

## HOW CAN WE SOLVE SOME OF THE GREATEST PROBLEMS IN OUR HEALTH SYSTEM?

The O'Brien Institute for Public Health's W21C Research and Innovation Centre at the University of Calgary is creating powerful solutions to *make care better* for our communities.

The cost of our health care system is not sustainable in its present state. The high incidence of chronic disease in society, along with the high cost of delivering health care, means spending will continue to increase as our population ages.

However, we have many opportunities to improve our health system, and to take better care of our families and communities.

**W21C is poised to help solve these problems.**

W21C focuses on improving the efficiency, quality, and safety of health care systems. For over 17 years, W21C has worked in partnership with health care providers, patients and families, academics, non-profit and government organizations, entrepreneurs, industry, and policy makers to initiate, test, and improve tools and systems for better health care by:

- Finding ways to reduce the spread of COVID-19 and other infections in hospitals and our communities
- Evaluating and enhancing the design of hospital spaces or medical devices.
- Exploring innovative ways to age-in-place and provide care in people's homes, rather than in hospitals or clinics
- Understanding the impact of new digital health technologies to patients, their families, and providers

With our 'Living Laboratory' (the only one of its kind in Canada) located in Calgary's Foothills Medical Centre, we can identify challenges in the health system, and test and solve problems right at the frontlines of patient care.

Through our work we can ensure that innovations are addressing system needs, to help the right people, in the right places, at the right time.

### **Building better spaces to provide care**

Over the years, W21C has collaborated with several health care authorities in Canada to evaluate the design of hospital patient care spaces. W21C Human Factors researchers work with health care providers, patients, and their families, to interact in a variety of scenarios in these spaces. From a simulated medical emergency to a patient navigating their room, these scenarios help us to understand how to design spaces for the people using them, rather than trying to modify our behaviours to 'fit' in with the rooms we work in. Human Factors

research enhances safety for both providers and patients.

In Calgary, this work can be seen at the South Health Campus hospital in Calgary. In partnership with Alberta Health Services, our research provided design and usability changes that affected over 900 rooms and resulted in millions of dollars of estimated cost savings during hospital construction. We have also worked with the Vancouver Coastal Health Authority to test and design care delivery spaces in the Vancouver General Hospital to improve workflow and safety

in operating rooms. This was done by providing design recommendations on space usage and equipment access to best suit the use of the space and enhance patient outcomes.

### Bringing patients, family, and providers first

The pandemic continues to test our resolve, posing restrictions on who we can see, what we can do, and where we can go. For family caregivers to people living with dementia at home, in long-term care or supportive living facilities, the pandemic has not only isolated them, but the critical care resources and social support systems they rely on have also been cut or dramatically reconfigured. In Calgary, there are more than 200 Calgary area residents that look after people living with dementia. A study led by University of Calgary researchers in the Faculty of Nursing and Cumming School of Medicine with support from W21C, explored understanding the impact of the pandemic to these caregivers. The survey, funded by the Alzheimer Society of Calgary and conducted during lockdown, highlighted the burden of COVID-19 policies on caregivers and their inability to support their loved ones.

For Sheena Bates the pandemic has been very isolating. A full-time family caregiver at home for her husband, Paul, who lives with dementia, Sheena assists him with tasks such as dressing, showering, shaving, and toileting. Before the pandemic, Paul attended adult day programs, and together they would participate in conversation cafés and other meetings for family caregivers and their partners. They also received a few hours of respite care each week. COVID-19 halted all these supports.

The feedback from caregivers through this study has allowed the researchers to provide several policy recommendations to enhance community supports: maintaining tailored caregiving supports

and resources; providing clear, correct, and concise information on public health protocols; and allowing family caregivers continued access to care recipients as they provide an essential role.

### Testing health care innovations

Rapid advances in technology are creating opportunities to regenerate health systems. Disruptive technologies have been identified as one of the fundamental mechanisms that could change and improve the quality of healthcare we receive, which has been slow to change in Canada. W21C serves as a beta test-site for these new health innovations with the potential to impact patient care. Our unique infrastructure enables us to collaborate with industry partners, healthcare providers, the public sector, and patients and families to create and test evidence-based solutions to gaps in care, in both clinical and non-clinical environments. Some of the health care innovations we have tested include:

- A patch that acts as a 'Band-Aid' to repair mattresses and reduce the spread of infections
- New e-tools to improve patient information transfer from the hospital to the community
- Diagnostic tools integrated into our electronic health platforms to help healthcare providers treat clinical conditions (like pulmonary embolisms) more effectively
- Or simple devices--oxygen and hydration monitoring systems, pressure monitoring mattresses, or commonly used voice recognition technologies--that help shift the burden of care from hospitals and allow people to receive care and live in their own homes longer.

### For more information, please contact:

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