dept. of Molecular Genetics, University of Toronto, Ontario, Canada

Mr. Uday Gokhale

Team Leader, New Initiatives, Eureka Forbes, India

2:15-3:15 pm

HEALTHCARE POLICY

Moderator

Dr. Anupam Sibal

Group Medical Director, Apollo Hospitals Group, India

Speakers:

Mr. Karan Singh

Managing Director, Bain Consulting, India

Dr. Bram Ramjiawan

Director of Research, Innovation and Regulatory Affairs, St. Boniface Hospital, Manitoba, Canada

Dr. Natesan Chidambaram

Dean, Faculty of Medicine, Annamalai University, India

3:15-4:15 pm

GOING FORWARD

Moderators:

Prof. Arun Chockalingam

Special Advisor on Global Health to Dean, Faculty of Health, York University, Ontario, Canada

Dr. V.I. Lakshmanan

Chair, Canada India Healthcare Summit

Speakers:

Mr. Akhil Tyagi

Area Director – South Asia, Ministry of International Trade, Govt. of Ontario, Canada

Ms. Kavita Narayan

Principal Technical Advisor, Ministry of Health and Family Welfare, Government of India

Dr. Robyn Tamblyn

IHSPR Scientific Director, Canadian Institutes of Health Research, Govt. of Canada

4:15 pm

VOTE OF THANKS

Mr. Ramesh Chotai

Co-Chair, Canada India Foundation

President, Bromed Pharmaceuticals, Ontario, Canada

4:30-5:30 pm

B2B Networking

Hosted by Government of Ontario

April 1, 2017

10:00 am-1:15 pm

For Canadian Delegates

A tour of Indraprastha Apollo Hospital

See Indian Healthcare in Action

(Pick-up and Drop-off at ITC Maurya)



KEYNOTE SPEECHES

Several high-profile individuals from both India and Canada addressed the Summit as keynote speakers, presenting different perspectives on healthcare, the needs of both countries and how an effective collaboration would benefit the citizens of both Canada and India.

Dr. V.I. (Lucky) Lakshmanan

Dr. V.I. Lakshmanan is an internationally renowned scientist, innovator, entrepreneur and teacher of technologies for sustainable development and the Chair of the Canada India Healthcare Summit. His opening remarks encompassed the goals of the Canada India Summit, and their motivation to organize it.

India and Canada's relationship has developed to the point where both countries can begin to see how the other can aid them in national growth. A large goal for India is bringing quality healthcare to the 70% of Indians who live in rural settings, an endeavour that has been undertaken by Canada for numerous years, providing significant functional experience and knowledge concerning efficient execution. India is also beginning to develop a universal healthcare system, and will require information concerning necessary parameters, resources and sacrifices, most of which Canada has significant experience with.

On the other side of this partnership is India's large youth demographic, prolific generic drug production and cutting edge digital industry. Canada's system is currently looking to suppress pharmaceutical costs and increase efficiency, both which India can aid in creating. There is much to be derived from the fruitful partnership between India and Canada, with the correct investments of time and capital.



Opening session with Dr. Lucky Lakshmanan (at podium), Dr. Jeremy Desai, High Commissioner Nadir Patel, Mr. Rahul Reddy, Mr. Akhil Tyagi, Mr. Anil Shah and Mr. Ramesh Chotai

His Excellency Nadir Patel

H.E. Mr. Nadir Patel, the Canadian High Commissioner to India, illuminated the Summit objectives Canada believes it can aid India in achieving, as well as the objectives that India can aid Canada in grasping. The burgeoning, friendly relationship between India and Canada has reached an all-time peak in terms of productivity, with a 30% increase in two-way trade over the past few years, as much as \$13 to \$14 billion CAD invested in India recently and 70% more Indian students attending Canadian universities this year. At such an illustrious time in the two countries' histories, the time is now to capitalize on each other's investments and experiences. The High Commissioner believes that by investing in healthcare industries and innovations, both nations can increase economic prosperity while also generating significant social impact and fulfill the mandate of their citizens.



Dr. Jeremy Desai

Dr. Jeremy Desai is CEO and President of *Apotex*, the largest generic drug manufacturing company in Canada with investments in India both on manufacture as well as Research & Development.

Dr Jeremy Desai reiterated the power that can be derived from Canada and India's relationship, relating how generic drugs have increasingly dominated the pharmaceutical in recent years, largely due to the booking market of India. Canadian firms like Apotex have invested largely in developing Indian pharmaceutical factories, driving this huge industry. The current development of labs in India will only serve to extend the growth and innovation that has been occurring until this point. Indeed, collaboration in other fields can be modeled on the productive collaborative actions found in the pharmaceutical sectors of India and Canada.



Mr. R. Chandrasekaran

Mr. Chandrasekaran is currently the Executive Vice-Chairman of *Cognizant India*. In his keynote address, he took note of the magnitude of current healthcare challenges, both domestic and international, largely due to largescale population growth, an increase in life expectancy and mounting healthcare costs. Due to the global impact of healthcare, it is important that all the stakeholders, be they governmental, healthcare institutions or medical professionals, work together in exploring newer business models in an international context. By utilizing India's ability to cost-effectively develop technology, they may leverage affordable advancements in technology to make healthcare more affordable, accessible and satisfying for everyone. He believes that forums like the Canada-India Healthcare Summit will help in understanding the most effective practices in respective countries and cultivate partnership opportunities to solve the world's problems in healthcare.

Padma Bhushan Dr. M.B. Athreya

Dr. M.B. Athreya is an Indian author, educational advocate and management advisor. He is the founder of the Sampradaan Indian Centre for Philanthropy, a non-profit, non-governmental organization that serves as a platform for charity initiatives by generous individuals.

Dr. Athreya notes the unique opportunity Canada and India find themselves in, each with the ability to offer what the other may need. The initial India-Canada summit, held in Toronto in 2015, laid the seeds for a bright future and have resulted in the development of fledgling connections between private sector companies, non-profit charities and governmental agencies. The co-development that may arise from these connections should be encouraged and invested in as they can serve as catalysts for larger scale growth. Particularly, efforts to develop international projects pertaining to pharmaceuticals, generic drugs, medical technology and research can be fruitful for both nations. Dr

Athreya advocates strongly for future Canada–India summits, potentially annually, as he believes they breed creativity and unparalleled motivation.



Dr. M.B. Athreya and Mr. R. Chandrasekaran

Padma Bhushan Prof. K. Srinath Reddy

Prof. K. Srinath Reddy is the founder and current President of the Public Health Foundation of India (PHFI) and formerly headed the Department of Cardiology at All India Institute of Medical Sciences (AIIMS). He is widely regarded as a leader of preventive cardiology at national and international levels.

Professor Srinath Reddy's keynote address brought to attention the need for healthcare initiatives and treatments designed with the Indian genetic profile in mind. Case in point, Indians are generally predisposed to low HDL cholesterol, high fractions of small, dense LDL cholesterol, high triglyceride counts, low lean muscle mass and a resistance to insulin, which results in treatment with beta blockers being ineffectual. Developing health practices and health education is

integral in improving India's medical state, while also increasing the system's ability to adapt to new trends. Additionally, Professor Srinath Reddy draws attention to the shortage in the Indian healthcare workforce. He suggests an increase in technology-driven treatments, which will grow local healthcare capacity and encompass any shortfall in the work.



Dr. Preetha Reddy

Dr. Preetha Reddy is the Vice Chair of the *Apollo Group of Hospitals*. She works closely with the Government of India to advance policy decisions on healthcare issues.

Dr. Preetha Reddy delves into the circumstances that set Canada and India apart, identifying where each country can gain from the other's experiences. She notes the importance of reducing the inaccessibility of healthcare found in India, where numerous rural citizens have both financial and geographic hardships when seeking healthcare. Canada's thriving single payer healthcare system is an

exemplar system that India can learn much from, including technology implementation and ease of access for all citizens. She asked for Canadian collaboration in manufacturing large scale medical equipment in India so that the cost can be minimized due to less expensive labour in India. Additionally, collaborations with Canada can improve Indian education, establishing a curriculum that focuses on relevant material that is applicable presently and in the future. India, conversely, can provide Canada with an understanding of its world-leading tele-medicine and generic drug industries, while also sharing their extensive data collections, allowing for improved research studies.



Dr. Soumya Swaminathan

Dr. Soumya Swaminathan, an internationally recognized tuberculosis expert, is the Director General of the Indian Council of Medical Research and Secretary, Department of Health and Family Welfare (Research), Government of India.

Dr. Soumya Swaminathan presents five missionary tasks that India should follow to achieve a universal and cohesive health program. These five sectors are

(1) strengthening human capacity in the healthcare system, (2) implementing medical research findings, (3) developing strategies for transforming evidence into public policy, (4) investing in data infrastructure and innovation, and (5) leveraging traditional Indian medicine and healthcare knowledge.

Many of these sectors can be advanced by collaborating with international partners like Canada and learning the costs and benefits of their systems. She calls for continued development of universal healthcare coverage, as it alleviates those living in poverty from a vicious repayment cycle that only reinforces their economic standing. Dr. Swaminathan also calls for a renewed commitment to investing in fledgling research and innovation, so that they become tangible products that can positively alter the current paradigm. A system that she draws attention to is the oral autopsy program, which diagnoses the causes of death of individuals who died without a diagnosis, by speaking to the deceased's family and friends. This program, and future reformation to the autopsy database, will allow for an unprecedented perspective on the leading causes of death in India, and the trends that manifest in specific locales. Dr. Swaminathan calls for *mentorship* support from Canadians, particularly Canadians of Indian origin, for young and aspiring health research scholars from India. Conclusively, Dr. Swaminathan endorses the National Health Policy of 2017 and advocates for further increases in healthcare funding – both public and private – that will strengthen India's healthcare system.





FOCUSED SESSIONS



1. South Asian Health Issues

Due to people of the Asian sub-continent sharing the same genetic pool, they also share similar health issues and challenges that can define their lives. Despite the large diaspora of South Asians across the world, the genetic similarities result in them being predominantly affected by non-communicable diseases (NCDs) such as heart disease, strokes, diabetes, cancers and respiratory diseases. For this reason, it is important to investigate how to operate healthcare and disease prevention for the South Asian race specifically.



Mr. Rahul Reddy, Apollo Hospitals Chair, session on South Asian Health Issues

South Asians have been found to be more susceptible to chronic diseases than any other population, being two times more likely to suffer a stroke or blood clot, three times more likely to develop diabetes and four times more likely to suffer a heart attack. There has also been found to be an increased prevalence of both hypertension and obesity in South Asians. A significant cause of prolonged suffering from these diseases is due to lack of awareness and poor uptake of

lifestyle modifications, with many patients not adhering to medications or seeking out support programs.

The importance of a patient's environment in their appreciation for physical activity, consuming healthy food, and their sense of community must be considered while developing healthcare programs for specific cultures. Innovations should be scalable and sustainable, using any existing community networks and the cultural practices of users. For South Asians, specifically, community functions should prepare meals that use healthier recipes, with an acute reduction in sugar.

Current segments ripe for improvement include the understanding of South Asians' specific health needs, evidence-informed healthcare programs, and community-based accountability systems. Developing activities for health literacy and exploring choice design can provide patients with a strong reasoning for leading healthy lives, and ensure future generations also lead healthy lives.

There is an ongoing shift in the prevalent type of disease in South Asia, notably in India, with healthcare systems seeing increasing numbers of NCD cases instead of customary infectious diseases. This can largely be attributed to the large economic and demographic shifts of recent decades. Richer and high calorie diets are often correlated with economic improvement, as are lower birth and death rates. Across South Asia there has and continues to be an obvious increase in per capita income, with the region's industrialization, urbanization and sedentary lifestyle. This has led to NCDs being a leading cause of deaths in recent years.

Several successful demonstration programs have been conducted in India and Canada, with a focus on the well-being of people of Indian origins in community settings and hospital-based settings. Such programs focused on dietary behavioural changes, health education, health coaching and medication adherence. The lessons learned from these demonstration projects must be scaled up at the regional and national levels to mitigate the growing epidemic of NCDs among South Asian population, be it in India or in Canada.

Local efforts to increase access to services must be supported to increase local healthcare capacity and develop community accountability systems. A large problem to be targeted in South Asia is the societal acceptance of unhealthy practices, like tobacco use, lack of physical activity and excessive consumption of alcohol. Altering societal responses to these practices could greatly reduce healthcare needs.

National targets to reduce NCDs have been set in Bangladesh, Democratic People's Republic of Korea, India, Maldives, Myanmar, Nepal, and Sri Lanka. These programs largely focus on the promotion of good health in all social settings, including at school, work, and the community at large. From target setting to implementation of best practices at the local, regional and national levels, health education and reasoning must be emphasized.

Since NCDs are new to South Asian healthcare systems, the changes that need to be implemented to properly combat NCDs require consistency from healthcare systems, allowing for robust responses. Larger budget allocations must be made by governments, to increase accessibility of essential drugs and innovative technology, as well as aid in the development of more healthcare professionals.



Panelists: Mr. Rahul Reddy, Mr. Rohit Kapoor, Dr. Arun Garg, Prof. J.S. Thakur, Dr. Naveed Mohammad

2. Distant and Rural Healthcare

Despite ever-accelerating urbanization in most countries, some nations still have as much as 70% of their population living in rural communities. Case in point, the rural population in Canada and India are, respectively, 18.7% and 70%. These communities can often be arduous to access and the logistics of healthcare and disease prevention becomes increasingly complex, requiring innovative and efficient solutions.

Telemedicine is the remote medical treatment of patients with the aid of telecommunication technology. Increasingly, this virtual healthcare is utilizing video communication and the internet. It brings accessible healthcare to those who live in isolated regions and/or those who find it difficult to physically visit a doctor. The reduction in physical visits results in less crowded waiting rooms, a lower transportation-related emission count and lower hospital costs. It is also useful for those who suffer from chronic diseases, as they can receive assistance regularly without investing large amounts of time, while allowing for their healthcare specialist to maintain a consistent awareness of the patient's condition.

Currently, major healthcare segments that are using telemedicine to the greatest extent are mental health, primary care, oncology, and emergency trauma. There are telemedicine initiatives in Ontario, Canada that monitor diabetes patients with home renal dialysis support, provide mental health support, and homecare for patients who are suffering or have suffered from heart failure, cerebrovascular stroke and lung disease (Ontario Telemedicine Network). As well, there are initiatives under development that focus on home palliative care, surgical transitions to home and addiction management. Telemedicine is expanding at a staggering rate, and there seem to be few healthcare segments that cannot take advantage of this modern system.

Most of the healthcare problems associated with rural healthcare can be solved with affordable services that are available on demand. A large segment of

rural people treat only their symptoms, ignoring the underlying problem, which eventually leads to a higher incidence of strokes, cardiac arrests, and high blood pressure. This exacerbation of illnesses leads to overcrowding in hospital emergency rooms and decreased quality of care. It also results in emergency rooms consuming more of a hospital's budget, and reduces spending on quality diagnostic facilities and specialized services. For these reasons, a telemedicine strategy that focuses on deploying mobile diagnostic centres to rural sites, which can instantaneously relay feedback to the patient's care giver for timely intervention, seems to be a viable strategy in addressing rural healthcare challenges.

Technology can also be leveraged in rural settings and developing nations, like India, to remedy problems that are not medically difficult but rather logistically difficult. Visual impairment is an example of such a situation. Nearly 80% of the 285 million visually impaired people are cases where impairment is avoidable with the right healthcare. However, with limited rural reach and high patient to doctor ratios, patients in developing countries are often not treated. The development of eye diagnostic technology that is affordable and does not require many constants can solve this problem. An Indian health technology company *Forus* has implemented such technology, while also utilizing telemedicine technology to connect patients with healthcare specialists who can operate from their offices. Solutions to largescale problems like visual impairment must be highly adaptable so that they can operate in several environments with minimal additional costs so that rural healthcare can be cost-effective and touch as many lives as possible. Such specialized low-cost but effective health care technology is ripe for introduction and use in Canada.

A success story of Canada-India collaboration in health innovation was presented by two NGO partners – Amar Seva Sangam (India) and HandiCare International (Canada). The project is entitled “Early intervention therapy for children with development delays in rural India”. The project was conceived by these two NGOs and received initial funding from Grand Challenges Canada for an initial pilot phase using mobile technology and cloud storage of data. Based

on the successful outcomes, which surpassed the estimated outcome measures (nearly twice the number of children below the age of 6 enrolled into the program at a more than expected adherence rate), Grand Challenge Canada continues funding to scale it up to the state level. This project has the potential to be rolled out to all parts of India. The program is cost effective, highly efficient and introduces more children to schools.

Another innovative presentation was the use of portable devices with IT solutions for doctor-independent monitoring of cardiac patients in rural India. This project clearly demonstrated the need for technologies that deskill and simplify care delivery; allowing care to reach communities and homes. The utility of technology, in this case, is driven by simplicity, accessibility and affordability. It provides solution to the need of the hour – systems & process innovation, supported by appropriate technological tools. This pilot-tested project- “Scalable preventive health: An example of process-driven design” – has a huge potential to save the lives of many rural patients across India.



Mr. V. Ponraj, Mr. K. Chandrasekhar, Mr. Sankara Raman, Dr. Ed Brown, Mr. Soura Bhattacharya

3. Wellness, Aging, Quality Care

More and more people are living longer. The life expectancy in Canada is 80.2 years for males and 84.1 for females and Canada ranks 12th in the world. On the other hand, India has made significant progress, more than doubling its population's life expectancy over the past 70 years since its independence in 1947 – 31 years in 1947 to 67 years in 2015. India ranks 125th position in terms of global life expectancy. However, India is facing a real health care challenge with a double burden of both infectious and noncommunicable chronic diseases (NCD).

With over 70% of Canadians living with an NCD or disability, it is apparent that innovations in the NCD relief sector would be greatly valued. Most chronic disease management systems involve a structured program, behavioural engagement and education about therapeutic approaches. The education aspect is particularly important as the general motivation for patients to adopt new lifestyle choices stems from their understanding of the danger chronic diseases can have on their lives. Creating educational material that is adapted to cultural contexts and presented in a variety of languages has led to larger scale adoption of prescribed lifestyle choices by patients and longer, healthier lifespans.

A significant chronic disease that often lurks is hypertension, which according to WHO is the leading cause of death for women today, with over 50% of US women over the age of 60 using anti-hypertensive medication. Hypertension puts a heavy dent on any healthcare budget. In Canada, it is estimated that 19 out of 20 Canadians that live an average lifespan will develop hypertension. In both Canada and India, 30% of adults have high blood pressure, which is four times more impactful in causing heart disease than high cholesterol.

Two out of three American patients do not have control of their blood pressure and cholesterol levels, while in Canada, 63% of patients do have control of their hypertension condition, the best rate in the world. Current approaches, using medical models, are clearly not working as well as intended, but it may

be possible to compliment the current medication cycle with other therapeutic approaches. The “Flaxpad trial” is the first to examine flaxseed’s effects on patients with cardiovascular disease. It saw significant reductions in both systolic and diastolic blood pressure levels, as well as a decrease in total and Low-Density Lipoprotein (LDL) cholesterol. The blood pressure reductions were the largest ever shown by a dietary intervention.

Current therapies are not completely effective, with about a 33% success rate in most high-income countries. Diet changes are generally cheaper than medication and have been shown to have a similar, if not better, effect with fewer side effects. The price point is important because it becomes accessible for Low-Middle Income (LMI) countries who are in dire need of relief.

Aging is often correlated with debilitation, resulting in elderly individuals feeling heavier health burdens and yielding diminishing contributions to society as time progresses. This creates a stigma centered around aging that does not necessarily need to exist. The promotion of healthier lifestyle choices can reduce the impact of aging on health, reducing age related health costs and improving seniors’ quality of life. Specific issues concerning seniors’ health are an unbalanced diet, being injury-prone, arthritis and unsound mental health. To combat leading causes of senior deaths, systems that provide social interaction, family support, medical supervision and ease of access to healthcare are integral. The large cost of these systems often make them untenable in Low and Middle Income nations, leaving the sector ripe for innovative and affordable solutions.

Overall, societies are aging. While aging is a major problem in Canada, it is estimated that at least 100 million Indians are over the age of 65. Currently, India’s elderly-care infrastructure is primitive, and will require significant investment to handle the coming wave of senior patients. It is important to begin investing in the future as soon as possible, as returns on investment are positively correlated with time in healthcare. The introduction of key programs and systems that can aid in prevention of chronic diseases will save billions of dollars in a short period, as they eliminate or stymie these diseases.

As diabetes prevalence increases worldwide (around 350 million), there is a significant proportion of Indians are affected by diabetes (75 million), making India the leader in diabetes epidemic. 60–70% of diabetics have foot neuropathies, 25 % of diabetics have foot ulcers and 25 % of patients with foot ulcers require amputations. Diabetes is the leading cause of non-traumatic Lower Extremity Amputation (LEA) and foot ulceration is the precursor to about 85% of LEAs in Diabetics. The Indian Podiatry Association has developed methods to prevent LEAs with evidence-based methodology and conducts regular ‘diabetes foot workshops’. Such educational skills need to be propagated throughout India and also in Canada to prevent many diabetic patients losing their leg(s).



Dr. Grant Pierce, Dr. Paul Oh, Ms. Cynthia Hastings-James, Dr. A.P.S. Suri,
Prof. V.V. Muthusamy, Dr. Rajeev Manhas

4. Investment in Healthcare

As an ever-growing industry, healthcare consistently provides lucrative investment opportunities that will result in large capital gains as well as increased benefits for those in need of innovative relief. The bevy of possible investments results in investors being able to easily find the opportunity that fits their situation perfectly.

Per the Bain Corp Private Equity report from 2016, global venture capital and private equity firms are increasingly investing in Indian Healthcare, with nearly \$1,600 million USD invested in 2015. Nearly 50% of that investment was into a booming Indian pharmaceutical industry. The same report also rated healthcare investment as being the most attractive sector for investment over the next two years, with a hypothesized growth of the Indian healthcare market to \$300 billion USD by 2020.

India has about 21% of the world's disease burden, and 60% of global cardiac patients, rendering it a market rife with demand. Coupled with India being the third largest pharmaceutical market in the world, possessing over 100 US FDA approved plants, India has the ability and infrastructure to match this demand.

Outside of the pharmaceutical market, Indians noticeably pay for 70% of healthcare expenses out of pocket, presenting insurance firms with a massive untapped customer base. Some predictions put insurance penetration of the Indian population at 45% by 2020. With ever-growing hospital accessibility, the Indian healthcare sector will certainly see a rise in usage and development in coming years.

Collaborations with Canada also give India the opportunity to invest in Canadian firms and technology. In the province of Ontario specifically, healthcare research and technology development is expanding rapidly, with a highly-

educated workforce and competitive tax environment. In fact, Ontario's GDP is larger than numerous countries, including Switzerland, Belgium and Sweden, while simultaneously boasting lower business costs than the United Kingdom, Germany and the United States of America. Ontario's life sciences sector exported about \$8.3 billion CAD in goods in 2014, employing over 60,000 individuals. With 51% of Canada's life sciences research funding being allocated to Ontario, into areas like cancer, neuroscience, stem cells and gene therapy, this region is flush with all attributes necessary for success and presents a fantastic investment opportunity.



Ms. Kavitha Subramanian, Mr. Arvind Vijh, Ms. Srividya Jagannathan



Mr. Anil Shah, National Convenor, CIF, opening the second day of the Summit

5. Pharmaceuticals and Medical Equipment

Even with massive advancements in disease prevention the healthcare systems the world must often rely on medication for short and long term relief. However, the ease of access to medication is decreasing, as the cost of pharmaceuticals rises to unaffordable levels in many countries. Strategies aimed at combatting these rising prices must combine developing greater diagnostic technology and promoting preventative measures, while also assessing medical co-development opportunities.

The world has seen a significant evolution of the pharmaceutical market in the last few decades. Initially, before the 1980s, there was little market penetration and progress was dominated by innovators and new firms. Over time, manufacturing processes have consistently gained in affordability, leading to largescale market penetration and unprecedented access to medicine. Currently, India possesses 10.0% of the volume share of the global pharmaceutical industry, developing 60% of the world's vaccines and 20% of the world's generic medication. In the coming years, India's pharmaceutical companies will play a

large role in defining the global market as they expand their international reach and infrastructure. With the right collaborations between government and industry, India will have the manufacturing capacity and intellectual property to be an influential contributor in global strategic alliances.

Increased health of a population is generally the result of a marriage between pharmaceutical access and public spending on medical services and diagnostic processes. Diagnostic processes aim to detect health risks or health problems at an early stage, which vastly improves the possibility of a smooth return to full health. Healthcare spending on preventative measures and health education can greatly reduce total healthcare costs and infrastructure stress at later dates.

However, India's global rank in doctor to citizen ratio and health spending to GDP ratio are middling at best. Particularly, the states of Rajasthan, Uttar Pradesh, Madhya Pradesh and Bihar are among the worst performers. With an ever-rising tide of Non-Communicable Disease (NCD) patients in India (40% of hospital stays and 60% of deaths in India are due to NCDs), investment in preventative medicine and pharmaceuticals is compulsory. Turning to technology may be the key to solving India's crisis, as digital monitoring and telemedicine products can increase productivity, accessibility and efficiency. Using digital innovation to augment existing infrastructure could allow India to improve its healthcare system, while also providing its technological and pharmaceutical firms room for vast growth.



Mr. Ramesh Chotai, Mr. Rav Kumar, Mr. Vishwanath Swaup

6. Digital Health

The digital evolution of health is well underway, creating more accessible systems for patients and healthcare professionals while creating and delivering upon a new set of expectations. Increasingly, firms are accounting for these changing expectations by investing in their customer's experiences, specifically developing custom experiences for each user. In relation to healthcare, there is a clear trend in developing healthcare technology that transcends traditional practices, with substantial strides being made in proactive treatment, unique user experiences and the ability to constantly update healthcare technology.

With the advent of the digital world, data pertaining to patients has exponentially grown. Most individuals now carry powerful smartphones, which are excellent data collectors, storing information about eating and exercise habits, lifestyle conditions, and daily tendencies. The ubiquity of smartphones has also made it incredibly simple for patients to consult with healthcare professionals via teleconsultation on a regular basis. Increased contact with healthcare professionals has been shown to be a powerful method of proactive medical care, as lifestyle choices can be evaluated regularly.

The largescale digital data capture concerning patients' lifestyles also presents a unique opportunity for incredibly detailed epidemiology, which in turn allows for very precisely-targeted healthcare policy and innovations. Currently, more than 90% of healthcare data is drawn from hospitals, where less than 10% of healthcare happens. The other 90% of healthcare occurs in settings like clinics, where little to no data concerning interactions is recorded, as it consumes time that can be used to deliver medical care. Due to this, there is a substantial amount of the healthcare portrait missing, namely the quality of care delivered, and the efficiency of every dollar being spent on healthcare. The lack of feedback and guidance for healthcare providers results in poor practices not being stymied, while effective practices are not further encouraged.

A key point to be made concerning this digital revolution is that personal data must be safeguarded in secure enclaves, so that personal privacy can be maintained. If systems are built with these concerns in mind, digital growth could result in a massive leap in healthcare efficiency and effectiveness.

Utilizing live, recent data is essential in promoting digital health in the future, as it develops accountability and provides a unique, calibrated framework for each patient, increasing healthcare efficiency and investment returns. Algorithms and feedback loops can be leveraged to manage chronic diseases and automate routine healthcare tasks. There is a clear benefit to be derived from digital innovation and application in the healthcare sector, if policies are designed with progressive stances and security issues are properly minimized.

Digital Health is an area for a strong collaboration between Indian and Canadian entrepreneurs. The advanced systematic data collection and a decade long investment in e-health and e-health records in Canada is primed to harness Big Data. Unsurpassed digital information technology capabilities in India with a focus on health and medical technology, allow Indian scientists and technologists to create a synergy in advancing Digital Health by working closely with their Canadian counterparts.



Mr. Sridhar Mosur, Dr. Sunil Chacko, Mr. Sanjay Tugnait, Mr. Vijay Thirumalai, Mr. Annamalai Radhakrishnan, Dr. Michael Greenberg

7. Healthcare Research and Innovation

Healthcare research is the bedrock upon which innovations, increased accessibility and lower medical costs are built. It is for this reason that investing in healthcare research is integral to the development of medical infrastructure and overall progress. Additionally, employing logical strategies when choosing which research to fund is vital in achieving tangible and productive results that can be applied to current systems.

The India–Canada Centre for Innovative Multidisciplinary Partnerships to Accelerate Community Transformation and Sustainability (IC–IMPACTS) is a Research Centre of excellence that aims to identify solutions to the healthcare challenges that Indian and Canadian communities currently struggle with. It is largely centered around research development, community engagement and the mobilization of knowledge, as it investigates situations pertaining to safe and sustainable infrastructure, integrated water management and public health. They have experienced great success, developing sturdier and cheaper pavement, implementing more affordable water treatment systems and reducing wait times for tuberculosis treatments by up to 93%. Their forward–facing and perceptive research–funding strategies have largely transformed communities, and are a testament to the returns that research investment can wrought.

A large problem that looms for healthcare is water safety for Low and Middle Income Countries (LMIC). Water being essential to human survival, any threat to its existence must be considered seriously. Currently, 54% of India faces high water stress, with about 25% of India’s districts facing fresh water turning saline and 42% of districts testing for excess iron content in their water. The combination of these factors has led to 42% of urban homes and 60% of rural homes in India lacking access to safe drinking water. By collaborating with Canadian *Process Research ORTECH*, the Indian firm *Eureka Forbes* has developed and tested water filtration systems that has achieved ground–breaking pollutant removal. As such systems become increasingly affordable, the benefits of

investment in this type of research are realized, and can impact large swathes of the population.

Overall, research endeavours should strive to be global, with local input, and develop innovative approaches to health care services that can be adapted to unique environments. Cultivating systems with genetic diversity, large numbers of patients and confidence in research can result in largescale solutions to pervasive healthcare problems.

Both Canadian and Indian health researchers have incredible opportunities to access funding from their respective national health and medical research councils. Increasingly, the two governments' agencies are working closely to initiate joint funding opportunities. The Canadian Institutes for Health Research (CIHR) established partnership opportunities with its counterpart, the Indian Council of Medical Research (ICMR), as well the Indian Department of Biotechnology (DBT). As innovations in health and medicine cross multiple boundaries, it is time to seek out collaborations in other jurisdictions such as engineering, agriculture, energy, finance and others, in a multi-sectoral approach.



Mr. Barj Dhahan, Dr. Ron Heslegrave, Dr. Sadhna Joshi, Mr. Uday Gokhale, Dr. Malay Sharma

8. Healthcare Policy

Creating an equitable healthcare system requires a commitment to cultivating accessibility, availability and affordability. These societal commitments are physically cemented through the development of healthcare policy that dictates the parameters of achieving a society's goals. Investing in sound policy development allows for efficiently-built infrastructure and maximized investment value.

In high-income countries (HICs), a lack of efficiency is resulting in unsustainable healthcare spending, but has ensured ease of access, low cost to individual patients and quality of care. Conversely, low-income countries (LICs) suffer from access challenges, while spending significantly less on healthcare. When attempting to develop a sustainable system, countries must weigh their options and choose solutions that best fit their demographics and problems. Deciding whether to focus on communicable or non-communicable diseases, employing curative or preventative medicine, which segment of the population should have healthcare coverage, the government's role in healthcare, weighing the balance of cost and access, and which innovative research should be invested in are amongst the numerous facets of healthcare policy. Within this bevy of options, lies an optimal solution for a specific population. After deciding what a country's priorities are, it is possible to determine what infrastructure should be implemented and a general outline of an ideal healthcare system.

India, as a nation, has a particularly wide range of healthcare situations across its environs, a testament to the lack of consistency in infrastructure development and funding. Additionally, the wide range of healthcare situations can be partially linked to India's extremely stratified income classes, and widely variant health insurance penetration, as less than 10% of India's middle class is covered by a health insurance plan. With NCDs estimated to cost India \$6.2 trillion USD by 2030, annual economic growth can only be protected by investing in policies focused on healthcare development. Additionally, increased primary care for NCD patients in HICs has been shown to drastically reduce NCD mortality

rates, reducing healthcare system stress. In fact, it has been shown that prevention and early diagnosis are the most affordable ways to control NCDs.

A movement towards a single payer system can also reduce the economic stress of an accessible healthcare system, as it reduces pharmaceutical costs and encourages preventative practicing of healthcare. A single payer system also brings consistency and structure to the healthcare system, increasing efficiency and accessibility, while removing variance via standardization.

In 2017, a proposal for universal health coverage in India was introduced; National Health Policy 2017. This proposal centered around certain facets of healthcare delivery, namely healthcare priorities, spending effectiveness, accessibility and accountability. The proposal draws heavily from past domestic and international lessons, keeping key elements from past policy while expanding underdeveloped sectors such as pharmaceutical and medical technology innovation, implementation of information technology and professional development of healthcare personnel. The policy will be funded through a proposed increase in health expenditure, rising from 1.15% of the GDP to 2.5% by 2025. Despite this increase, public and private sector health expenditures combined still represent less than 5% of the GDP, resulting in the continuance of out of pocket expenditures for citizens.

By working with nations like Canada, India can adopt some of the best practices of a single payer healthcare system, while collaborating to develop innovative solutions to problems that beset both countries. Developing a healthcare system that must take care of 1.2 billion people is not a simple task, and all assistance and advice should be considered, in the hopes of alleviating some of the healthcare system's stress.

Both health care and health care research must be practiced under the strictest of ethical principles. All human lives are equal and precious. The guidelines in this Policy are based on the following three core principles which are complementary and interdependent:

- **Respect for Persons:** The principle of Respect for Persons recognizes the intrinsic value of human beings and the respect and consideration that they are due. The essence of this principle is that it is unacceptable to treat individuals solely as means (mere objects or things) to an end (a research goal); the welfare and integrity of the participant must take priority over all else in human research.
- **Concern for Welfare:** The principle of Concern for Welfare recognizes that research participation can affect the welfare of an individual or group in many ways; respecting the principle of Concern for Welfare means doing your best to ensure that participants are not exposed to unnecessary risks.

Justice: The principle of Justice refers to the obligation to treat all people fairly and equitably; **Fairness** is treating all people with equal respect and concern for their welfare – it does not necessarily mean treating everyone the same. **Equity** involves the distribution of the benefits and burdens of research participation; no segment of the population should be unfairly burdened with the harms of research; no individuals or groups should be neglected or discriminated against in the opportunity to benefit from knowledge generated by research.

Mr. Karan Singh, speaking at the Healthcare Policy session.



Dr. Bram Ramjiawan, Dr. Natesan Chidambaram, Dr. Anupam Sibal

9. Going Forward

Global progress can only be achieved via every nation participating and collaborating in paving the path towards a very tangible future. The forum of the United Nations is a powerful tool in organizing such efforts, and generating visions and goals to strive towards. A segment of this vision is known as the ***Sustainable Development Goals*** (SDGs), which can only be achieved via the sharing of knowledge and data, the expansion of healthcare capacity and accessibility, and broad innovation throughout many different sectors. Amongst these desires, is the call for political accountability in achieving these goals in a timely and relevant manner. The formation of the *World NCD Federation* (WNF), an advocacy NGO, is an example of an organization that can monitor, advise and guide global progress.

The National Health Policy of 2017 promises to establish the necessary platform for India to develop a fully-fledged universal healthcare system in the future. The commitment to increase governmental healthcare expenditure from 1.15% of the GDP to 2.5% by 2025 is auspicious and will help fund the expansion of preventative, promotive, curative, palliative and rehabilitative health services throughout the country. This investment will feed innovation and beget further healthcare progress.

The information technology aspect of this policy will focus on developing a central healthcare network, allowing for ease of access to health information. It will be accessible by both public and private healthcare services, encouraging a strong relationship between the government and the private sector. To develop a successful system, the Indian government will rely on Indian firms further developing domestic manufacturing of medical technology at an affordable price point.

In Canada, current healthcare initiatives include promoting nutritional education, a focus on mental health, increasing pharmaceutical product affordability, and investing in health innovation. The Canadian Institutes of

Health Research (CIHR) focus on advancing these efforts through the creation of quantitative research evidence. The emphasis on informed decision-making is key to developing efficient and sustainable processes.

Apart from a domestic focus, Canada also turns to its international allies for collaboration. Currently Canada is working with the WHO, India, South Africa and China on the Healthy Life Trajectories Initiative (HeLTI), a program designed to generate the evidence necessary to inform public decision making concerning NCDs. Additionally, Canada is part of the Global Alliance for Chronic Diseases (GACD), a fourteen-nations-strong group that also focuses on relieving the burden of NCDs. The international focus of these projects has accelerated learning and development, leading to faster, more impactful changes and results.

Specifically, between Canada and India, there are numerous opportunities for partnership in research investment, product design and infrastructure development. The ability to leverage existing free trade agreements, and offer proven expertise and competitive costs is another boon that will only speed the fruits of any collaborations with Canada. Ontario, particularly, is home to world-renowned research centres that develop products and medical devices that meet the strictest of global regulatory standards. The Ontario Ministry of International Trade is also willing to help develop Ontario's export capabilities, provide advocacy services and identify market opportunities. In an era of unprecedented globalization, a nation's greatest steps forward will only arise when in concert with its boundlessly dedicated partners.



Mr. Akhil Tyagi, Dr. Arun Chockalingam, Ms. Kavita Narayan, Dr. Robyn Tamblyn, Dr. V.I. Lakshmanan, Mr. Ramesh Chotai



Mr. Ramesh Chotai, Co-Chair of the Summit giving the Vote of Thanks

SUMMIT RECOMMENDATIONS

The following SIX areas are ripe for collaboration. Investments – both intellectual and financial – are encouraged to harness the full potential of finding most beneficial outcomes.

1. **Rural and distant health**: Even though the percentage of population living in rural areas is different between the two countries (70% in India and 18.7% in Canada), the challenges of health care deliveries are similar. The specific areas are: (a) diagnosis, prevention treatment and control of noncommunicable diseases such as heart disease, stroke, cancer, chronic respiratory disease and diabetes which affects people of all ages; (b) health of seniors, including palliative care.
2. **Healthcare Innovation**: The five broad areas where country-to-country action was important to promote innovation and enhance both the quality and sustainability of healthcare are:
 - a. patient engagement and empowerment
 - b. health systems integration with workforce modernization
 - c. technological transformation via digital health and precision medicine
 - d. better value from procurement, reimbursement and regulation
 - e. industry as an economic driver and innovation catalyst.

It is understood that the two countries are at different economic levels. It would be quite apt to look at ‘frugal innovation’ to make the healthcare affordable to people of all economic strata. India’s capability to produce generic drugs at a relatively less cost compared to brand name drugs will help lessen the healthcare burden in Canada.

3. **Tele-health**: Tele-health involves the distribution of health-related services and information. Distribution is via electronic information and telecommunication technologies. It allows long distance patient/clinician contact and care, advice, reminders, education, intervention, monitoring and remote admissions. As well as providing distance-learning; meetings,

supervision, and presentations between practitioners; online information and health data management and healthcare system integration.

There is a synergistic opportunity to combine Canada's expertise in tele-health/tele-medicine with India IT sector skills and expertise.

4. Public health integration in primary care: Primary care and public health presently operate largely independently, but have complimentary functions and common goal of ensuring a healthier population. By working together, primary care and public health can each achieve their own goals and simultaneously have a greater impact on the health of populations than either of them would have working independently. Each has knowledge, resources, and skills that can be used to assist the other in carrying its role. They should be viewed as “two interacting and mutually supportive components” of health system designed to improve the health of population

5. Traditional versus alternative/indigenous treatments and medicines: Alternative and traditional medicine have a great deal to learn from each other. NIH defines alternative medicine as a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional/traditional/**Western** medicine.

While Western traditional medicine has existed for only a few hundred years, **Indian traditional medicine** has existed for thousands of years and is continually practiced throughout India, mostly lacking documented evidence-based theory, in different forms (AYUSH – Ayurveda, Yoga, Unani, Siddha and Homeopathy) and it works at a fraction of the cost of Western medicine.

Alternative medicine share the following characteristics:

1. Empowerment of the individual to participate and take responsibility for his/her own health.
2. Recognition and emphasis on lifestyle issues, such as proper nutrition, exercise, adequate rest, and emotional and spiritual balance.

3. Treatment of the individual as a whole person, as opposed to series of parts, and
4. Emphasis of preventing disease and maintaining health and
5. It is cost effective.

India has a lot to offer through Yoga and Ayurveda and other elements of traditional Indian medicine.

6. Health Information Technology: Use of hospital, clinic and community based data as sources of “Big Data” to develop health care policy.





About CIF

Canada India Foundation (CIF) was formed in 2007 as a non-government, non-profit, non-partisan public policy organization with three main objectives: Fostering support for ties between Canada and India, Raising the profile of the Indo-Canadian community, and increasing the awareness of the changing face of India. The membership of CIF is made up of high achieving members of the Indo-Canadian community.

Towards the development of a public policy focus on Canada and India, CIF has been organizing, since 2009, thematic public policy forums highlighting opportunities, challenges and joint strategies in specific sectors of importance to the two countries. CIF organized the Canada India Energy Forum in 2009, Mining and Metals Forum in 2010, Agriculture and Food Processing Forum in 2012, Infrastructure Forum in 2014 and Healthcare Summit in 2015. All these forums were held in Canada, in Toronto, Vancouver, Saskatoon and Ottawa. While each of these forums was on a distinct theme, the feedback from the last one, the Healthcare Summit in 2015, encouraged us to organize our first such event in India, the Canada India Healthcare Summit in New Delhi. It was also the first major event CIF has organized in India. Held over a period of 2 days and featuring over 50 speakers, each forum culminated in the development of a report, containing set of sector-specific public policy recommendations, which were then presented by CIF to both the Canadian and Indian governments. It is now our great pleasure to present the Report and Recommendations of the Canada India Healthcare Summit 2017 held in India.

CIF is also proud of being one of, if not, the first diaspora organization to institute the Global Indian Award, highlighting success of the global community of Indian

origin and to recognize one special individual, who symbolizes that success and thereby makes the entire diaspora proud. Past recipients of this honour include Sam Pitroda, Tulsi Tanti, Ratan Tata, Deepak Chopra, Narayana Murthy and Dr. Subhash Chandra. We are delighted that globally renowned Yoga and healthcare guru, Baba Ramdev, is the recipient for 2017 CIF Global Indian Award and will be accepting it at the Award Gala on June 26, 2017 at the International Centre in Mississauga.

Apart from these signature events, CIF also runs a Speaker Series, organizes a popular Golf Tournament and continues to engage, on an ongoing basis, with policy makers at the national and regional levels of government in both countries, including the Canada India Parliamentary Friendship Group. We believe that our activities will build a favourable mindset towards a strong and strategic Canada-India intergovernmental, trade and people to people relationship based on shared values and vision and in tune with our motto, "Democracies Working Together".

Canada India Healthcare Summit 2017 : CIF Organizing Committee:

Chair Dr. V.I. Lakshmanan, CEO, Process Research ORTECH Inc., Canada

Co-Chair Mr. Ramesh Chotai, President, Bromed Pharmaceuticals, Canada

CIF Chair Mr. Ajit Someshwar, CEO, CSI Group of Companies

CIF National Convenor Mr. Anil Shah, CEO, Ni-Met Metals

Member Mr. Satish Thakkar, CEO, Excelsior Financial Group, Canada

Member Mr. Vijay Sastry, CEO, The Kotamarti Group, Canada

Member Ms. Kiran Hirpara, Unique Broadband Systems, Canada

Member Mr. Hari Gautam, CEO, Grintex Canada

Member Mr. Jay Minhas, CEO, Elegant Development, Canada

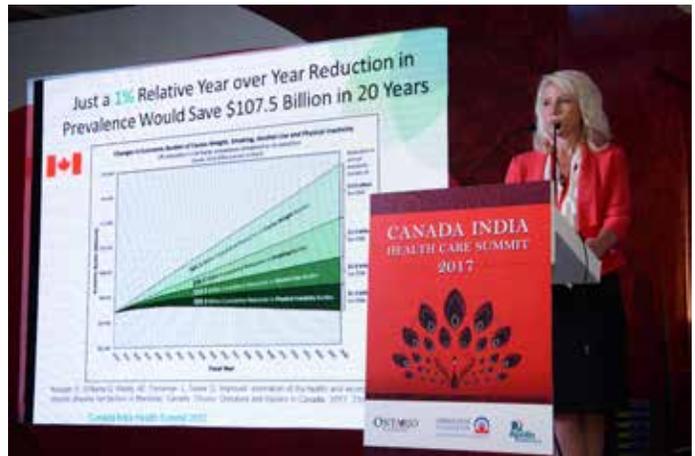
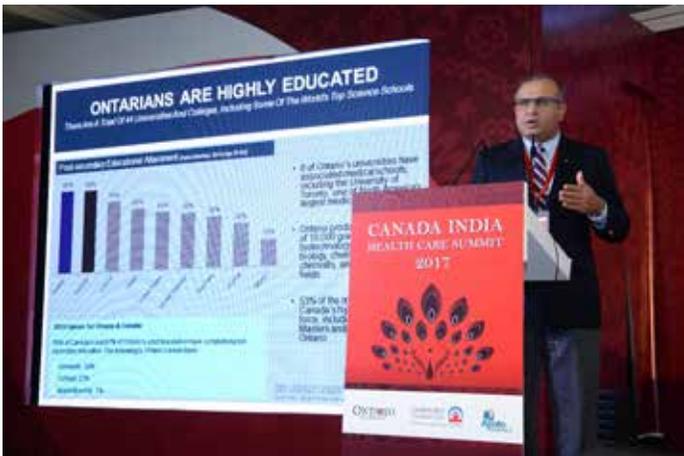
Member Mr. Sarup Mann, CEO, Ansatel Communications, Canada

For more information : www.canadaindiafoundation.com









ONTARIO

Ministry of International Trade
International Trade Programs Division
Export Services Branch
900 Bay Street, Hearst Block, 5th Floor
Toronto, Ontario M7A 2E1, Canada
www.ontarioexports.com

Akhil Tyagi
Area Director, South Asia
Akhil.Tyagi@ontario.ca
+1-416-327-2371

The Export Services Branch of the Ministry of International Trade assists Ontario companies to access international markets by establishing partnerships and distribution channels, and by providing assistance to foreign parties interested in sourcing Ontario products, technology and services.

International buyer looking to source goods or services from Ontario, visit:
SourceFromOntario.com
Ontario Company wishing to grow export business, visit: OntarioExports.com

Ontario International – New Delhi/Mumbai Trade & Investment Office

c/o Consulate General of Canada,
21st Floor, Tower 2, Indiabulls Finance Centre, Elphinstone Road, Mumbai, India

and

.....
c/o High Commission of Canada,
7/8 Shantipath, New Delhi, India

Ravikant Tiwari
Trade Commissioner (Ontario)
Ravikant.Tiwari@international.gc.ca
+91 (22) 6749-4495

Sheena Chacko
Commercial Officer-Ontario
Sheena.Chacko@international.gc.ca
+91 (11) 4178-2632

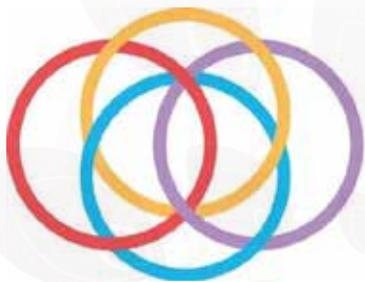
Ontario's International Trade and Investment Offices in New Delhi and Mumbai help build strong commercial and economic relations between Ontario and India by promoting and facilitating exports and services from Ontario, building awareness of Ontario's competitive business environment among investors, and facilitating international research and commercialization partnerships with Ontario institutions.



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