We are proud to share with you this interim report on the impact of The Campaign to Cure Arthritis. It has been an exhilarating experience over the past three years. We are very pleased to announce that the Campaign has successfully reached $35 million – a substantial increase over our original goal of $25 million! This exceptional achievement could not have been made possible without the generous support of our donors and our doctors who demonstrated their support through personal pledges.

Under the direction of Dr. Nizar Mahomed and his team of renowned clinicians and researchers, significant progress has been made to create a world-leading centre for the research and treatment of arthritis. In fact, Toronto Western Hospital has now received approval from Health Canada to conduct the first mesenchymal stem-cell trial for arthritis in North America. We anticipate that the trial will commence in early 2015.

On behalf of the staff, researchers, our patients and their families, thank you for your continued support in making the Arthritis Program the premier multidisciplinary program for the treatment of arthritic diseases in Canada.

Bryce Douglas

Anthony S. Fell
WE BUILT A HOME FOR ARTHRITIS RESEARCH DISCOVERY

In 2013, we celebrated the opening of the Buchan Arthritis Research Centre in the Krembil Discovery Tower – an innovation hub for arthritis discovery! Thanks to a landmark donation from Tina Buchan and the Buchan Foundation, the Buchan Arthritis Research Centre provides the physical environment for breakthrough research in the many forms of arthritis. It also fosters collaboration between the laboratories and the clinical community at Toronto Western Hospital. This is instrumental in developing ground-breaking new treatments – and, ultimately, a cure – for diseases such as osteoarthritis, psoriatic arthritis, ankylosing spondylitis and lupus.

WE RECRUITED TOP INVESTIGATORS

Scientific talent is the engine of discovery research and with the support of our donors, the Arthritis Program recruited two new star researchers:

**Dr. Mohit Kapoor:** Bringing all the basic arthritis research streams together, Dr. Kapoor and his team conduct molecular profiling in order to understand the mechanisms of cell death and survival in articular cartilage. His team is also involved in testing new preclinical agents as well as cellular therapies such as stem cells in models of osteoarthritis.

**Dr. Jas Chahal:** With a special interest in biologics and cartilage restoration, Dr. Chahal is finding new treatments for cartilage repair. An orthopaedic surgeon scientist, he is evaluating the benefits of introducing a patient’s own stem cells back into a joint affected by osteoarthritis. This project assesses whether it can lead to reduction of inflammation and improvement of mobility.
Early diagnosis

- Dr. Mohit Kapoor and his team have identified key microRNA as potential osteoarthritis biomarkers. He has also identified proteins that effect the formation of scar tissue which will help the team develop ways to counteract this response.

- Arthritis researchers are working with a computational biologist who has particular expertise in computer models of disease. Through this collaboration the team has already identified three biomarkers found in patients with early-onset osteoarthritis.

New treatments

- Health Canada has given approval to Toronto Western Hospital to conduct the first mesenchymal stem-cell trial for arthritis in North America. The researchers are looking to first and foremost demonstrate that the stem-cells are safe, but will also be looking for any improvement in the symptoms of osteoarthritis, the most common form of arthritis. The research will study mesenchymal stem cells (which are multipotent stromal cells that can differentiate into a variety of cell types, including: bone cells, cartilage cells, and fat cells) after they have been injected into the patient's knee.

- The Arthritis Program has initiated a collaboration with a South Korean pharmaceutical company, Medipost, to further evaluate the use of a therapeutic agent which uses umbilical cord blood stem cells as a potential treatment.

Personalized arthritis care

- We have made significant progress with the expansion of our biobank to store tissues, blood, urine, collected both pre- and post-surgery. This data will be used to identify patients’ response to treatment.

- Dr. Christian Veillette and his team have enhanced the data capture platform to enable the capture of patient input using iPads. The system handles the administration of the management of an arthritis cohort and matches clinical outcomes data with biobank samples. This system has been adopted by other divisions within UHN as well as other hospitals and has become a source of revenue for the program.

- A current study is underway shedding light on why men and women respond differently to mesenchymal stromal cells. This will help target treatments to be more effective depending on gender.

- We are integrating the use of smart technology to monitor patients during their rehabilitation phase. This technology will track how patients are doing by gathering data on physical activity levels, mobility and sleep quality.

Prevent, treat and cure arthritis

- Dr. Rajiv Gandhi and team are finding the link between osteoarthritis and metabolic syndrome. The pathways linking obesity to osteoarthritis overlap with other problems such as hypertension and other conditions. This will help in prevention and treatment.

- Our orthopaedic surgeons have tested improved biomaterials, leading to improved surgical outcomes. These new materials have proven effective in hip replacements by ensuring the “hip stem” stays in place.

- We have been successful in reducing the incidence of post-surgical complications such as urinary tract infections and delirium.

Change the arthritis health care model

- We are making progress in adopting strategies to reduce wait times for chronic back pain treatment. Under the direction of Dr. Raj Rampersaud, a pilot project to use advanced practitioners to assess back pain is showing promising results. It has already reduced wait times and has eliminated duplication of diagnostic tests such as MRIs. This model has been adopted by other specialists in the treatment of ankylosing spondylitis. Plans are underway to expand this model to other joint diseases.
WHAT WE ACCOMPLISHED: (continued)

WE CREATED SUSTAINABILITY BY LEVERAGING DONOR DOLLARS

✓ We attracted CIHR funding which has enabled us to secure grants from other non-government granting agencies.
✓ We have increased the number of peer reviewed published articles.
✓ Our industry collaboration is providing a source of revenue to advance clinical research.

WE BUILT AWARENESS ABOUT THE EXCELLENCE OF THE PROGRAM

Media outreach

✓ The National Post published an article interviewing Dr. Nizar Mahomed on future directions in osteoarthritis research.
✓ Dr. Mahomed made a special appearance on Canada AM to discuss collaborations between the Arthritis Program and the McEwen Centre for Regenerative Medicine in the area of cartilage repair through stem cell therapy.
✓ A video highlighting the vision of the Arthritis Program featured Dr. Wayne Marshall who strongly stated the case for arthritis research support.

Special events

✓ The Campaign to Cure Arthritis was launched with a special visit by Her Royal Highness, The Countess of Wessex who visited clinical staff, patients and donors. She also thanked the Buchan Foundation for providing the lead gift of $5 million to launch the campaign.
✓ A spectacular evening at the Carlu was the setting for a tribute to Campaign Cabinet Member Dr. J. Bernard Gosevitz. High profile guests included former Prime Minister Brian Mulroney. Proceeds support the newly created Dr. J. Bernard Gosevitz Chair in Arthritis Research.

Public awareness

✓ We increased visibility of The Campaign to Cure Arthritis at Toronto Western Hospital through large format banners and wraps on the UHN Shuttle Bus.
✓ We launched a semi-annual newsletter highlighting clinical and research advancements within the Arthritis Program.

For more information, please contact:

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