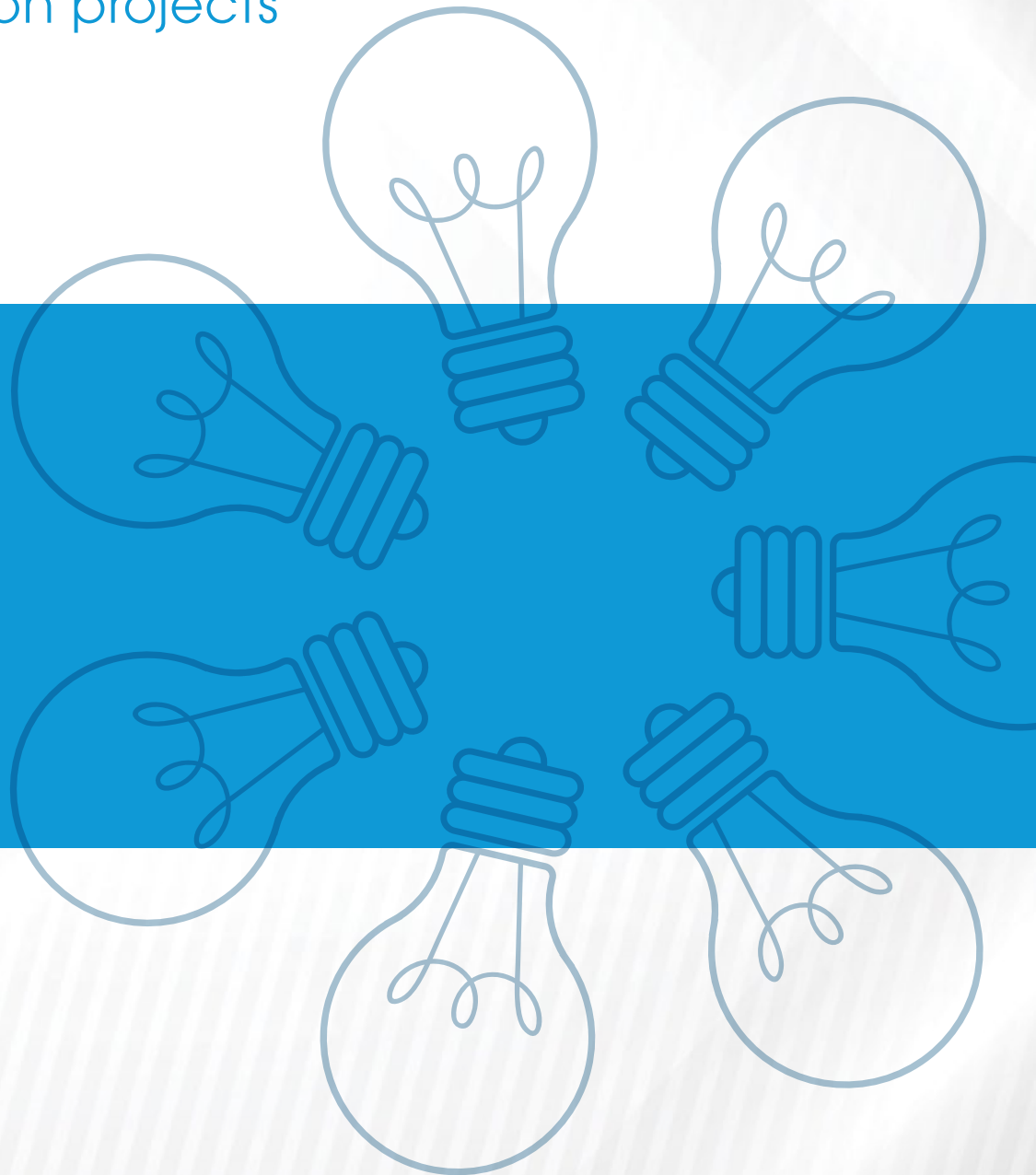# RESEARCH AND WORKPLACE INNOVATION PROGRAM (RWIP)

2024 Report on projects

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OVERVIEW OF REPORT

This report provides an update on the activities of the Research and Workplace Innovation Program (RWIP) in 2024. The report is organized into three sections:

- new grants awarded

- completed projects

- RWIP approved projects 2009 to 2024 (Appendix A)

The RWIP offers grants on an annual and competitive basis to support high quality projects on the prevention of workplace injury and illness, improving workplace health and safety, and the safe and productive return-to-work of injured or ill workers. Funding is awarded under two core funding streams:

- training and education

- workplace innovation

Established in 2009, the RWIP makes available $600,000 dollars in funding each year. Ninety- three (93) projects were funded over the past sixteen (16) years. Appendix A shows approved RWIP projects from 2009 to 2024.

Beginning in 2025, the Research and Workplace Innovation Program will be replaced with the WCB Grants Program. The WCB Grants Program supports projects aimed at improving workplace health and safety, reducing the impact of workplace injuries and illnesses and enhancing the effectiveness of the workers compensation system in Manitoba.

Please visit wcb.mb.ca/wcb-grants-program for the latest news and information about the new program, including important deadlines for submitting an application for funding.

NEW GRANTS AWARDED IN 2024

WORKPLACE INNOVATION

DATA INTEGRATION PROJECT - HEALTHCARE INDUSTRY

Ron Van Denakker,
Manitoba Association for Safety in Healthcare Inc. (MASH)

$159,448 awarded in 2024

Recognizing the imperative to become a data-driven organization, MASH has initiated a strategic project. Through collaboration with industry stakeholders, project team members will identify and incorporate pertinent data sources into a secure, centralized data warehouse. The resulting repository will empower robust reporting and analytics capabilities, enhancing MASH's informed decision-making processes.

The data made accessible through this project will serve as a cornerstone for the efforts in devising strategic plans and formulating effective injury reduction programs. With a deeper understanding of MASH members' risks and experiences, MASH can readily address emerging trends, ensuring agility in their responses. By augmenting the data received from WCB with employer generated data, MASH aims to elevate their decision-making capabilities, fostering a safer industry landscape.

The project is a WCB and employer data collaboration initiative to access, centralize and analyze reportable and non-reportable events, near misses and physical, psychological safety and violence related data.

This proof of concept will focus initially on integrating data from early safety certified organizations in health care and will be augmented as more organizations become certified. The plan is to share outcomes, results and dashboards with other Manitoba IBSP's to positively demonstrate the impact of adding industry specific inputs into performance indicators and related program development.

At the conclusion of this project, through the provision of advanced analytics tools, MASH anticipates enriched capabilities to identify and address safety enhancement opportunities, empowering proactive elevated safety standards across their members' respective organizations.

TRAINING AND EDUCATION

NO TRAINING AND EDUCATION PROJECTS WERE AWARDED FUNDING IN 2024.

NEW GRANTS AWARDED IN 2024

SPECIAL PROJECTS

ADDITIONAL OCCUPATIONAL DISEASES THAT MAY BE ADDED TO THE OCCUPATIONAL DISEASES REGULATION M.R. 69/2023

Thomas Linner,
MFL Occupational Health and Safety Centre Inc.

$50,000 awarded in 2024

The *Workers Compensation Act* now includes a presumption for occupational diseases listed in the Occupational Diseases regulation. Occupational diseases listed in the regulation are presumed to be work-related should the person with the disease be found to have a work-related exposure identified in the regulation. The purpose of this proposal is to identify further occupational diseases that could be added to the regulation.

The specific conditions to be reviewed include:

- bladder cancer

- diffuse pleural thickening related to asbestos

- occupational asthma

- lead toxicity

In addition, more detailed criteria for lead poisoning will be proposed to help adjudicators determine if the case they are reviewing has had a significant enough level of exposure to presume the poisoning was work-related.

The project will involve reviewing the literature to identify the conditions that need to be met so that the proposed diseases could be added to the Occupational Disease Regulation.

PROJECTS COMPLETED IN 2024

The following projects were completed during 2024:

IDENTIFICATION OF NEUROIMAGING-BASED BIOMARKERS IN THE TREATMENT OF POSTTRAUMATIC STRESS DISORDER

Dr. Ronak Patel,
Dr. Ji Hyun Ko,
University of Manitoba

$199,464 awarded in 2016

This study proposed to develop brain imaging-based biomarkers for Post-Traumatic Stress Disorder (PTSD) and explore its usability for diagnosis, monitoring and evaluating the state of the disease and responses to treatment. The overarching goal of the study was to implement the proposed imaging-based biomarker as part of the standard of care for PTSD at the Health Sciences Centre. Specific objectives of the proposed study were: (i) development of an imaging-based biomarker for PTSD; and (ii) validating the effect of Cognitive Processing Therapy (CPT) on the identified imaging-based biomarker.

The study included a randomized control trial involving three groups of subjects: patients with PTSD, patients with trauma exposure (TEC) but not diagnosed with PTSD and healthy subjects without any history of trauma exposure or PTSD. The participants were recruited from the Winnipeg Regional Health Authority outpatient-based psychiatry programs, the Crisis Response Centre, Operational Stress Injury Clinic at Deer Lodge Centre, other outpatient psychiatry clinics and the community at large.

All participants underwent a brief neuro-psychological and cognitive-based assessment. The assessments were done at the beginning of the study and then again after the 12-week intervention period. Subjects in the PTSD or TEC groups participated in a group-based CPT course for a period of 12 weeks.

Sixty-seven participants were recruited and separated into two groups: 40 PTSD and 27 healthy controls.

The project conducted a neuroimaging study on the PTSD group, developed a PTSD-related functional connectivity pattern, and demonstrated that the pattern score was correlated with PTSD symptom severity.

Of the 40 PTSD patients, 35 completed the 12-week CPT. No significant changes were observed in the PTSD-related connectivity pattern albeit some trend, although their PTSD symptoms were significantly improved. This negative neuroimaging finding suggests that the previously identified PTSD-related connectivity pattern may not be involved with therapeutic benefits associated with CPT, and there may be other neural mechanisms that explain the benefits.

Follow-up studies would be pursued to investigate the neural mechanisms of CPT.

PERCEPTIONS AND EXPERIENCES OF TRAUMA WITHIN UNDERGRADUATE NURSING EDUCATION

Catherine Chachula,
Brandon University

$38,927 awarded in 2016

The purpose of this multiple method research project was to carefully respond to and identify the needs and vulnerabilities regarding perceptions and experiences of trauma within the Bachelor of Nursing (BN) and Bachelor of Psychiatric Nursing (BPN) student population at Brandon University (BU) through qualitative inquiry and adoption of combined survey tools.

The project involved a multi-stage research intervention and impact-evaluation process. The guiding research questions were as follows:

- What are the perceptions and experiences of trauma within the nursing student population at BU?

- Can training clinical instructors increase confidence to debrief students in the clinical practice environment?

- What policies and educational practices are needed to foster resiliency and healthy coping mechanisms in undergraduate nursing students prior to entering the workforce?

The study was undertaken in multiple phases. Some key findings during the study were:

- In phase one, following in-depth interviews with seven newly graduated registered psychiatric nurses and registered nurses, data was analyzed for themes. Participants were asked to define what trauma meant to them in context of their experiences as students in their undergraduate programming at Brandon University. Six major themes were identified.

- In phase two, faculty, students and staff working with students who are exposed to potentially traumatic events were invited to participate in critical incident debriefing training. The training was provided by the International Critical Incident Stress Foundation, Inc. (ICISF). All attendees expressed significant learning from attending the education and training session.

PERCEPTIONS AND EXPERIENCES OF TRAUMA WITHIN UNDERGRADUATE NURSING EDUCATION

Catherine Chachula,
Brandon University

$38,927 awarded in 2016

- During phase three of the project, a total of 21 students from the BN and BScPN programs completed an online asynchronous 10-module resilience building intervention program offered through the ICISF. Developing proactive resilience as an essential skill for undergraduate nursing and psychiatric nursing students as they prepare to enter the heath care workforce.

The project highlighted that undergraduate students in nursing and psychiatric nursing programs in Manitoba are exposed to high-stress and traumatic events prior to their entry into the workforce as licensed professionals. Some events have lasting impacts long after the event has occurred. Six approaches for students, educators and practice leaders are recommended when a potential psychologically traumatic event occurs in practice.

The study found that adopting the ICISF PBA course or creating a course that helps students develop resilience is warranted within undergraduate pre-licensure programming. The results from phase three of the project demonstrated that a resilience program is effective in supporting nursing students in developing resiliency and reducing depression, anxiety, stress and post-traumatic stress prior to entering the health care workforce.

FIT FOR WORK (FORMERLY KNOWN AS THE HIP HINGE PROJECT)

Thomas Pachal,
Seven Oaks General
Hospital and the
Wellness Institute

$57,486 awarded in 2022

The Wellness Institute and Seven Oaks Hospital (SOGH) collaborated on the "Fit for Work" project to improve staff knowledge, ability and confidence in performing the core fitness competencies required for safe patient handling and back injury prevention.

The Fit for Work project—formerly known as the Hip Hinge project—taught health care workers a specific movement, the Hip Hinge, that is known to be a protective measure against a back injury. Back injuries account for the largest volume of time loss injuries and is the third most frequent injury reported after multiple site and hand injuries in Manitoba. The Hip Hinge movement is taught extensively in rehabilitation and reconditioning programs yet is rarely known or practiced by individuals prior to a back injury.

The Fit for Work project was a two-part education and practical program. First, health care workers were invited to attend the hip hinge education session developed by physiotherapists who specialized in return-to-work programs. Following the education session, participants were invited to participate in a four-week practical program, where they stretched, lengthened and strengthened key muscles used in the Hip Hinge.

This project involved the delivery of education and training sessions to SOGH staff, with the goal of workplace injury prevention. Education included review of provincial safe patient handling and back injury prevention guidelines and review of core fitness competencies required to comply with injury prevention standards. Training sessions included exercises to improve core, gluteal and quadricep strength, hip/knee mobility and hamstring flexibility. Training included the opportunity to provide feedback on functional movement performance with a review of primary movement patterns. Outcomes included questionnaires on low back pain/dysfunction, movement confidence, work injury rates and participant satisfaction with the program. The project advised stakeholders of the benefits and challenges associated with the implementation of a fitness program to support safe patient/material handling techniques, as outlined in the provincial guidelines for healthcare workers.

Despite the quantitative data showing insignificant improvements, the qualitative data collected had overwhelmingly positive results. This allows further insights into the program's limitations and possible factors leading to the lack of statistical significance.

The major barrier to the program was the inability to commit to the time it was offered. This concern was highlighted when planning the program, as it was very difficult to plan program slots for healthcare workers due to shift work, varying break times, unit coverage and overtime. This led to inconsistent participation and a reduced sample size.

Most participants who completed the program reported that a similar program would be beneficial if offered more frequently and for a longer duration.

OCCUPATIONAL DISEASE SURVEILLANCE IN MANITOBA

Allen Kraut,
University of Manitoba,
Cheryl Peters,
University of Calgary

$93,982 awarded in 2019

Disease surveillance is the ongoing, systematic collection, analysis and interpretation of health-related data for the planning, implementation, and evaluation of public health practice. In particular, occupational disease surveillance can help to identify and monitor trends in work-related diseases and risk factors, which in turn can help to identify priority populations for primary prevention. However, an occupational disease surveillance system in Manitoba does not currently exist.

The purpose of this project was to develop an occupational disease surveillance system for Manitoba by drawing on existing workers compensation and administrative health data sources. The methods used were built on those piloted in Alberta and fully developed in Ontario. The project used workers compensation data to create a cohort of workers with their occupations and industries, linked the data to administrative health data and then assessed the functioning of the system and its ability to detect well-known occupational diseases. Risk of select, noncancerous health outcomes (asthma, contact dermatitis, Raynaud's disease, carpal tunnel syndrome and acute myocardial infarction) were selected for study to validate the utility of such a database for future occupational disease surveillance in Manitoba and as part of an occupational disease surveillance network across Canada.

The specific objectives of the project were to:

1. Construct a cohort of workers in Manitoba with detailed and valid occupation and industry of employment codes from workers compensation claims data.

2. Link the cohort of workers to health outcomes from select health databases (e.g., Manitoba Medical Services and Claims file, and Manitoba's Hospital Abstracts).

3. Calculate the risk of five diseases which may be work-related (i.e. asthma, contact dermatitis, Raynaud's disease, carpal tunnel syndrome and acute myocardial infarction) by occupation and/or industry groups and compare risks for known a priori high-risk groups.

4. Document the methods and utility of the Manitoba occupational disease surveillance system (MODSS), including potential linkages to other health and exposure databases, for future uses.

OCCUPATIONAL DISEASE SURVEILLANCE IN MANITOBA

Allen Kraut,
University of Manitoba,
Cheryl Peters,
University of Calgary

$93,982 awarded in 2019

At the conclusion of the project, some recommendations were made, such as:

- Where an unexpected increased risk was observed, additional research should be conducted to investigate potential reasons for this increased risk.

- Results suggest some conditions, such as AMI, CTS and CD time loss, WCB claims may not identify all cases of work-related disease.

- Update MODSS in the future once we have more years of data to reassess the risk of these health outcomes among Manitoba workers and to reevaluate its ability to examine longer-latency diseases, like cancer.

- Collaborate with other provinces to encourage the development of ODSS's in their jurisdictions; comparison of results and discuss potential pooling in the future, which could yield interesting and impactful results.

- Potential to expand this work to examine other health outcomes (e.g. Ontario is using their ODSS in innovative ways, such as looking at opioid deaths among workers).

A HEALTH PROMOTION STRATEGY FOR LONG HAUL TRUCK DRIVERS IN MANITOBA

Catherine Baxter,
Brandon University

$112,500 awarded in 2019

Long-haul truck drivers have been identified as a high-risk population for obesity, cardiovascular disease, diabetes, sleep apnea, musculoskeletal injuries and stress. Sedentary work, number of hours of sleep, limited opportunities for physical activity and unhealthy eating patterns all contribute to the onset of chronic conditions among truck drivers.

Workplace health promotion programs have largely focused on changing individual worker behaviours, with less emphasis placed on the broader contextual factors within the environment that contribute to poor health practices. Currently, no research has been conducted in Manitoba examining the health practices of truck drivers in Canada. Research is needed as driver obesity and associated chronic illnesses (cardiovascular diseases and diabetes) have been linked to increased absenteeism, driver turnover, lost time injuries and higher crash rates.

The purpose of this project was:

- to examine how the mobile work environment supported or hindered the health promotion practices of long-haul truck drivers

- to explore truck drivers' perceptions of barriers and facilitators to adopting and maintaining healthy lifestyle practices while at work

The research objectives were:

- to describe how the mobile work environment supports or hinders healthy lifestyle practices amongst long-haul truck drivers

- to identify and describe the current health practices of long-haul truck drivers while at work

- to identify and describe long-haul truck drivers' perceptions of the barriers and facilitators to adopting and maintaining healthy lifestyle practices while at work

A HEALTH PROMOTION STRATEGY FOR LONG HAUL TRUCK DRIVERS IN MANITOBA

Catherine Baxter,
Brandon University

$112,500 awarded in 2019

A mixed-methods design was used, and data was collected from several sources, including an environmental assessment of the mobile work environment, in-depth semi-structured interviews and diet and activity logs.

A parallel approach to data analysis was also used. Each source of data was analyzed independently and brought together once the analysis of each component was complete. Qualitative interview data was transcribed verbatim and a framework approach to qualitative analysis was carried out.

Key findings included information regarding Mobile Environment Assessments: Truck Stop Amenities, In-Transit Assessments, Diet Logs, Physical Activity Logs and Barriers and Facilitators to Health Promotion. For details on each, please refer to the final report.

Recommendations included:

- A multi-level approach to health promotion programming for long-haul truck drivers is adopted, with the impact on the health and safety of drivers being considered in the development of all policies.

- Occupation-specific health education resources that target the specific needs of long-haul truck drivers are created.

- Infrastructure is improved to promote the health and safety of drivers. Additional rest stops are developed, turnouts are placed at regular intervals along all major truck routes, safe places to park are created, and highway maintenance is prioritized and actioned to ensure safe highway conditions.

- Government and the private sector work collaboratively to create a healthier mobile work environment that includes increased access to/availability of healthy food options, truck accessible parking, showers/exercise facilities and equipment, washrooms, outdoor walking paths, safe overnight parking and truck amenities

- An industry culture that prioritizes the health and safety of drivers is important to promote physical and mental health. It is recommended that trucking companies encourage drivers to take scheduled breaks and adopt a culture that supports health.

WATSIN CHEMICAL EXPOSURE ALGORITHM

**Douglas N. Wylie,
Pamela Wylie,**
Winnipeg Air Testing/
Safety in Numbers

$69,200 awarded in 2019

Airborne exposure to chemicals is a major route of exposure in a workplace and can result in cancer, respiratory and central nervous system effects. Manitoba legislation requires employers to assess potential chemical exposures. Every workplace has numerous Safety Data Sheets (SDSs), but there is no practical way to use them to predict worker exposure. Sampling worker exposure can be a significant cost to a company, and airborne worker exposure assessments are especially challenging for small manufacturers that have limited resources and knowledge.

The most common approach to assessing chemical exposures is by subjective assessment. The American Industrial Hygiene Association says that subjective assessment of exposures tends to be inaccurate and inconsistent except for in extreme scenarios.

The RWIP project had two main goals. First, it tested the accuracy of a web-based algorithm called WATSIN. As a tool, it predicts worker exposures to chemicals by comparing the algorithm's predictions to measured airborne concentrations. The goal of the project was to predict the exposures of 200 workers and then compare those predictions to the actual measured exposure of those workers. In this manner, the algorithm's statistical accuracy could be determined.

The second objective was to make WATSIN available to Manitoba workplaces so that they could self-assess various exposure scenarios in their workplaces.

WATSIN walks the user through six questions to define the conditions that contribute to worker exposure. WATSIN consists of two versions that are very similar, one for dusts and one for liquids. Once the information on the process is entered, the WATSIN program generates a prediction of that worker's exposure. The results are expressed as a per cent of the Occupational Exposure Limit (OEL) within exposure bands.

This process provides a quick and easy assessment of airborne worker exposure and allows companies to assess chemicals proactively and explore the substitution of safer chemicals.

IMPROVING DETECTION OF WORK-RELATED ASTHMA: VALIDATION OF THE WORK-RELATED ASTHMA SCREENING QUESTIONNAIRE - LONG VERSION

**Diane Lougheed,
Catherine Lemiere,**
Queen's University

$174,987 awarded in 2018

Work-related asthma (WRA), which includes asthma that is induced by the workplace or pre-existing asthma that is exacerbated by the workplace, is a major health concern for the public. Approximately 17% of adult-onset asthma cases are due to WRA. Early detection is crucial, as delayed diagnosis is associated with worse outcomes. However, there is a delay in the diagnosis of WRA and a lack of awareness of WRA in primary care settings. Therefore, a tool that improves the screening and awareness of WRA has the potential to improve diagnosis and promote earlier detection.

This project continues the work of the Asthma Research Unit, headed by Dr. Diane Lougheed at Queen's University in Ontario, to create a work-related asthma-screening questionnaire for improved screening and awareness of WRA in primary care settings.

The WRASQ(L)TM was based on four questions from the Asthma Care Map, a tool for asthma management. The first question asked about the relationship between symptoms and the workplace. Four other symptom-workplace questions and questions on exposure subjects were added as well.

The goal of the study was to reduce the burden of asthma for those affected, improve work performance in employees and reduce absenteeism costs for employers, providing savings for government and compensation boards.

Due to the COVID-19 pandemic, all in-person research recruitment activities were halted. However, to continue enrolling subjects while adhering to the physical distancing guidelines, the project was designed and received ethical approval to conduct a remote recruitment procedure for the study protocol. This was the only protocol that was used. The reviewed analyzable data had classified subjects as either WRA or non-WRA. This allowed for analysis of preliminary data. Queen's University had screened 92 subjects; 4 more were enrolled and expected to be completed. 42 subjects had completed the study in Kingston with usable data. The Montreal site had screened 70 subjects; 7 were excluded or withdrew and 56 subjects completed the study in Montreal with usable data.

IMPROVING DETECTION OF WORK-RELATED ASTHMA: VALIDATION OF THE WORK-RELATED ASTHMA SCREENING QUESTIONNAIRE - LONG VERSION

Diane Lougheed, Catherine Lemiere, Queen's University

$174,987 awarded in 2018

Winnipeg's St. Boniface Hospital was ultimately unable to be included due to lengthy delays in approval.

As of spring 2024, recruitment and monitoring of all participants were completed. Of the 189 potential participants screened, 63 were excluded due to early withdrawal, no vacation available, or no formal asthma diagnosis. After 126 participants were enrolled, 20 were excluded due to poor data, failure to follow up, or a lost PEF device, leaving 106 participants included in data analysis.

The project found the WRASQ-LTM had excellent sensitivity (SN) and negative predictive values. The high SN is of primary interest to ensure that few false negative screens are missed and those with potential WRA are identified and continue to specialist care. The high SN indicates the utility of the questionnaire in clinical settings.

Further benefits of the tool include its potential to prompt for education on the symptom workplace relationship, workplace exposures, personal protective equipment use and occupational history.
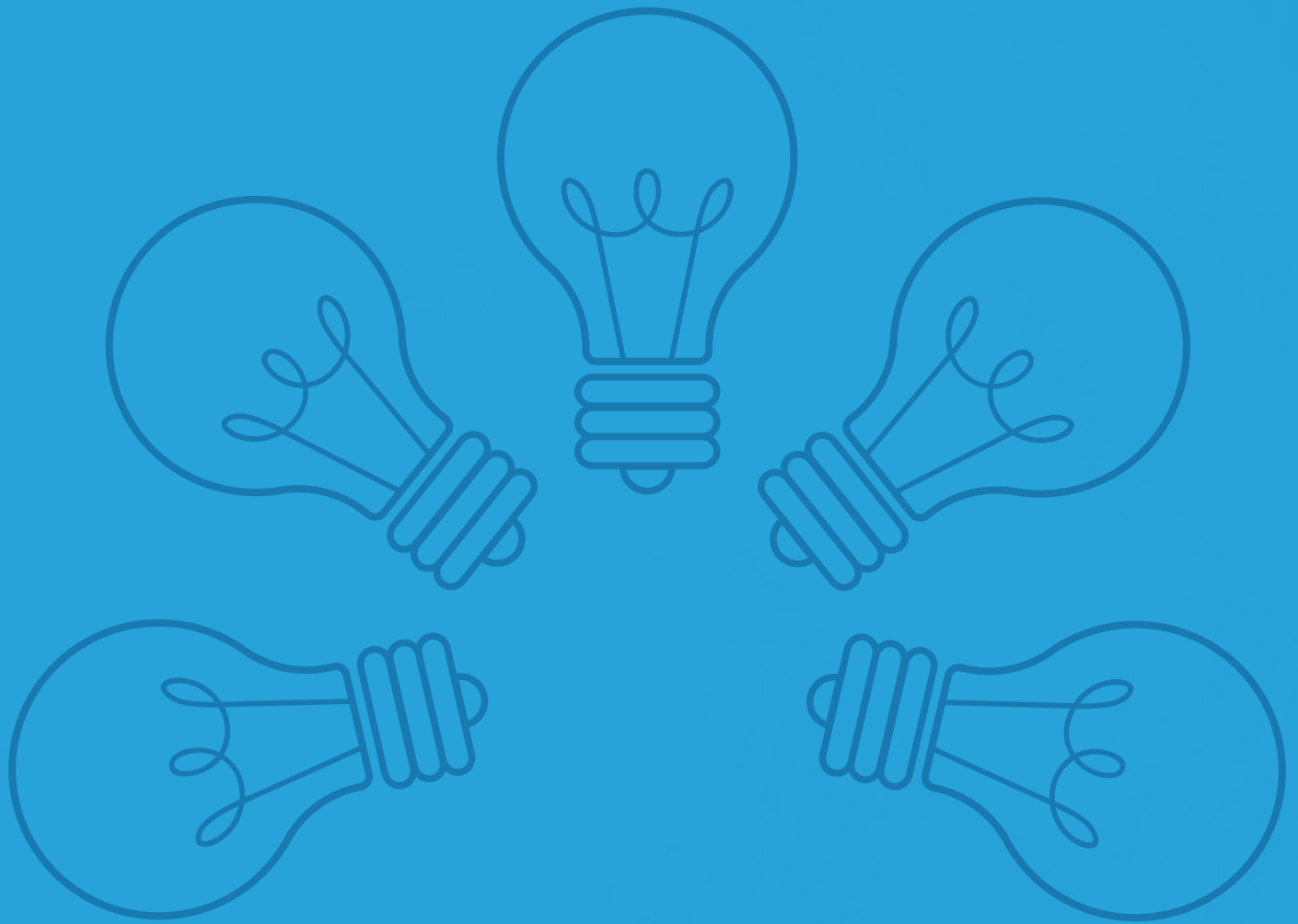
APPENDIX A - RWIP APPROVED PROJECTS 2009-2024

Original approved projects			Status of projects				
FUNDING STREAM	NUMBER OF PROJECTS	ORIGINAL APPROVED FUNDING	COMPLETED	CANCELLED	NEW PROJECTS APPROVED IN 2024	IN PROGRESS	REVISED FUNDING*
Workplace Innovation	26	$3,121,805	23	1	1	1	$2,761,747
Scientific Research	36	$5,362,785	33	3	0	0	$4,671,634
Training and Education	17	$1,858,776	15	0	0	2	$1,830,201
Partnerships	5	$545,605	5	0	0	0	$525,889
Special Funding	4	$618,190	3	0	1	0	$508,563
Request for Proposals	5	$324,875	4	1	0	0	$359,710
Totals:	**93**	**$11,832,035**	**83**	**5**	**2**	**3**	**$10,657,743**

*Revised funding may occur in two ways. Frequently the entire original funding is not required for the successful completion of a project, resulting in a decreased funding amount. Occasionally a grant recipient may request an increase in funding. The Administration may approve increases up to $20,000 as long as the total project cost does not exceed $200,000. Increases in excess of those amounts are subject to Board approval.

To view the list of completed projects that submitted final reports, please follow the link below:

www.wcb.mb.ca/research-and-workplace-innovation-program-completed-projects-and-resources

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