



CCHSA **CCSSMA**
Canadian Centre for Health and Safety in Agriculture
Centre canadien de santé et sécurité en milieu agricole

ANNUAL REPORT

& summary of activities **2019 - 2020**

MESSAGE FROM THE DIRECTOR



While another year has passed it is safe to say that this year has been unlike anything most of us have experienced. Most campus activity stopped in late March as a result of the Pandemic. As with all activity and research on campus, this has had significant effect on CCHSA but we adapted fairly quickly. Currently CCHSA remains closed with most staff and faculty working from home, though some faculty and staff have started intermittent work on campus as necessary for research and clinical activity. We have remained quite busy despite the lockdown, with outreach and research activity carrying on, albeit in different ways. CCHSA assisted in work related to the SARS CoV-2 vaccine hunt and was instrumental in connecting the Saskatchewan Health Authority with the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) for potential mask testing and further mask development research with our Engineering colleagues on campus. A big thank you to IRSST for their receptivity and assistance. CCHSA faculty are also involved with other important COVID related work: assisting the Saskatchewan Health Authority with PPE-related decisions as part of an expert committee; involved in research with Engineering addressing impact of ventilation on virus transfer; and playing a leadership role in helping manage resumption of research activities in health sciences. As part of the campus community, CCHSA follows the University's direction on the staged re-opening of research and work. It is quite likely that campus activity in general, and at CCHSA, will look different than we have been used to for the foreseeable future. Nevertheless, our faculty will continue their remarkable work in respiratory exposures and health effects, farm injury and fatalities, musculoskeletal health and access to care, proteomics and metabolomics, rural dementia, asthma, diabetes in First Nations, and sleep health among First Nations People.

Despite the pandemic our outreach through the Agricultural Health and Safety Network has had another very busy and successful year. We are excited to announce that the Ministry of Agriculture provided another 3 years of support to the Centre for Network activities (\$100K per year) starting in 2020. The Network has built a library of COVID resources for agriculture and has been a very active partner in national efforts to coordinate resource development and communication strategies for agricultural producers across Canada.

OUR MISSION

To conduct and stimulate research, education and health promotion programs aimed at enhancing the health and well-being of agricultural, rural and remote populations

The spring Network News, delivered to approximately 25000 rural and farm families and focusing on resiliency, included a new Electrical Safety Resource created in partnership with SaskPower and funded through the CAP program. CCHSA also continue to provide the knowledge translation for 7 different applied research programs for the next few years under the Agrivita Canada Agrisafety Applied Science Program to the tune of approximately \$470,000 (matched).

Dr. Catherine Trask has left CCHSA and the University to start work in Sweden after nearly a decade of remarkable work here leading our Ergonomics Lab. Thank you to Dr. Trask for her leadership and remarkable efforts in establishing and growing CCHSA's ergonomics laboratory over this time, and we wish her the very best in her new position at the KTH Royal Institute of Technology. A search for her replacement is underway.

CCHSA continues to provide clinical screening and surveillance to employers and producers through its CANWORKSAFE program. This includes hearing and lung function testing as well as respirator fit testing, medical fitness-to-wear respirator assessments, along with other health and safety services to RMs and local industry.

The Pandemic has changed many things for us all, at home and at work. I am proud and amazed at the collective resiliency and capabilities of our faculty, staff and students and adapt and rise about the circumstances. There are silver linings in this experience, as difficult as it has been, in particular related to how we can balance our lives more effectively and think of ways the workplace can help enhance that balance, not detract from it, while remaining productive and thriving at the same time.

Wish you all a very safe and healthy year,



Niels Koehncke, MD, MSc, FRCPC
Director, Canadian Centre for Health & Safety in Agriculture

OUR VISION

World leadership in the health of rural people

RESEARCH

MOBILIZING RURAL, REMOTE AND URBAN PATIENT PERSPECTIVES TO ENHANCE ACCESS TO CHRONIC BACK PAIN CARE

Little is known about barriers and facilitators to health care access among rural, remote and Indigenous people with back pain compared to urban and/or non-Indigenous people. With approximately 30% of Saskatchewan's population living in rural and remote settings and 16% of the province's population being Indigenous, this is a critical gap to address.



First team meeting (over zoom) on April 3rd, 2020 From left to right. Top: Brenna Bath, Stacey Lovo, Stacey McIntosh. Middle: Catherine Trask, Alison Irvine, Katie Crockett. Bottom: Bertha Carnegie, Sarah Oosman, Nazmi Sari.

This main goal of this project is to explore and apply the experiences of rural, remote and urban Indigenous and non-Indigenous people with chronic back pain to develop a deeper understanding of health care access barriers and facilitators across rural, remote, and urban communities.

Our team will also investigate which indicators of access and effectiveness of health care for back pain are most meaningful to rural, remote and urban patients. This information will inform the development of comprehensive measures that will be sensitive to geographical location and relevant to culturally diverse people with chronic back pain. These measures will be used in future studies to evaluate community-based chronic back pain interventions and cross provincial/national comparisons, ultimately leading to enhanced access to more patient-centred care for chronic back pain.

Our diverse research team includes 3 patient partners, Stacey McIntosh, Bertha Carnegie and Marie Custer who are from rural and Indigenous communities. They will provide unique knowledge throughout research phases based on their lived experiences with chronic back pain.

This project is funded by the Canadian Institutes of Health Research, the Saskatchewan Centre for Patient Oriented Research (SCPOR), and the College of Medicine.

RE-IMAGINING RURAL AND REMOTE PHYSIOTHERAPY

This interactive knowledge translation event was held on Jan 29, 2020 in Saskatoon, SK. It was funded by Saskatchewan Health Research Foundation (Impact Award), Saskatchewan Physiotherapy Association, Canadian Centre for Health and Safety in Agriculture, Northern Medical Services.

This event brought together a number of stakeholders representing diverse perspectives (clinicians, managers, community members, researchers and policy makers) to discuss community needs, access barriers, and potential solutions to improve access to physiotherapy services in rural and remote Saskatchewan communities. The morning session include panel presentations and discussion related to:

- Rural and Remote Community Perspectives
- Recruitment and Retention Initiatives
- Innovative Use of Technology and Teams

The afternoon session was a World Café interactive small group discussion on topics including:

- Recruitment and retention
- Student training and experience
- Leveraging technology
- Engaging teams and communities
- Thinking ‘outside of the box’

A summary report, policy brief and manuscript describing the event and recommendations are under development and links will be posted on the CCHSA website.

Elder Rose Dorion speaking and Travis Eveleigh, physiotherapist, during the World Café portion of the day.



Dr. Veronica McKinney presenting on the context and community experiences in some of the rural and remote First Nations communities in Saskatchewan as well as the successes of remote presence robotics.



Sally Sewap, Pelican Narrows (Traditional) Knowledge Keeper, addressing the crowd and discussing the needs and values of Pelican Narrows community members.



RESEARCH

A COMMUNITY-INFORMED TEAM AND TECHNOLOGY APPROACH TO CHRONIC BACK PAIN MANAGEMENT IN PARTNERSHIP WITH A NORTHERN SASKATCHEWAN CREE FIRST NATION

This project focuses on a community-identified need and builds on a 5-year history of engagement with the Peter Ballantyne Cree Nation and the Northern Saskatchewan community of Pelican Narrows. A research team comprised of researchers, decision makers, and health care providers is guided by Elders and community members with chronic back pain to implement and evaluate a culturally relevant approach for chronic back pain management. In this project, physical therapists will use remote presence robot technology combined with in-person care to link with other care providers and supports in the community.

Western-based services and evaluation approaches may not reflect Indigenous ways of knowing. Cree perspectives and experiences inform this project through engagement with community by applying community-based participatory action research methods in order to better support Cree community members who experience chronic back pain. We have co-designed a way to manage back pain using a team and technology approach with the guidance of community members and Elders throughout the project. After conducting an iterative community needs assessment and finalizing project evaluation metrics with our community team members and the Peter Ballantyne Cree Nation Health board, project implementation was planned for early summer 2020. This part of the project has been postponed due to the Covid-19 pandemic but community engagement and project-related knowledge translation tool development remain on-going.

This project will inform how technology-assisted models of care may be adapted for enhancing access to culturally relevant services in underserved communities in Saskatchewan and beyond. This 2-year project is funded by a Saskatchewan Centre for Patient Oriented Research and Saskatchewan Health Research Foundation SPROUT grant.

Research Team: Brenna Bath, Stacey Lovo, Veronica McKinney, Sally Sewap, Rose Dorion, Sarah Oosman, Nazmi Sari and Alison Irvine



Sprout research team meeting (Jan 30th, 2020) From left to right. Top: Brenna Bath, Stacey Lovo, Veronica McKinney, Alison Irvine. Bottom: Sally Sewap, Rose Dorion, JB Dorion



Sally Sewap (Traditional) Knowledge Keeper and her father, Elder Elias Sewap, being interviewed in Pelican Narrows via remote presence robot November 2019



ASSESS, REDRESS, RE-ASSESS: ADDRESSING DISPARITIES IN SLEEP HEALTH AMONG FIRST NATIONS PEOPLE (2018-2023)

PURPOSE AND OBJECTIVES:

The First Nations Sleep Health Project (Assess, Redress, Re-assess: Addressing Disparities in Sleep Health among First Nations People) involves working in partnership with the two on-reserve communities: Community A and Community B. The purpose of this project is to evaluate relationships between sleep disorders and risk factors and co-morbidities, and to evaluate local diagnosis and treatment. The project was launched in 2018 and will continue through to 2023.

THE OBJECTIVES OF THE STUDY ARE:

1. To explore relationships between sleep disorders and principal risk factors including social, environmental and individual circumstances
2. To estimate relationships between sleep disorders and principal co-morbidities
3. To evaluate the feasibility of a community-based diagnosis and treatment program in rural First Nations reserve communities

The first two components (questionnaire evaluation of principal risk factors and clinical studies of one-night home sleep studies and actigraphy evaluation) of objectives 1 and 2 have been completed through population-based studies in two First Nations communities. Two phases of data collection have been completed. The first phase of sleep health study data collection was conducted from July 31, 2018 to March 27, 2019. The second phase of data collection was conducted from May 1, 2019 to March 15, 2020. The third phase of data collection and children's component of the study will start in Fall 2020. The third component (feasibility of a community-based diagnosis and treatment program) is in progress. One of the other objectives of the study is capacity development. In the first two phases of the study, University students were trained from the communities to conduct questionnaire surveys and sleep studies. In addition, the project benefited greatly from having local people leading the recruitment and testing for the study.



PROGRESS TO DATE:

Completed interviewer-administered questionnaires were obtained from 618 individuals who participated in the study and 237 completed the one night sleep study and 168 completed the actigraphy. In one community, we have participated in community events (Treaty Days) and had two community BBQs. In Community B we have distributed food baskets to participants to honour their participation. Planning is underway to conduct a children's study in four schools in the communities. The analyses of the results of the collected surveys and sleep studies are underway. To date the investigators have submitted three abstracts at national and international conferences.

The Research Team: Principal Investigators on the project are: James Dosman, Nominated Principal Investigator; Punam Pahwa, Co-Principal Investigator; Malcolm King, Co-Principal Investigator; Sylvia Abonyi, Co-Principal Investigator. Co-Applicants include Donna Rennie, Shelley Kirychuk, Niels Koehncke, Joshua Lawson, Chandima Karunanayake, Mark Fenton, Robert Skomro, Darryl Adamko. Other participants include Chief R Petit, Community A; J Seesequasis, Health Councilor, Community A, Chief Ed Henderson, Community B, Health Director of Community B Clifford Bird, K McMullin, V Ramsden, B Janzen, R Dyck, J Gjevve, G Marchildon, T Smith-Windsor. This study is funded by a grant from the Canadian Institutes of Health Research (CIHR).



RURAL DEMENTIA ACTION RESEARCH (RADAR) TEAM

Dr. Debra Morgan, CCHSA Professor and Chair in Rural Health Delivery, has been leading the interdisciplinary Rural Dementia Action Research (RaDAR) team since 2003. The team's goal is to improve dementia care in rural and remote settings.



RaDAR team photo November 2019

SUMMIT OF THE KNOWLEDGE NETWORK IN RURAL AND REMOTE DEMENTIA CARE

The RaDAR research program is guided by The Knowledge Network in Rural and Remote Dementia Care. The Network includes front-line health care providers and managers, people with dementia and family members, health region representatives, international researchers, and individuals from governmental and community-based organizations. The Network meets at the annual Rural Dementia Care Summit, the RaDAR team's key knowledge exchange event, where Network members provide input into new and ongoing research projects.

The RaDAR team held its 12th Rural Dementia Summit in Saskatoon November 5 & 6, 2019 with 150 people attending the evening poster session and Spotlight on Research evening hosted in partnership with the Alzheimer Society of Saskatchewan, and 130 people attending the full-day Summit. The guest presenter for the Spotlight on Research on Nov 5th was Dr. Saskia

Sivananthan, Chief Research and KTE Officer for the Alzheimer Society of Canada. The keynote speaker at the Summit on Nov 6th was Dr. Rachel Herron, the founding Director of the Centre for Critical Studies of Rural Mental Health at Brandon University.



Dr. Rachel Herron



Dr. Saskia Sivananthan

More information about the Summit, including a report and photos, can be found on the RaDAR team's website under the Summit tab: www.ruraldementiacare.usask.ca

BILOKRELI FAMILY TRUST FUND

The Bilokreli family have established the Bilokreli RaDAR Trust Fund and generously committed \$25,000 per year from 2015 through to 2017, and renewed the funding for 2018 to 2020. The fund supports RaDAR's research and knowledge exchange activities, including the Student Poster Prize at the annual Summit.



Members of the Bilokreli family and student poster prize recipients at Summit in November

This year's Bilokreli Student poster prizes were awarded to:

FIRST PLACE:
Ali Stobbe

SECOND PLACE:
Karl Grewal

THIRD PLACE:
Jake Ursenbach

RURAL AND REMOTE MEMORY CLINIC

The RaDAR team implemented the Rural and Remote Memory Clinic (RRMC) in 2004, to provide diagnosis and management of atypical and complex cases of suspected dementia. The one-stop interdisciplinary clinic streamlines the assessment process by coordinating a complete team assessment on one day, and uses Telehealth videoconferencing for follow-up appointments. The RRMC was started as a research project and now receives funding from the Saskatchewan Ministry of Health to provide clinical services to Saskatchewan residents. Since 2004 over 689 patients have been seen in the clinic.

The RRMC provides valuable training to psychology graduate students who complete 10-month clinical placements. In addition, more than 18 medical students and other visitors observed a full clinic day last year.

Several CCHSA-affiliated RRMC team members support the RRMC including: Leslie Holfeld (nurse), Duane Minish (psychometrist), Lynette Epp (data entry manager), Dr. Allison Cammer (dietitian), and Dr. Chandima Karunanayake (data analyst). Other clinic team members include Dr. Andrew Kirk (neurologist), Dr. Megan O'Connell (neuropsychologist), Dr. Ivan Panyavin (staff in psychology), Jennifer Fairbairn (physical therapist), and Julie Jensen (physical therapist).

CANADIAN CONSORTIUM ON NEURODEGENERATION IN AGING (CCNA) PHASE II (2019-2024)

The CCNA was established by the Canadian Institutes of Health Research in April 2014 to address the growing prevalence of Alzheimer Disease and other dementias in Canada. The CCNA Phase II brings together over 350 researchers across 19 teams, including CCNA Team 15 Rural led by Megan O'Connell and Debra Morgan. As part of Team 15, the RaDAR team continues to sustain and evaluate the impact of 4 rural memory clinics established in southeast Saskatchewan in CCNA Phase I. Phase II projects include a study of care partners pre-post initial evaluation of family members in memory clinics, and a chart review of memory clinic patients.



RaDAR team members and rural memory clinic team members at poster session in Quebec

CCNA hosts an annual Science Day and Partners Forum attended by all 19 CCNA teams. Preceding the CCNA meeting, the 10th Canadian Conference on Dementia was also held in Quebec City. Many members of the RaDAR team and three rural memory clinic team members, (a primary health care facilitator, nurse practitioner, and occupational therapist) travelled to Quebec City to attend.

CIHR FOUNDATION GRANT (2016-2023)

In July 2016, Dr. Debra Morgan was awarded a 7-year CIHR Foundation Grant for the research program “Design and evaluation of integrated primary health care practice for dementia in rural and remote settings”. Co-investigators include Julie Kosteniuk, Megan O’Connell, Andrew Kirk, and Norma Stewart, and other Canadian and international experts.

The Foundation program consists of three linked research streams to increase rural primary health care (PHC) capacity in dementia care: 1) Interdisciplinary PHC team-based care to support ongoing care management and education/support for persons with dementia and families, 2) Remote specialist-to-primary care education and support through technology, and 3) Decision support tools for PHC professionals embedded in electronic medical record systems.



Members of the Bengough Memory Clinic team



RaDAR meets with Carlyle Memory Clinic team



RaDAR meets with Kipling Memory Clinic team and Dr. Dallas Seitz



Members of the Weyburn Memory Clinic team

The core of the Foundation program is to sustain and spread rural PHC memory clinics that offer initial evaluation and management of individuals with suspected dementia. Monthly 1-day memory clinics have been established in the southeast Saskatchewan communities of Kipling, Weyburn, Bengough, and Carlyle. Clinic team members include physicians, nurse practitioners, home care nurses, social workers, occupational therapists, physical therapists, and an Alzheimer Society First Link coordinator.

In the spring of 2019, RaDAR engaged Tara Yolán Productions to produce two videos about the rural primary care memory clinics and the Rural and Remote Memory Clinic in Saskatoon, available at <http://tiny.cc/RuralMemory> which highlight these rural clinics.



Two rural memory clinic team members formally joined RaDAR this past year. **Chelsie Cameron** (Arcola) is a RaDAR research assistant supporting the spread of best practices across the clinics and collecting data for several projects. **Jean Daku** (Nurse Practitioner, Kipling) is the lead of the Kipling memory clinic tasked with assisting in the training and mentoring of memory clinic teams as this model spreads to other rural communities.



New RaDAR team members Jean Daku (left) and Chelsie Cameron (right) with Deb Kennett-Russill

Many clinic team members attend RaDAR's annual Summit Meeting in Saskatoon each year which helps to strengthen the collaboration.

The RESPECT project team (remote specialist-to-primary care education and support through technology) **led by Dr. Megan O'Connell** has conducted a systematic review of technology-based dementia education that can be used for remote education with rural PHC teams. Based on our findings, we will spend the summer co-designing technology based educational methods with rural PHC team members. We explored the accuracy of computerized neuropsychological testing battery, but based on our findings we decided to not trial this method of assessment. Instead, we are exploring use of a telephone administered neuropsychological battery to be tested with PHC teams as a means of specialist cognitive support for dementia diagnoses. Problems with remote assessment models led to the newly developed **RRMC2.0** that was funded by a SHRF/SCPOR SPROUT grant. In the RRMC2.0 model centralized assessments occur over the telephone and patients are triaged to different diagnostic pathways. For the most typically presenting cases, diagnoses will be made in collaboration with the RRMC2.0 staff psychologist and primary care providers.

Finally, we developed an alternate method of remote specialist support with the Rural and Remote Memory Clinic-interventions (**RRMCi**) where we will provide remote psychological interventions for rural PHC providers' patients with dementia and their caregivers who are in need of treatments related to sleep disturbance, maximizing daily function with cognitive rehabilitation, psychological consequences of driving cessation, and increasing social support for caregivers, social inclusion for older adults including those with dementia during the era of COVID-19, and app-based caregiver support.

Projects led by **RaDAR Postdoctoral Fellows** contribute to the Foundation project aims. **Dr. Melanie Bayly** is investigating the experiences of patients and families who are assessed for dementia by the rural memory clinic teams. This will allow us to better understand patient and family perceptions of a collaborative team-based model of dementia care, their



Dr. Melanie Bayly

needs and whether they are being met, and how the assessment processes could be improved. Additionally, Dr. Bayly and the RaDAR team will be collaborating with the Alzheimer Society of Saskatchewan to assess the benefits, challenges, and outcomes associated with the inclusion of a First Link coordinator in this team-based model.

Dr. Amanda Froehlich Chow is working with RaDAR to understand the team-based approaches interdisciplinary rural primary health care teams are employing. In addition, Dr. Froehlich Chow is collaborating with rural Indigenous communities to develop resources for supporting older adults to actively age in place in their rural and remote communities. In the fall of 2019 Dr. Froehlich Chow accepted a position as Assistant Professor in the School of Public Health at the University of Saskatchewan. We are very excited for Amanda as she moves in to her new role, and appreciate her ongoing contributions as she continues her work with RaDAR as an Investigator with the team.



Amanda Froehlich Chow



Dr. Ivan Panyavin

Dr. Ivan Panyavin completed his position as postdoctoral fellow in the fall of 2019 and is continuing his work as a Clinical Research Assistant under the supervision of Dr. Megan O'Connell. Dr. Panyavin has been actively involved in the operations of the Rural and Remote Memory Clinic (RRMC) as part of its neuropsychology team, as well as in developing and implementing several remotely delivered interventions under the umbrella of RRMC suite of interventions (RRMCi). Among these are an empirically validated intervention to improved sleep functioning in individuals with cognitive impairment and their caregivers, and a cognitive rehabilitation-based program to help individuals achieve personally meaningful goals in everyday functioning.

Another RaDAR project will soon be underway, led by RaDAR team member **Valerie Elliot**. An environmental scan will be conducted to explore community programs providing post-diagnostic services to clients who include RaDAR Rural Primary Health Care Memory Clinic patients and families in southeast Saskatchewan. This project will include focus groups with health care and service providers and a review of secondary sources of information conducted at three time-points over five years. Our goal is to better understand the availability of existing local community programs, current patient and family needs, program gaps and recommendations to address these gaps, and program changes or innovations over time.

RADAR INITIATIVES

- **Partnership with Saskatchewan Health Quality Council:** Researchers from RaDAR and Saskatchewan Health Quality Council are conducting a number of ongoing projects involving administrative health data. Naorin Islam has joined the RaDAR team as a research analyst assisting with these projects.



Naorin Islam

- **Synthesis Reviews:** The RaDAR team utilizes a collaborative team-based approach to map, synthesize, and identify gaps in the evidence across several dementia-related areas. Topics related to individuals living with dementia that were explored in the first round of scoping reviews included: support and education access and needs, team-based primary health care, stigma, and multiple physical care transitions. Published reviews can be found on the [RaDAR website](#). Round two is currently underway and includes scoping reviews in the following areas: use of electronic medical records among interprofessional primary care teams (led by Julie Kosteniuk), facilitators that support team-based primary health care services in rural areas (led by Amanda Froehlich Chow), palliative care for people with dementia in rural areas (led by Valerie Elliot), and a systematic review on interventions for caregivers of people with mild cognitive impairment and early dementia (led by Melanie Bayly). The team is looking forward to contributing further to the field of dementia research and informing future practice and policy.

- **Canadian Academy of Health Sciences (CAHS) Facilitated Discussion on Dementia in Saskatchewan.** Debra Morgan, CAHS Fellow, was a member of the CAHS expert panel that produced a report of current evidence and best practices in dementia care that helped inform Canada's first National Dementia Strategy in 2019. To identify opportunities for provincial implementation of the report's findings, CAHS hosted a one-day meeting in Regina on March 10, 2020 attended by 46 senior policy members and stakeholders from across Saskatchewan.

- *Melanie Bayly*, PhD, Postdoctoral Fellow with Dr. Morgan. Dr. Bayly is working with RaDAR on needs and supports for individuals with dementia and their caregivers living in rural areas.
- *Julie Beitel, Jess Martino, and Madison Rennie*, BSC Nutrition students with Dr. Cammer developed evidence-based practice nutrition and dementia knowledge translation tools.
- *Camille Branger*, PhD completed fall 2019, Clinical Psychology with Dr. O'Connell explored the positive aspects of caregiving in dementia.
- *Virginia Deobald*, MSc student, Nursing, with Dr. Shelley Peacock. Virginia's thesis is focused on non-pharmacological interventions for persons living with dementia while in long term care facilities from the nurse perspective.
- *Meghan Flath*, MSc student, Clinical Psychology with Dr. O'Connell, is working on a pet augmented social inclusion intervention for persons with cognitive impairment and dementia.
- *Ben Gould*, PhD student, Clinical Psychology with Dr. O'Connell is exploring Mi'kmaq community Mental Wellness needs, identifying and discovering appropriate approaches to improving aging and quality of Life.
- *Karl Grewal*, PhD student, Clinical Psychology with Dr. O'Connell is working on integrating sensor technology to measure daily function as an outcome measure for cognitive rehabilitation for persons living with dementia.
- *August Kortzman*, PhD student, Clinical Psychology with Dr. O'Connell, is working on developing a social network intervention that can be remotely delivered to rural caregivers of persons living dementia.
- *Erin Leeder*, MSc student in Nutrition with Dr. Cammer is working on a project using nutrition data from the Rural and Remote Memory Clinic.
- *Seshni Naidoo*, MSc student in Nutrition with Dr. Cammer is examining the nutrition related support required in urban and rural house-model long-term care homes.
- *Andrea Scerbe*, PhD student, Clinical Psychology with Dr. O'Connell, is working on technology-based methods for remotely delivering dementia education to rural primary care providers.
- *Ali Stobbe*, BSc Nutrition student with Dr. Cammer completed a national survey of dietitians' end of life care practices in the long term care setting.
- *Jake Ursenbach*, PhD student, Clinical Psychology with Dr. O'Connell, is working on differences in rural and urban dwellers in cognitive function, which has implications for assessment and dementia diagnosis for rural patients



RESEARCH

NATIONAL AGRICULTURAL INDUSTRIAL HYGIENE LABORATORY (NAIHL)

Dr. Kirychuk's lab continues its work in respiratory exposures and health effects including utilizing the animal exposure chambers (agricultural inhalation exposures and respiratory inflammatory health) and population health activities (Housing and Health). This work includes a Laboratory Manager (Thompson), a Research Assistant (Schneberger), a Post-doctoral fellow (Nascimento) and PhD students (Pandher and Merkowsky). Upkar Pandher (PhD) is studying lung inflammation in male mice after exposure to endotoxin and glyphosate. Kaitlin Merkowsky is studying lung inflammation in female mice after exposure to endotoxin and glyphosate including using the BMIT beamline at the Canadian Light Source. Dr. Amanda Nascimento (Post-doctoral fellow) funded by MITACS is studying the anti-inflammatory potential of natural products (NATURE Immune) on inflammation that is induced by lipopolysaccharide using a mouse model. Dr. David Schneberger (Research Assistant) and Brooke Thompson (Laboratory Manager) are continuing to work on differential innate immune responses between males and females after exposure to organic dusts from various barn environments, agricultural contaminants, and pathogens using a mouse model.

Drs. Schneberger, Simonson and Kirychuk received funding from the Respiratory Research Centre to test the effects of low elevations of carbon dioxide on influenza A infection and inflammation in a mouse model. Dr. Schneberger and Brooke Thompson are working on treatment of the animals with the virus and exposing them to carbon dioxide using the NAIHL's animal plethysmography system over the course of a few days. After that, they will be able to determine the potential effects that carbon dioxide has on lung infections and allow them to differentiate the susceptibility and responses between male and female mice.

Dr. Zhang and Dr. Kirychuk have received funding from SHRF and ADF to test the effectiveness of engineering technologies in barn environments. Dr. Myra Martel (Research Associate), Jordan Si (MSc), Yingjie Yang (MSc) are working on assessing the impact of engineering technologies (ESP and nanospray) on dust reduction and the microbial environment in poultry operations.

Dr. Duchaine (U of Laval) and Dr. Kirychuk were recently funded by NSERC Discovery Frontiers to investigate antibiotic resistant genes in air samples collected from various workplaces, including hospitals and animal confinement and production facilities in both Saskatchewan and Quebec. The project involves sample collections over a series of days and during the seasons to identify and differentiate between antibiotic resistant genes in the samples. This work involves a Project Manager (N. Turgeon, U of Laval), Technicians (V. Letourneau, U of Laval; B. Thompson, U of S) and undergraduate and graduate students (TBD).

On the population health side, Drs. Ramsden and Kirychuk continue to look at the impact of in-home smoking on home environmental exposures (CIHR) in First Nations communities. They are currently testing for the levels of endotoxin, mould, and nicotine in the homes using plate based assays and mass spectrometry (in collaboration with Dr. George Katselis). This lab work involves an undergraduate student (Anwar), a laboratory technician (Matheson), a mass spectrometry technician (Chumala) and a laboratory manager (Thompson). Analysis on the associations between the environmental conditions, housing conditions and outcomes involves a biostatistician (Karunanayake), a PhD student (Okpalauwaekwe), an undergraduate student (Anwar), and Laboratory Manager (Thompson).



MASS SPECTROMETRY (MS) LABORATORY

The Mass Spectrometry (MS) Laboratory of the Canadian Centre for Health and Safety in Agriculture (CCHSA) Division in the Department of Medicine is part of the National Agricultural-Industrial Hygiene Laboratory and is housed in the Health Sciences Building, College of Medicine at the University of Saskatchewan. The MS lab is equipped with state of the art instrumentation capable of environmental (e.g. air particulates, dust) and agricultural samples analyses, pesticide analysis, global proteomics (e.g. identification of proteins, analysis of protein modification, characterization of protein-protein interaction), quantitative proteomics for discovery and validation of biomarkers, small molecule (drugs) analysis, metabolomics and clinical proteomics. Dr. George Katselis is a faculty member in Clinical Proteomics and Metabolomics in the Department of Medicine, Division of the Canadian Centre for Health and Safety in Agriculture, College of Medicine and the lead CCHSA faculty in research programs focused on MS-based technologies. Under Dr. Katselis' leadership the CCHSA MS laboratory continues to run at high capacity for CCHSA and collaborating researchers. Dr. Katselis' primary focus is on urinary mass spectrometry-based proteomics for monitoring children's health. In addition, another focus of Dr. Katselis' research is on discovery, identification, characterization and validation of biomarkers which will assist towards discovery of treatment tools in the areas of diabetes, kidney, asthma, arthritis, cystic fibrosis, Parkinson's, cardiovascular, prostate cancer and musculoskeletal disorders. In addition, during the COVID-19 pandemic, Dr. Katselis' lab has been involved in research towards development of a COVID-19 diagnostic test based on saliva proteins and towards the characterization of antigens which will be used in vaccine formulations to combat COVID-19. Members of Dr. Katselis' research team include: Dr. Paulos Chumala (MS research technician), Imran Zaib (PhD student), Dr. Roman Koziy (PhD student), James Matheson (research technician and current MSc student), Megan Tomilin (MSc student), Iris Geldenhuys (NSERC USRA and Honours student), Brooke Thompson (research technician) and Tess Kelly (research technician).

AGRIVITA CANADA INC.

Agrivita Canada is a national not-for-profit organization whose mission is to promote health and safety research and its effective transfer to the agricultural and rural sectors, working towards the development of an informed Canadian public policy. Agrivita Canada began steps in reaching this mission with the creation, and successful completion of the 2014-2018 Canadian AgriSafety Applied Research Program. Building on the applied research and research-to-practice of this program, as well as Agrivita's Summit 2016, a second application was developed in collaboration with the Canadian Centre for Health and Safety in Agriculture (CCHSA), and research teams across Canada. Unified by a comprehensive planned approach, the projects of this application were designed to respond to sector need and seize current opportunities to mitigate agricultural illness, injury, and death.

Agrivita Canada successfully secured funding for the 2019-2024 Canadian AgriSafety Applied Science Program through Agriculture and AgriFood Canada's (AAFC) Canadian Agricultural Strategic Priorities Program (CASPP) in 2019. The funding of \$2.85M from AAFC will be matched by \$2.94M in industry and other government funds for a total 5-year program of \$5.79M. This new Canadian AgriSafety Program consists of six projects conducted by research teams at the University of Saskatchewan and across Canada, as well as a program-wide knowledge transfer component led by the Agricultural Health and Safety Network and CCHSA. The Program, which began in April 2019, will build on work begun in the 2014-2018 AgriSafety Program and begin new projects as identified in Agrivita's national consultation process contributing to applied research in Canadian agricultural health and safety. A summary of the Program can be found at Agrivita's [website](#).

AGRICULTURAL AND VETERINARY HEALTH AND SAFETY

Dr. Koehncke continues to lead the Saskatchewan Farm Fatality Project (part of the national CAIR program) and fatality data collection from the Coroner's office up to 2016 is complete. The most recent data is up to and including 2016 and was presented in June 2018 at ISASH and at CASA in 2019. He also works with Drs Mayer (Radiation Oncology) and Waldner (Epidemiology, Large Animal clinical sciences) at the Veterinary College on issues of radiation safety in the veterinary profession. He leads a CoMRAD grant and summer student projects in this area. They have completed data analysis on radiation exposure and safety practices in mobile equine radiography and manuscript preparation is in progress. He is currently investigating lead levels in radiation PPE and worker exposure. A SHRF application in 2020 is planned to look at national rural radiation and other safety practices in rural large animal veterinary medicine. Dr. Koehncke's MSc student is planning to defend his thesis late June. Dr. Koehncke and the Network received \$20K in CAP funding towards the development of an electrical safety resource and has applied for another \$24K in CAP funding for a delivery project on mental health in agriculture. He also leads the (approximately) \$400K matched KT funding awarded through the Agrivita program to deliver KT for all 6 funded projects over the 4 year span of the funding. During Pandemic he has been provided assistance to the Saskatchewan Health Authority by serving as a resource to senior leaders and on a high-level committee reporting to the EOC and senior leadership about Pandemic-related health care PPE requirements.



RESEARCH

SERVICES



SERVICES



THE AGRICULTURAL HEALTH AND SAFETY NETWORK

The Canadian Centre for Health and Safety in Agriculture (CCHSA) partnered with the Saskatchewan Association of Rural Municipalities (SARM) and five Rural Municipalities in 1988 and founded the Agricultural Health and Safety Network with the mission to improve the health and safety on the farm through education, service, and evaluation research. This organization is now in its 32nd successful year of providing occupational health and safety services to 214 RMs that are current members of the Network, with a mailing list of approximately 27,000 farm families. The Network represents an agricultural health and safety program that is unique to Saskatchewan and Canada.

MEMBERSHIP, PARTNERSHIP & RECRUITMENT

The current membership of the Agricultural Health and Safety Network is 214 RMs. Each of these RMs pay an annual fee of \$4.60 per active farm family to benefit from the Network resources and services. The partnership that member RMs provide is truly the foundation of the Network and helps to attract additional resources to better serve Saskatchewan farmers, their families and their workers.

In effort to increase Network RM membership an annual recruitment package is mailed to non-member RMs. Visits are made, by request, to RM council meetings to encourage and promote Network membership. Recruitment efforts have also been successful at SARM yearly mid-term and annual conventions.



1988: 5 RMs

The Network is funded through RM fees, the Saskatchewan Ministry of Agriculture, the Canadian Centre for Health and Safety in Agriculture and other grants for specific projects. This support helps us to continue a unique program that can benefit collectively all farm families and agricultural workers in Saskatchewan.

STEERING COMMITTEE

The Steering Committee is an advisory group comprised of 6 RM councilors and a Saskatchewan Ministry of Agriculture representative. These committee members represent the voices of Saskatchewan farmers, their families and their workers and the Ministry of Agriculture to provide direction/feedback on programs delivered by the Network. Their support and input are invaluable to the Network.

Division #1:	Ken Aldous, Reeve, RM of Willowdale No. 153
Division #2:	TBA
Division #3:	Mark Hughes, RM of Miry Creek No. 229
Division #4:	Brenda Zemluch, Councillor, RM of Elfros No. 307
Division #5:	Walter Kabaroff, Councillor, RM of Blaine Lake No. 434
Division #6:	Bonnie Mills-Midgley, Reeve, RM of Frenchman Butte No. 501
Ministry of Agriculture	Angela Hall

COVID-19 Resources

The COVID-19 pandemic continues to change the way we operate in all areas of our lives and the agricultural sector is no exception. As an agricultural province Saskatchewan has much to offer during the pandemic and the Agricultural Health and Safety Network recognizes the need to bring together credible resources for Saskatchewan farm families and agricultural workers to stay safe and healthy during these uncertain times and beyond.

This resource page has been created with credible information to help you navigate the impacts the COVID-19 pandemic is having on you, your farm, and your community. As the COVID-19 pandemic continues to develop we will work to maintain up to date resource links and information that is most important to you and your family.

[Agriculture](#)

[For Kids](#)

[General Links](#)

[Mental Health](#)

[PPE](#)

[Well-Being](#)

[Printable Forms & Posters](#)

[Webinar](#)

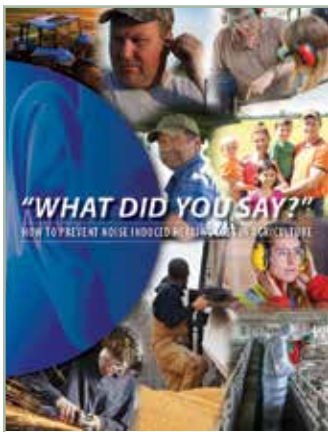
NATIONAL COVID-19 AGRICULTURE HEALTH AND SAFETY WORKING GROUP

The Network continues to partner with the Canadian Agriculture Safety Association (CASA) and provincial partners across Canada to help share and communicate important COVID-19 information as it impacts farm safety. The goal of this working group has been to share quality Canadian Ag specific resources and information.

The Network developed a resource page on its website about [COVID-19](#) with credible information to help you navigate the impacts the COVID-19 pandemic is having on your farm, and your community. We have grouped the information into categories:

- [Agriculture](#)
- [General Links](#)
- [PPE](#)
- [Printable forms & Posters](#)
- [For Kids](#)
- [Mental Health](#)
- [Well-Being](#)
- [Webinar](#)

HEARING LOSS CANNOT BE REVERSED, BUT IT CAN BE PREVENTED!



Preventing and protecting yourself from noise induced hearing loss (NIHL) starts with recognizing the many different hazardous noise exposures in your farm environment. Protecting yourself can include eliminating the hazard, reducing your exposure time, and using personal protective equipment.

“What Did you Say? How To Prevent Noise induced Hearing Loss in Agriculture”, was created to meet the needs of farm families and agricultural workers to better understand how to prevent noise induced hearing loss, the impact of noise, and controls to consider to reduce the noise hazards on the farm. Check out the decibel (dB) levels on a variety of noise

sources in agriculture and review what types of hearing protection could be most effective for you. Protect your hearing; noise induced hearing loss is 100% preventable!

With support from the Canadian Agriculture Safety Association (CASA) this new resource was distributed to 27,000 Saskatchewan farm families.



GEARING UP FOR AGRICULTURAL HEALTH AND SAFETY PROGRAM REACHES SASKATCHEWAN AGRICULTURE STUDENTS

The Network has partnered with the Ag Health and Safety Alliance to work together to bring the Gear Up for Ag Health and Safety™ Program to College of Agriculture students and producers in Saskatchewan. The University of Saskatchewan College of Agriculture students' participation in this program occurred on March 4, 2020. The Network will continue to work to secure funding and new partnerships to allow delivery of this dynamic program to the next generation of Agriculture producers in Saskatchewan.

The Gear Up for Ag Health and Safety™ program is designed for post-secondary Ag students attending trade schools, colleges, and universities to provide agricultural specific health and safety education. In addition, the Network is looking forward to working with the Alliance to adapt this program to include multi-generational farmers and ag workers. The program delivery is a combination of interactive lecture using a Prezi format and hands on demonstration and interaction with students and instructors. Each program will be customized based on available time in the classroom, regional agricultural exposures and results from a standardized pre-survey administered prior to the program presentation. The program will include the distribution of a Gear Up for Ag™ PPE kit to each student and instructor. The PPE kit includes safety glasses, hearing protection, disposable respirators, reusable cartridge respirator, P100 cartridges, coveralls and chemical resistant gloves.

Thank you to Farm Credit Canada, 3M Canada and Ag Health and Safety Alliance for supporting the delivery of this program.

SERVICES



HEALTH & SAFETY CLINICS: EMPOWERING FARMERS TO ENHANCE THEIR HEALTH AND SAFETY

The **ONE2ONE** Health and Safety Clinics for farmers offer the unique opportunity for farm families and farm workers to meet with a trained agricultural health and safety registered nurse in a confidential environment for health and safety checks tailored specifically to their agricultural exposures and risks. Participants receive current health and safety information and education specific to reducing agriculture workplace hazards and improving personal health. Examples of common concerns addressed include: grain safety, animal safety, farm safety audits, children safety on the farm, blood pressure, diet, exercise, farm stress, sleep, and personal protection equipment selection. Health and safety resources and suggested referrals are offered to optimize personal health and safety of the participant.

The Network has also offered clinic learning experiences for medical and nursing students at the ONE2ONE Health & Safety Clinic for Farmers.



Respiratory test



Exoskeleton survey



Hearing test

DISCOVERY DAYS PROGRAM



Discovery Days brings health and safety information to school children in grades 4 to 6. The hands on displays include helmet safety, germ safety, chemical safety, machinery safety, hazard identification and grain entrapment.

In 2019 our capacity to reach more children grew. This opportunity was possible thanks to the partnership with the Saskatchewan Wheat Development Commission and the Saskatchewan Canola Development Commission. From April 2019 to March 2020 we were able to reach more than double the number of schools we visited, 1,817 students in 39 schools across Saskatchewan participated in a Network Discovery Day. To date we have held Discovery Days at 79 Schools and reached 4,954 students.

New for 2020 is the development and implementation of the new chemical look alike display. In addition, we will be working on adding a mental health and wellness component to our Discovery Days presentations.



Classroom Presentation



DD at Tradeshow



Training session for instructors

SARM SCHOLARSHIP

In 1995, the Saskatchewan Association of Rural Municipalities (SARM) auctioned off the first copy of its history book “The Building of a Province: Commemorating the 90th Anniversary of the Saskatchewan Association of Rural Municipalities.” This auction netted the sum of \$2,600 which the SARM Board of Directors contributed to the Canadian Centre for Health and Safety in Agriculture (CCHSA). These funds initiated the SARM 90th Anniversary \$1,000 Student Scholarship in Agricultural Safety and Rural Health. The Founding Chairs Program at CCHSA now maintains the scholarship.

This year two scholarships of \$1,500 each were awarded to grade 12 students, Marci LeBlanc, from Estevan, RM # 5 and Kenneth Murray, from Gainsborough, RM # 1 of Argyle. Students were asked to submit essays about (a) The importance of safety and health on our farm or (b) Safety and health hazards on our farm.



Marci LeBlanc
RM # 5: Estevan

“Five generations on our farm has brought about many changes over the years. It is only in our family’s best interest to stay current with health and safety methods ensuring not only content, long term employees, but also maintaining optimal productivity.”

“Overall the most dangerous things we can face are our own carelessness and negligence for safety. Safety protects lives and it is everyone’s responsibility. To achieve a better standard of agriculture, we must all make safety a part of our lifestyle and protect what really matters.”



Kenneth Murray
RM # 1: Argyle



IKE THIESSEN: “BUILDING A FOUNDATION BRICK AWARD”



The late Isaac (Ike) Thiessen was a farmer in the Aberdeen Rural Municipality # 373 and President of the Saskatchewan Association of Rural Municipalities (SARM) from 1986-88. He was instrumental in helping recruit the first Rural Municipalities in 1988 to join the Agricultural Health and Safety Network, setting the foundation for future growth. Over 30 years later, more than 70% of Saskatchewan Rural Municipalities are members, supporting the Network’s mission to improve health and safety on the farm through education, service and evaluation research.

This Award is given in recognition of the support and dedication to the Saskatchewan Agricultural Health and Safety Network for helping us further our mission and build a foundation of health and safety for Agriculture in Saskatchewan.

1st Brick Award was presented at the SARM Convention on March 12, 2020. The Brick is recycled and donated by Corman Park RM # 344.



INVITED PRESENTATIONS & TECHNICAL REPORT

Bath B, Lovo S. SCPOR Meet and Eat. Presentation: “A Community-Informed Team and Technology Approach to Chronic Back Pain Management in Partnership with a Northern Cree Community” Jan 30, 2020. Saskatoon, SK.

Bath B. Interview for ‘Good Times’ magazine. Oh, My Back. Nov 2019. <https://goodtimes.ca/oh-my-back/>

Cammer, A and Stobbe, A. Clinical and ethical considerations of feeding at end of life. Transition Care Unit Education Day, Saskatchewan Health Authority, Saskatoon, SK, June 26, 2019

Cammer, A. Care Aides and Food and Nutrition Care in the Long-term Care Home. Home Economists Annual Conference, Saskatoon, SK, Oct 24 2019

Cammer, A. Dementia and Nutrition: An Overview, Home Economists Fall Division Meeting, Saskatoon, SK, Sept 21 2019

Cammer, A. Nutrition and Preventing or Delaying Cognitive Decline. Alzheimer Society of Saskatchewan Learning Series, Saskatoon and Telehealth broadcast to 38 sites with 332 attendees, November 2019

Cammer, A. The Downstream Role of Dietitians in Long-term Care. Dietitians of Canada Long-term Care Action Group Meeting, Webinar, October 30 2019

Charavaryamath C, Wyatt T, Nonnenmonn M, Boggaram V, Koziel J, Kirychuk S, & Schneberger D. Agricultural Organic Dust-Induced Respiratory Disease: What are we doing about it? Presented: ISASH 2019, Des Moines, Iowa, USA; 2019 June 24-27.

Elliot V, Morgan D, Kosteniuk J. (Co-editors). RaDAR Newsletter available at www.ruraldementiacare.usask.ca under the News tab.

Kirychuk S, Schneberger D, Thompson B, Pandher U, Merkowsky K, Aulakh G, Katselis GS, Singh B. Agricultural Exposures and the Lungs: What do we know now? Presented: CASA 2019, Quebec City, QC; 2019 Oct 8-10.

Kosteniuk J, Morgan D, Hill J, and RaDAR community research partners. (June 2019). Primary Health Care Memory Clinic. [Brochure]. Printed at the University of Saskatchewan, Saskatoon, SK, Canada. Available at https://cchsa-ccssma.usask.ca/ruraldementiacare/PHC_Clinics.php#Background

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Lovo S, Bath B. Invited Plenary Panel Presentation: Technology and Teams Panel. Presented at: Building Research Connections– Thinking Outside the Box; 2019 Sep; Saskatoon, SK.

Morgan D, Chair, Public Lecture by Dr. Dallas Seitz – Understanding Dementia and Alzheimer’s Disease: Learn About Prevention, Diagnosis and Treatment. Weyburn Public Library, Weyburn, SK, June 17, 2019.

Morgan, D, Kosteniuk J, O'Connell ME, Kirk A, Minish D, Elliot V; Editors (June 2019). Rural Primary Health Care Memory Clinics. [Video files – Short (00:3:43) Long (00:4:47)]. Video files by Tara Yolán Productions. Available at https://cchsa-ccssma.usask.ca/ruraldementiacare/PHC_Clinics.php#Background

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Morgan D. (Interviewee Guest) Wilson, D. (Host). (2019, September 19). Guest on CJWW Radio to discuss Bringing Dementia Care into Rural Saskatchewan. [Radio broadcast]. Saskatoon, SK: CJWW.

Nascimento A, Schneberger D, Pandher U, Merkowsky K, Thompson B, Kirychuk S, & Singh B. Allergic Lung Inflammation in Offspring of Pregnant Mice exposed to Organic Dust. Presented: AAVA Conference, Banff, AB; 2019 July 26-29.

Nascimento A. The Effects of RESP-AID (an herbal formulation) on asthma. Presented: CCHSA Research Seminar Series, Saskatoon, SK; 2020 March 10.

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Remote Presence Robotics in Rural Saskatchewan: Patient Oriented Research on Chronic Back Pain. SCPOR Video. Dec 11, 2019 <https://www.youtube.com/watch?v=aAIRQTTzX6E&feature=youtu.be>

Schneberger D, Thompson B, Pandher U, Kirychuk S. CO₂: A unrecognized contributor to lung health. Presented: CCHSA Research Seminar Series, Saskatoon, SK; 2020 January 14.

Koziy RV. Diagnostic markers for detection of eradication of joint infection in horses. Presented: WVCV Veterinary Pathology Graduate Student Seminar Series; January 9, 2020

Katselis G. Use of Proteomics in Biomarker Discovery for Chronic Diseases. Presented: CCHSA Research Seminar Series; September 17, 2019

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Kosteniuk J, Morgan D, Froehlich Chow A, Bayly M. Rural PHC Memory Clinics. (Fall 2019). [report]. Printed at the University of Saskatchewan, Saskatoon, SK, Canada. (9 pages) https://cchsa-ccssma.usask.ca/ruraldementiacare/PHC_Clinics.php#Background

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CONFERENCES & ABSTRACTS

Angarita-Fonseca A, Trask C, Bath B. Longitudinal Association Between Physical Activity and Chronic Back Disorders in Canadian Adults, 1994-2011. **Presented:** CRDCN 2019 National Conference. Halifax, Canada, October 25, 2019.

Angarita-Fonseca A, Trask C, Bath B. Physical activity and chronic back disorders: Results from eight cycles of the Canadian Community Health Survey. **Presented:** Saskatchewan Epidemiology Association (SEA) Annual Symposium. Regina, Canada, October 8, 2019.

Angarita-Fonseca A, Trask C, Pahwa P, Bath B. (October 2019). Longitudinal Association Between Physical Activity and Chronic Back Disorders in Canadian Adults, 1994-2011. **Presented:** Canadian Research Data Network 2019 National Conference.

Angarita-Fonseca A, Trask C, Pahwa P, Bath B. Physical activity and chronic back disorders in Canadian adults: Analysis of repeated measurements using the National Population Health Survey. **Presented:** Saskatchewan Epidemiology Association (SEA) Annual Symposium. Regina, Canada, October 8, 2019.

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Bayly M, Morgan D, Kosteniuk J, Froehlich Chow A, Elliot V. Evaluation of interdisciplinary team-based dementia care in rural primary health care: Patient and family perspectives of assessment and diagnosis. **Presented:** 10th Canadian Conference on Dementia, Quebec City, QC, October 3-5, 2019.

Bishop S, Wiechnik C, Bath B, Mendez I, Johnson R, Lovo S. Use of remote presence robotics and telehealth to join teams evaluating chronic work-related injuries in rural residents. **Presented:** Building Research Connections - Thinking outside the Box; 2019 Sep; Saskatoon, Canada.

Cammer A, Morgan D, Whiting S. The downstream role of registered dietitians in the context of dementia and long term care: A constructivist grounded theory. **Presented:** International Institute for Qualitative Methodology: Thinking Qualitatively Workshop Series. Edmonton, AB: June 17 – 21, 2019. (Awarded the TQ poster award, \$200.00).

Cammer A, Whiting S, Morgan D. Nutrition care for residents with dementia in long-term Care homes: Umbrella review of care aide and registered dietitian services, **Presented:** 10th Canadian Conference on Dementia, Quebec City, QC, October 3-5, 2019.

Chumala P, Kelly T, Thompson B, Erickson R, Lawson J, Dyck R, Katselis GS. Examining the relationship between diabetic pregnancies and kidney disease in offspring using urine proteomics. **Presented:** 67th ASMS Conference on Mass Spectrometry and Allied Topics; Atlanta, Georgia 2019 Jun 2-6.

Crockett K, Kim S, Boden C, Bath B. Effectiveness of platelet-rich plasma injection with or without physical therapy for chronic rotator cuff tendinopathy: A systematic review. **Presented:** Building Research Connections – Thinking Outside the Box; 2019 Sep.

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Gavanji R, Trask C, Feng C. (2019) Investigating machine learning techniques to predict WCB claims severity level in Saskatchewan, Canada. **Presented:** Canadian Society of Epidemiology and Biostatistics Conference. May 13-15, 2019 Ottawa, Canada.

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Kirk A, Kushneriuk M, Karunanayake C, Morgan D, O'Connell ME. Quality of life across dementia types in rural and remote persons

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Kortzman A, O'Connell ME, Kirk A, Morgan D. Factor analysis and psychometric properties of the Brief Symptom Inventory-18 Item in rural caregivers of persons with dementia. **Presented:** 10th Canadian Conference on Dementia, Quebec City, QC, October 3-5, 2019.

Koziy RV, Thompson B, Kelly T, Yoshimura S, Chumala P, Bracamonte JL, Katselis GS, Simko E. Detection of markers for the eradication of infection in an experimental model of equine septic arthritis using discovery proteomics approach. **Presented:** Western College of Veterinary Medicine Graduate student poster day; Saskatoon, SK; 2020 Mar 30-Apr 3.

Koziy RV, Thompson B, Kelly T, Yoshimura S, Chumala P, Bracamonte JL, Katselis GS, Simko E. Detection of markers for the eradication of infection in an experimental model of equine septic arthritis using discovery proteomics approach. **Presented:** Annual Meeting of the American College of Veterinary Pathologists; San Antonio, Texas 2019 Nov 9-13.

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Kushneriuk M, Kirk A, Karunanayake C, Morgan D, O'Connell ME. Quality of life across various types of dementia in patients presenting to a rural and remote memory clinic. **Presented:** Canadian Neurological Sciences Federation 54th Congress, Montreal, Quebec, June 16-19, 2019.

Lawson J, Rennie D, Cockcroft D, Afanasieva A, Oluwale O. Allergic and non-allergic asthma across an urban-rural gradient. **Presented:** European Academy of Allergy and Clinical Immunology Annual Congress.

Martel M, Si J, Yang Y, Zhang L, Kirychuk S, Predicala B, Guo H. Airborne dust control in pullet houses by electrostatic particle

ionization. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26.

Martel M, Zhang L, Kirychuk S, Guo H, Predicala B, Schwan-Lardner K. Evaluation of an electrostatic precipitator for improving air quality in poultry houses: a pilot scale. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2019 Mar 19

Matheson J, Chumala P, Lyon M, Katselis GS. Mass Spectrometric Method Development for the Quantification of L- and D-Lactate in Clinical Samples. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26

McAiney C, Keefe J, Vedel I, Bergman H, Hogan D, Morgan D. Preparing for the National Dementia Strategy: Insights from the Canadian Academy of Health Sciences' Assessment on Dementia Care in Canada. **Presented:** The Canadian Association of Health Services and Policy Research (CAHSPR) Annual Conference, Halifax, NS, May 29-31, 2019.

Merkowsky K, Pandher U, Schneberger D, Thompson B, Aulakh G, Singh B, Kirychuk S. Synergistic Lung Inflammation related to Agricultural Co-exposures: LPS and Glyphosate. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26.

Morgan D, Kosteniuk J, O'Connell ME, Kirk A, Cammer A, Minish D, Elliot V. The Annual Summit of the Knowledge Network in Rural and Remote Dementia Care: An Example of an Integrated Knowledge Translation (iKT) Approach. **Presented:** 10th Canadian Conference on Dementia, Quebec City, QC, October 3-5, 2019.

Morgan D, Kosteniuk J, O'Connell ME, Kirk A, Stewart NJ, Seitz D, Bayly M, Frohlich Chow A, Elliot V, Daku J, Hack T, Hoiium F, Kennett-Russill D, Sauter K. Using the Consolidated Framework for Implementation Research to identify barriers and facilitators to implementation of a rural primary health care intervention for dementia. **Presented:** 10th Canadian Conference on Dementia, Quebec City, QC, October 3-5, 2019.

Nair R, Matheson J, Geldenhuys I, Katselis GS, Desai K. Evidence of interactions between thyroid hormones/receptors and glucose, fructose or methylglyoxal: Implications for thyroid dysfunction in metabolic syndrome. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26.

Nascimento A, Schneberger D, Pandher U, Merkowsky K, Thompson B, Kirychuk S, Singh B. Allergic Lung Inflammation in Offspring of Pregnant Mice exposed to Organic Dust. **Presented:** Immunology 2019; San Diego, CA, USA; 2019 Jul 19-19.

Nascimento A, Schneberger D, Pandher U, Merkowsky K, Thompson B, Kirychuk S, Singh B. Allergic Lung Inflammation in Offspring of Pregnant Mice exposed to Organic Dust. **Presented:** U of S

College of Medicine 3rd Annual Second Floor Research Day; 2019 Mar 19.

Nascimento A, Schneberger D, Thompson B, Sandini T, Singh B, Kirychuk S. Resp-Aid in Ova-challenged mice decreased airway inflammatory cell infiltration, AHR and IL-13 cytokine expression levels. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26

Nascimento A, Schneberger D, Thompson B, Sandini T, Singh B, Kirychuk S. The effects of Resp-Aid on Asthma. **Presented:** AAVA Conference, Banff, AB; July 26-29, 2019.

Nascimento A, Schneberger D, Thompson B, Sandini T, Singh B, Kirychuk S. The effects of Resp-Aid on Asthma. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2019 Mar 19.

Omoniyi A, Thamsuwan O, Milosavljevic S, Trask C. (2019). Farmers' Perceptions of Exoskeleton devices and their Potential to Prevent Back Injuries in Saskatchewan Farms. **Presented:** Saskatchewan Epidemiology Association (SEA) 19th Annual Fall Symposium, Regina, Canada. October 8, 2019.

Pandher U, Kirychuk S, Schneberger D, Thompson B, Aulakh G, Singh B, Sethi RS. Co-exposure of Glyphosate and LPS enhances lung inflammation in mice. **Presented:** ATS 2019, Dallas, TX, USA; 2019 May 17-22.

Pandher U, Schneberger D, Thompson B, Aulakh G, Singh B, Sethi RS, Kirychuk S. Co-exposure to LPS and glyphosate Induces Synergistic effect on lung Inflammation. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26.

Pandher U, Schneberger D, Thompson B, Aulakh G, Singh B, Sethi RS, Kirychuk S. Exposure to herbicide and endotoxin causes more lung inflammation than exposure to either agent alone. **Presented:** CASA 2019, Quebec City, QC; 2019 Oct 8-10.

Pandher U, Schneberger D, Thompson B, Aulakh G, Singh B, Sethi RS, Kirychuk S. Repetitive exposure to glyphosate with LPS induces higher lung inflammation in mice. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2019 Mar 19.

Reist R, Bath B, Jelinski M, Erickson N, Clark C, Trask CM. (2019). Predictors of Self-Reported Work-Preventing Upper Extremity Symptoms in Canadian Bovine Veterinarians. **Presented:** 10th International Conference on the Prevention of Work-related Musculoskeletal Disorders: PREMUS 2019. September 2-5, Bologna, Italy.

Reist R, Bath B, Jelinski M, Trask C. An Ergonomic Assessment of Bovine Rectal Exams. **Presented:** Association of Canadian Ergonomists; 2019 Aug; St. John's, NFLD.

Reist R, Jelinski M, Bath B, Trask C. (2019) Getting to the Bottom of Shoulder Pain: An Ergonomic Assessment of Bovine Rectal Palpations. **Presented:** 2019 University of Saskatchewan Life and Health Science Research Expo, May 2, Saskatoon.

Reist R, Jelinski M, Bath B, Trask C. (2019) Worse than it Sounds: Ergonomic Hazards Associated with Bovine Rectal Exams. **Presented:** American Industrial Hygiene Conference and Expo 2019, May 20-22, Minneapolis.

Rennie DC, Kirychuk S, Karunanayake CP, Thompson B, Russell E, Anwar N, Seesequasis J, Dosman JA, Pahwa P. (August 2019). Investigation of the Association between Adult Wheeze and Household Beta (1 --> 3)-glucan Exposures in First Nations Communities in Canada. **Presented:** International Society for Environmental Epidemiology Conference, Utrecht, The Netherlands; 2019 Aug 25-28.

Scerbe A, O'Connell ME, Astell A, Morgan D, DesRoches A, Panyavin I. Digital Tools for Delivery of Dementia Education for Caregivers of Persons with Dementia: A Systematic Review and Meta-Analysis. **Presented:** 10th Canadian Conference on Dementia, Quebec City, QC, October 3-5, 2019.

Schneberger D, Thompson B, Pandher U, Kirychuk S. CO2 Exposure can Modify Innate Immune Responses to Organic Dust and LPS. **Presented:** ATS 2019, Dallas, TX, USA; 2019 May 17-22.

Schneberger D, Thompson B, Pandher U, Kirychuk S. CO2 Exposure can Modify Innate Immune Responses to Organic Dust and LPS. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2019 Mar 19.

Si J, Yang Y, Martel M, Zhang L, Kirychuk S, Predicala B, Guo H. A Nano-Electrospray System for Inactivating Microbes on Livestock Building Surfaces. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26.

Stobbe A, Cammer A, Thorpe L. Registered dietitians end of life care current practice in the long-term care context. **Presented:** Canadian Frailty Network Annual Conference, Toronto, ON, September 2019.

Thamsuwan O, Milosavljevic S, Trask C. (2019) A pilot study evaluating the use of a passive exoskeleton as potential intervention for mitigating low back pain risk factors in farmers. **Presented:** 10th International Conference on the Prevention of Work-related Musculoskeletal Disorders: PREMUS 2019. September 2-5, Bologna, Italy.

Thamsuwan O, Milosavljevic S, Trask C. A field study evaluating the use of a passive exoskeleton as potential intervention for mitigating low back pain risk factors in farmers. **Presented:** The Canadian Agricultural Safety Association's 24th Annual Conference. October 7-9 Quebec City, Canada.

Thompson B, Chumala P, Schneberger D, Kirychuk S, Katselis GS. Differential Expression of inflammatory proteins in new male and female swine confinement workers. **Presented:** 67th ASMS Conference on Mass Spectrometry and Allied Topics; Atlanta, Georgia 2019 Jun 2-6.

Tomilin M, Chumala P, Thompson B, Katselis GS. These Bloody Rocks: Proteomics Analyses of Saskatchewan Lithic Artifacts. **Presented:** U of S College of Medicine 3rd Annual Second Floor Research Day; 2020 Mar 26.

Trask C, Zeng X, Bashiri B. (2019) A Mixed Methods Analysis of Farm Machinery Injury: Contributing Factors and Proposed Prevention Strategies. **Presented:** 10th International Conference on the Prevention of Work-related Musculoskeletal Disorders: PREMUS 2019. September 2-5, Bologna, Italy.

Trask C, Zeng X, Bashiri B. (2019) Investigating the Potential for Workplace Injury Tradeoffs: Needle-less Injection Tools in Pork Production. **Presented:** 10th International Conference on the Prevention of Work-related Musculoskeletal Disorders: PREMUS 2019. September 2-5, Bologna, Italy.

Ursenbach J, O'Connell ME, Kosteniuk J, Morgan D. Short form scoring algorithm for a computer-based cognitive screening instrument. **Presented:** 10th Canadian Conference on Dementia, Quebec City, QC, October 3-5, 2019.

Vader K, Ashcroft A, Bath B, Decary S, Deslauriers A, DesMeules F, Donnelly C, Perrault K, Richardson J, Wojkowski S, Miller J. A survey of physiotherapy practice in publicly-funded primary health care organizations in Ontario, Canada. **Presented:** North American Primary Care Research Group Annual Meeting; 2019 Nov; Toronto, Canada.

Vader K, Ashcroft R, Bath B, Decary S, Deslaurier S, Desmeules F, Donnelly C, Perrault K, Richardson J, Wojkowski S, Miller J. Developing a Survey to Describe Physiotherapy Practice in Primary Health Care in Ontario. **Presented:** Trillium Primary Health Care Research Day; 2019 Jun; Toronto, Canada.

Vlashki E, Cvejaska-Colakovska V, Kimovska M, Ristevska T, Seckova L, Lawson J. Temporal trends in hay fever and eczema prevalence in a developing country. **Presented:** European Academy of Allergy and Clinical Immunology Annual Congress.

Wilding C, Blackberry I, Greenhill J, Perkins D, Morgan D, O'Connell ME, Davis H, Winbolt M, Bauer M, Morley C, Farmer J, Royals K, Rasekaba T, Gottschall K, Hamiduzzaman M, Robinson A. Lessons from a pragmatic trial of virtual dementia friendly rural communities in Australia. **Presented:** 34th International Conference of Alzheimer's Disease International (ADI). Singapore, Japan. March 19 – 20, 2020.

Wilding C, Blackberry I. on behalf of the Verily Connect team. Verily Connect model: virtual support for rural dementia care. **Presented:** Australian Association of Gerontology 52nd National Conference, November 5-8, 2019.

Wilding C, Perkins D, Greenhill D, Farmer J, O'Connell ME, Winbolt M, Bauer M, Morley C, Morgan D. Creating Virtual Dementia-friendly Rural Communities: Are We Ready Yet?. **Presented:** International Association of Gerontology and Geriatrics European Region Congress 2019 (IAGG-ER), Gothenburg, Sweden, May 23-25, 2019.

Wong J, Kirk A, Perlett L, Karunanayake C, Morgan D, O'Connell ME. Characteristics of Young-onset Dementia Patients and Late-onset Dementia Patients at a Remote Memory Clinic. **Presented:** 71st Annual Meeting of the American Academy of Neurology, May 4-10, 2019.

RESEARCH GRANTS

Arnold C (PI), Bath B (Co-PI), Crockett K (Co-PI), Farthing J (Co-PI), Lanovaz J (Co-PI). *Staying Strong.* Balanced and FAST: Together, Let's Prevent Fall Injuries. Canadian Institutes of Health Research (CIHR) Planning and Dissemination Grant. Total: \$19,953.00 for 2020-01 to 2021-01.

Bath B (PI) Lovo Grona S (Principal Knowledge User), McKinney V (PKU), Crockett K (KU), Trask C, Oosman S, Sari N, McDonald T, Carnegie B, Custer M, McIntosh S (Knowledge Users), Miller C, Koehncke N, Ndubuka N, Swidrovich J (Collaborators). Patient experiences of health care access challenges for back pain care across the rural-urban continuum. The goal of this project is to investigate the experiences of rural, remote and urban dwellers with chronic low back pain (CBP) and their health care providers in order to inform and develop a deeper understanding of health care access barriers and facilitators in Saskatchewan. Canadian Institutes of Health Research, Patient-Oriented Catalyst Grant. Total: \$99,993 for 2019-2020.

Bath B (PI), Lovo S (Co-PI), McKinney V (PKU), Crockett K (Co-PI), Trask C (Co-PI), Oosman S (Co-PI), Sari N (Co-PI), McDonald T (Co-PI), Carnegie B (KU), Custer M (KU), McIntosh S (KU), Collaborators: Ndubuka N, Miller C, Koehncke N, Swidrovich J. Mobilizing Rural, Remote and Urban Patient Perspectives to Enhance Access to Chronic Back Pain Care. Canadian Institutes of Health Research (CIHR) Patient-Oriented Research Catalyst Grant. Total: \$99,993 for 2020-02 to 2021-01.

DesMeules F (PI), Bath B (Co-PI), Feldman D (Co-PI), Hébert L (Co-PI), LaFrance S (Co-PI), Perreault K (Co-PI), Santaguida S (Co-PI). Impact of an advance practice physiotherapy model of care for older adults referred to neurosurgery for spinal pain: a prospective observational study from the CareAxis initiative, CIHR Catalyst Grant Addressing Musculoskeletal Conditions / Arthritis in Canadians - Back/Neck pain. Total: \$100,000.00 for 2020-04 to 2021-03.

Kim SY, Card A, Trask C (Co-PI), Milosavljevic S, Dickerson C, Block J, Murphy M, Gardikiotis T. Aftermath of Mastectomy and Breast Reconstruction: Sorting out Shoulder Dysfunction through Biomechanical Analysis. Funded for the period 2019-2021 by the Royal University Hospital Foundation Women Leading Philanthropy. \$99,992.82 CDN.

Kingston D, Trask C. (PI and grant administrator). An impactful step: Investigating lower limb joint loads during farm machinery. For the period 2019-2021. Saskatchewan Health Research Foundation. \$100,000 CDN. Winner of the 2019 Saskatchewan Health Research Foundation Top Fellowship, Socio-Health. As the principal supervisor I guided the postdoctoral fellow in developing the study design, consulting with stakeholders, and drafting the application.

Kiryuchuk S (PI), Nascimento AF (Co-PI). The anti-inflammatory potential of Natures Immuno on inflammation induced by LPS, Fellowship for Dr. Amanda Florentina do Nascimento MITACS Accelerate. Total: \$110,000.00 for 2020-01 to 2022-01

Kiryuchuk S (PI), Schneberger D (Co-PI), Simonson C. Effects of low elevations of CO2 on inflammation and lung infection. Respiratory Research Centre Team Building Grant. Total: \$24,918 for 2020-01 to 2021-03.

Kiryuchuk S (PI), Schneberger D (Co-PI), Singh B, Wyatt T, Aulakh G. One of these things is not like the other: Unravelling the sex differential inflammatory response to airborne agricultural responses. CoMRAD, University of Saskatchewan. Total: \$29,814 for 2020-01 to 2020-12.

Kiryuchuk S (PI). Research Cluster Funding, University of Saskatchewan OVDR. Total: \$20,000.00 for 2020-04 to 2021-03.

McDermid J (PI) Bath B (Co-P). (Approximately 100 other Co-Investigators), Canadian MSK Rehab Research Network, Canadian Institutes of Health Research (CIHR) Network Catalyst Grant. Total: \$1,983,984 for 2020-03-2025-02.

Perreault K (PI), Bath B, Feldman D, Beausejour M, Camden C, DesMeules F, Harding K, Hudon A, Hébert L, Lamontagne M, Miller J, Pinard A, Routhier F, Roy J, Ruiz Bartolome A (Co-Is). Bringing together the ACCESS TO REHAB TEAM to improve access to rehabilitation services for persons experiencing musculoskeletal pain, CIHR Planning and Dissemination Grant - Institute Community Support. Total: \$14,985.00 for 2020-02 to 2021-01.

Zhang L, Kiryuchuk S (Co-PIs), Schwean-Lardner K. Development of green processes for egg shell decontamination via electro-nanospraying technologies. Canadian Poultry Research Council. Total: \$30,000 for 2019-10 to 2021-09.

Zhang L, Kiryuchuk S (Co-PIs), Predicala B, Martel M. Development and Assessment of Emerging Green Technologies to Reduce Aerosol Risks and Hazards in Livestock Production. Canadian AgriSafety Applied Research Program, Agrivita Canada Inc. Total: \$76,191 for 2019-04 to 2020-03.

FACULTY, STUDENTS AND STAFF NEWS AND AWARDS

C. Trask, PhD, Canada Research Chair in Ergonomics and Musculoskeletal Health was promoted to full Professor.

Roya Gavanji - 2017-2019: MSc in Biostatistics, “Workers compensation claims for fatal and non-fatal injury in Saskatchewan”, Co-Supervisor, Community Health and Epidemiology, University of Saskatchewan, Canada Co-supervised with Cindy Feng.

Karl Grewal and Meghan Flath, Clinical Psychology Masters students supervised by Dr. Megan O’Connell, both received CIHR MA awards that started in September 2019. Meghan also received a University of Saskatchewan Dean’s Scholarship (3 years; \$22,000 per year plus tuition). These scholarships are offered to students who have outstanding academic records, show research promise and are registering for the first time in a thesis-based graduate program.

Dr. David Kingston: Saskatchewan Health Research Foundation Top Fellowship, Socio-Health for Postdoctoral fellow. Awarded for the project “An impactful step: Investigating lower limb joint loads during farm machinery egress”.

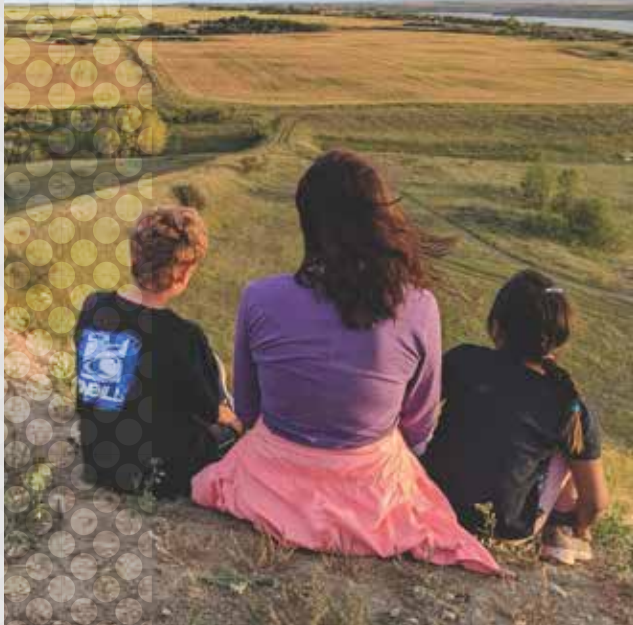
Kaitlin Merkowsky: Health Sciences Graduate Scholarship. Total: \$24,000; September 2019 – August 2020.

Upkardeep Pandher: Health Sciences Graduate Scholarship. Total: \$24,000; September 2019 – August 2020.

Robyn Reist - 2017-2019: MSc in Community Health and Epidemiology, “Risk factors for upper limb disorders among large animal veterinarians”, Supervisor, Community Health and Epidemiology, University of Saskatchewan, Canada.

YOUR GIFT WILL HELP MAKE FARMING SAFER

Your generosity can improve farm safety and help farming families in rural and remote agricultural communities.



A gift in your Will can preserve your family's legacy

Helen Elkow created the Elkow Family Fund through a gift in her Will, in honour of her two brothers, Peter and Philip, and with the intent to facilitate research at the Canadian Centre for Health and Safety in Agriculture.

Preserving her family's legacy was important to Helen, as was carrying on Saskatchewan's own rich legacy of agricultural knowledge. By donating a portion of her estate to USask, students are now benefitting from her donation through scholarship awards and support.

Helen's generosity has also provided the CCHSA an opportunity to further enhance its work on the health and well-being of rural and remote agricultural communities.

Through a gift in your Will you will have an equally profound impact on making farming safer and providing healthier workplaces for farmers and their families for generations.

Thank you for considering the CCHSA in your estate plan.



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Annual Report compiled, designed & edited by Sueli B. de Freitas

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