

The Research Institute for Enhancing Prevention of Injury and Disability at Work (EPID@Work)

Application for formal Centre status

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1. Purpose and relevance

1.1 *Statement of the problem*

Injury and disability are issues with numerous and complex implications for individuals, communities, and society: they result in exclusion of individuals from full participation in society, education, and employment, and increase the need for social and health care. Persons with disabilities have lower participation rates in the labour force than those without.[1] Work is related to health: good work keeps you healthy, good health keeps you working.

Disability is an interaction between features of individuals and the context in which they live.[2] Disability can be defined in several ways; we recognize that different definitions affect the outcome of studies examining the living conditions of those with disability.[3] We will define disability using the biopsychosocial model, which integrates the medical model (viewing disability as a feature of the person, caused by disease or injury), and the social model (viewing disability as a socially-created problem). The International Classification of Functioning, Disability and Health (ICF) uses the biopsychosocial model and will be the means by which we define disability.[2] The ICF is the World Health Organization's framework for measuring health and disability at both individual and population levels.[2]

More than one billion people, about 15% of the world's population, live with some form of disability.[4] As most of the world's populations are aging, the rate of disability is increasing over time. Older people have a higher rate of disability. Other conditions increase the prevalence of disability as well: data from the EU member states showed that about one quarter of the working age population had a chronic disease, while 19% reported having long-standing health issues.[5] The employment of people with health issues is nearly 30% lower than in those without health issues – a significant gap that has become wider during the post-recession years.[6] Northern Ontario has greater work disability durations than Southern Ontario,[7] indicating that this is a current, important problem for our community. This is a problem that can only be addressed through transdisciplinary collaboration and engagement with community partners.

Disability affects vulnerable populations in particular: people living in poverty, women, and older people have a higher prevalence of disability.[4] Yet, for the most part, work-related injury and disability are preventable. The Workplace Safety and Insurance Board (WSIB) of Ontario reported a decrease in both lost- and no lost-time injury rates over the past 10 years (Appendix I). Some interventions have shown decreases in disability duration.[8] However, many of these interventions focus on medical interventions.[8] Restricting interventions to a

medical approach perpetuates a belief that employees with disabilities are not whole.[8] Our goal should be to understand all aspects of injury and disability to develop interventions that enhance and develop new strengths in employees whose health status evolves over time.[8] Hence, the philosophical underpinning of our proposed Research Institute is to improve work-related injury and disability prevention through understanding all mechanisms of the problem, beyond just the medical approach. We will conduct participatory research that addresses the social, environmental, medical, and legal context of the workplace environment.

1.2 *Mandate*

Our mandate is to bring people together to reduce impacts of work-related injury and work disability through collaborative applied research and provision of education to enhance knowledge related to injury and disability. Information generated from our research will inform practice and policies aiming to improve health and social outcomes in Northwestern Ontario and beyond.

Goals

- Conduct high-quality, transdisciplinary research in the areas of work-related injury and disability prevention, with a focus on issues relevant to Northwestern Ontario;
- Participate in integrated knowledge exchange with community stakeholders and the greater research community participating at all phases of the research process;
- Provide an exemplary training and experience opportunity for the next generation of transdisciplinary researchers in Northwestern Ontario and beyond; and
- Enable community stakeholders to easily and centrally access Lakehead's research expertise and knowledge in the areas of work-related injury and disability prevention through the provision of research and education services.

1.3 *Objectives*

- Support the development and increase the volume of quality of collaborative grant applications submitted to tri-council funding agencies and other granting bodies;
- Increase the involvement of early career faculty, post-doctoral fellows, graduate and undergraduate students, and community partners in research;
- Increase the number of research projects related to work-related injury and disability prevention in Northwestern Ontario;
- Increase the output and dissemination of research knowledge produced by members of the Research Institute; and
- Provide training and research services to community stakeholders.

1.4 The university mandate and the region

The recent draft of Lakehead University's 2018-2023 Strategic Plan outlines five key strategic areas to which EPID@Work will contribute:

- 1) Academic excellence: Conducting and disseminating results from high-quality transdisciplinary research attracts graduate students and post-doctoral fellows;
- 2) Social responsibility: Our focus on vulnerable populations will include collaborative studies with Indigenous communities, providing an opportunity for us to attract Indigenous students to Lakehead University as undergraduate or graduate students;
- 3) Local and Global Partnerships: Our proposed research institute is built on local and global partnerships. We will increase the number of partnerships Lakehead University has with local industry and government organizations;
- 4) Entrepreneurship and Innovation: EPID@Work will develop evidence-based tools that can be commercialized for injury prevention and management and create work-integrated learning opportunities for graduate and undergraduate students; and
- 5) Capacity development for quality outcomes: We will seek diverse funding opportunities that will assist Lakehead University in its quest to generate increasing proportions of revenue from other sources.

Although a new strategic research plan is in preparation, it is unlikely that Lakehead University's research priorities will deviate greatly from the 2012-2017 Strategic Research Plan (SRP). In this plan, the major objectives are listed as:

- “strengthen[ing] research and scholarly activity at Lakehead that is of outstanding quality and leading in its innovation, especially in strategic interdisciplinary research areas that are prominent at, or unique to, Lakehead University among Canadian universities, while allowing for the development of new emerging areas of concentration, with the long-range objective of creating new institutional centres of research excellence”;
- “enhance[ing] the training of highly qualified personnel (HQP is defined as undergraduate/graduate students and postdoctoral fellows), by increasing the number of HQP, and by providing a highly stimulating research environment for all of our students that establishes Lakehead as a leader in the integration of research and teaching”;
- “ensur[ing] our researchers have access to superior research resources and infrastructure and to manage these to ensure their effective and efficient use;
- “develop[ing] new research partnerships with communities, businesses, industries, government, other academic institutions and other partners, regionally, nationally, and internationally”; and

- “enhance[ing] knowledge mobilization, translation, transfer and application in order to maximize their benefits to society in northern Ontario and beyond.”

The proposed Research Institute is well aligned with these major objectives. The Research Institute would be based on transdisciplinary collaborations, partnerships with community and industry partners, with a focus on an important health issue of relevance to the region and the wider community. The fundamental approach of the Research Institute is based on research excellence and would be used to develop and sustain a research and education agenda that would lead to direct improvements in the lives of many individuals. The members of the team have successfully developed collaborations and demonstrated that their research is fundable and publishable with significant impact.

Our proposal is closely linked with most of the objectives of the Plan, including but not limited to:

- the recruitment and retention of outstanding faculty;
- the recruitment of outstanding undergraduate and graduate students;
- the attraction and provision of increased financial resources and infrastructure to support research excellence and innovation;
- the facilitation of scholarly inquiry, both individual and collaborative;
- the support of sustainable research partnerships; and
- the promotion of Lakehead’s research in the region and beyond.

In addition, the focus on “work-related injury and disability” outlined in this proposal is consistent with five of the six priority research areas identified in the Strategic Research Plan:

Health Research Across the Life Span: The proposed Research Institute will approach injury and disability from a life course perspective. We will include projects on younger, new, and older workers as these are at greatest risk for injury and disability.

Northern Studies: As a Research Institute situated in Northwestern Ontario, we aim to serve Northern populations. Hence, we will build a strong partnership with local communities, agencies, and other partners situated in the north. Our mantra is to “Think globally, but act locally”, making our research impactful locally, but with relevance to the greater global north.

Cultures, Societies, and Social Justice: The Research Institute will include studies examining work participation and disability in various cultures and societies, including Indigenous populations, injured workers, homeless, and those with developmental disabilities. Furthermore, sex and gender contribute important cultural impacts on work task performance strategies that will be seen as foundational in the institute’s research mandate.

First Nations, Métis and Inuit (Indigenous) Research: As mentioned later in this application,

two projects are currently ongoing in this area” a CIHR Strategic Initiative and a SSHRC Partnership Development Grant that both involve partnership with the Nookiiwin Tribal Council. Nookiiwin will continue to be a vital part of the Institute as we will develop a SSHRC Partnership Grant over the next three years.

Advanced Systems and Technologies: We are currently developing an e-health intervention for Indigenous mental health in the workplace; future research will involve evaluation and scale-up. In primary injury prevention there is a focus on wearable technologies that allow integration of research from “lab to field” where biophysical factors identified as associated with increased risk of injury can be verified. For example, using motion capture and force plates in the lab to identify spinal loading patterns during a firefighting lift task in the lab can be verified in the field using portable motion capture devices and force plates.

The proposed Institute falls within the realm of all tri-council funding bodies. For example, work related to e-health and engineering aspects fall under NSERC-supported activities. Issues related to the social context of work, work participation, and work outcomes fall under SSHRC. The advancement of health and rehabilitation are under the purview of CIHR. The support of various other granting bodies, such as workers’ compensation boards, and the public and private sector, may also be available to fund the research activities of the Institute. Hence, we anticipate that the evolution and expansion of the Institute’s research activities will entail securing research funding from a variety of sources.

1.5 Institute philosophy

As stated earlier the philosophical underpinning of our Research Institute is to improve work-related injury and disability prevention through understanding the mechanisms of the problem, beyond a medical approach. We will conduct participatory research that addresses the personal, legal and insurance system, workplace and environmental, medical and health care system, within an overall societal context (see theoretical framework below).

We will accomplish this by furthering our understanding of the individual components of our framework and the linkage between these components within varying populations and health disorders. Our Institute will focus on the following three areas, as we have considerable expertise in each of these areas, with experienced researchers as team leads:

Vulnerable populations: Disability affects vulnerable populations in particular: people living in poverty, women, and older people have a higher prevalence of disability.[4] Social justice is a key principle for EPID@Work. We believe in equitable opportunity to work and live free from injury and disability for all. According to this principle, we will conduct research to prevent injury and disability in the following vulnerable populations:

- **Older workers:** Since older adults are choosing (and often need) to remain in the

workforce, work disability rates in this demographic are expected to increase. Older workers with more potential for health-related issues will present new challenges for preventing work disability.[9] According to the 2016 census, 18% of Thunder Bay citizens are age 65 and older, with a median age of 43.[10] Given the aging population, this is an important area of research for Lakehead University.

- **Injured workers:** The long-term (greater than 10 years) health outcomes of injured workers are very poorly understood. How do compensated and non-compensated injured workers fair in terms of their healthy years after their injury? We propose to evaluate the long-term health effects of work-related injury and disability.
- **Indigenous communities:** We have developed a research collaboration with the Nokiiwin Tribal Council. The proposed Research Institute will house the recently awarded SSHRC Partnership Development Grant “Understanding labour force participation, work productivity and disability in the Indigenous context: a partnership with the Nokiiwin Tribal Council” and work towards the submission of a full SSHRC Partnership Grant.
- **Homelessness:** Those experiencing homelessness experience greater burdens of injury and disability.[11] A recent point in time count in Thunder Bay identified Indigenous and newcomers to carry the burden of homelessness within Thunder Bay.
- **Intellectual and developmental disabilities (IDD):** Adults with IDD often face barriers to full and meaningful participation in the workforce. The range of employment options differs across regions, between rural and urban communities, as well as based on the nature and level of the IDD. Individuals who work may do so for no pay, or less than minimum wage. In addition to being unjust, this causes stress and disruption in the lives of adults with IDD who have both the desire and capacity to work and, ultimately, contributes to higher support costs.

Dr. Helle Moeller has substantial experience working with vulnerable and disadvantaged populations. She will be the theme leader for this area of research within the Institute.

Musculoskeletal (MSK) injuries: MSK injuries place a significant financial and personal burden on workers and workplaces. MSK injuries remain the most prevalent injury amongst Ontario workplaces: in 2015, 40% of injuries reported by workers were classified as sprain and strains, 17% were linked to overexertion and 17% of injuries were related to the low back.[12] These findings suggest that workers continue to experience injuries that are preventable through education and improved understanding of the link between task performance strategies and injury risk.

Dr. Kathryn Sinden has been working in musculoskeletal injury and disability prevention for over 20 years and will lead the MSK injury area.

Mental health in the workplace: A recent survey of Thunder Bay employers found that 40% indicated mental health as a high priority issue (Thunder Bay District Health Unit, unpublished). Mental illness is to the 21st century what physical industrial diseases were to the 19th and 20th centuries.[13] Identifying, developing, implementing and evaluating tools and interventions designed to mitigate impacts of mental health disorders on workers and workplaces remains an ongoing challenge. We will build on current collaborations with the Thunder Bay District Health Unit (Superior Mental Wellness @ Work), and the Workers Compensation Board of Manitoba (“Supervisor and worker perspectives on workplace accommodations for mental health disorders”) to address this important topic.

Dr. Lynn Martin, with considerable experience working in the area of mental health, will be the theme leader for this area of the Institute.

With a focus on these three priority areas, we believe that EPID@Work will make a significant contribution to injury prevention, rehabilitation, and disability prevention that will be recognized provincially, nationally, and internationally. We also believe that all members of the Institute will have the opportunity to grow professionally and that we will successfully break down disciplinary silos while harnessing the fundamental knowledge intrinsic to every discipline.

1.6 The theoretical framework

Work-related injury and disability prevention is complex, with many contributing factors to the prevalence and incidence of each. These factors are indicated through the following model, which will be used to guide the research proposed within the Institute. While the published model is specific to musculoskeletal pain and disability, it is applicable to all areas of focus in the Institute.

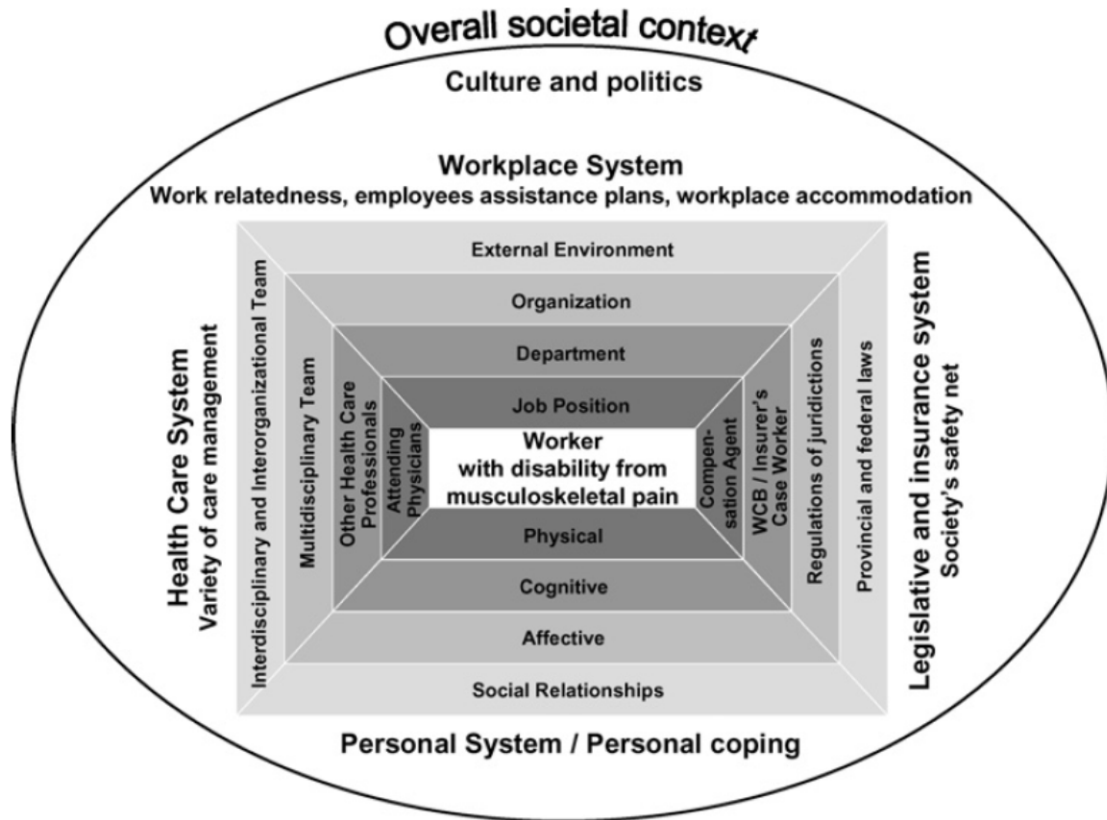


Figure 1. The arena in work disability prevention [14]

We start with the accepted notion that to successfully support injury and disability prevention we can intervene on four different levels: 1) the worker, 2) the workplace, 3) the legislative and insurance system, and 4) the health care system. As demonstrated in Figure 1, these levels can be decomposed into various sub-levels. For example, “social relationships” is a domain within the “individual worker’s personal system” that may impact whether a worker sustains an injury or is able to recover from it. We propose to use this model to identify targets for the development of prevention initiatives. Primary areas of concern include workplace factors and issues of sex and gender.

1.7 The approach and activities of EPID@Work

One can readily see from the framework that injury and disability prevention is best studied through a transdisciplinary approach – learning from and with each other. This is consistent with the approach that was used in the CIHR Strategic Training Program on Work Disability Prevention.[15, 16] At this stage of the Institute’s development we have assembled a team representing Epidemiology, Biostatistics, Business Administration, Computer Studies, Gerontology, Health, Human Factors, Kinesiology, Physiology, Psychology, Social Work and

Women's Studies. We believe a transdisciplinary approach will provide more opportunity for cross-disciplinary collaborations that will address all aspects of the problem and strengthen the research produced. This approach will also increase the opportunity for success in attracting funding from major funding sources, as varied disciplines will allow us to target funding applications to a broader funding pool.

To foster a true transdisciplinary environment, we will adopt several strategies. First, we will expect all members of the Institute (faculty, staff, and students) to attend quarterly plenary meetings to discuss emerging issues, disseminate the research conducted, and stimulate interdisciplinary exchanges. We will expect all participants to present their work on a rotating basis. We will also use this forum to invite guest speaker presentations from outside collaborators. Second, we will develop workshops for Institute stakeholder (business/employer/health care provider/disability managers, etc.) training. These workshops will help stakeholders understand how they can use our research findings to improve their work. Finally, we will offer consulting services to employers to help them understand their workplace culture, levels of stigma, and/or other aspects of the workplace environment that may assist them in improving the health and safety of their workforce.

In addition, we will continue to develop internal and external collaborations to facilitate transdisciplinary research on work-related injury and disability prevention. Internal collaborative activities have included (but are not limited to): joint research grant applications, student projects, development of research protocols, and actual conduct of research and dissemination of results. External collaborations include a wide range of projects; the list of current formal collaborators and partners is presented in Appendix II.

We propose to create an environment where established and newly recruited researchers to the University will collaborate on projects investigating work injury and disability prevention. Additionally, the development of the next generation of researchers is an important focus of this initiative. We will involve students in all aspects of EPID@Work, including plenary meetings, workshop development, and research services. We will ensure that the supervision committees of graduate students are made of more than one discipline. As indicated in Appendix III, a considerable number of students have been or are currently involved in the type of research proposed.

2. Life expectancy

Work consumes a considerable amount of an individual's time. Although the WSIB has long called for zero-injuries, this has not yet occurred, and is unlikely to occur any time soon. The definition of "injury" is expanding, as the notion of "injury" has increased to include mental health, etc. Furthermore, work disability would continue to be an issue even if the incidence of

work-related injury were reduced to zero. Health conditions related to aging and the increased population of aging workers in the workforce will continue to demand research on work disability prevention. Therefore, it is highly likely the proposed Research Institute, EPID@Work, will be established as there is a continuous need and interest in the problem of work disability and injury prevention. However, we believe in continuous quality improvement and will set up a regular review process as outlined by the Senate Research Committee’s guidelines on Research Institute review.

3. Budget

The budget presented in the table below is based upon funding currently awarded. New specific external funding of at least \$100,000 per year will be sought. A meeting held with Federal Labour Minister, Patti Hajdu, on Dec 15, 2017 resulted in a positive outlook for the \$100,000/year in new revenue to be acquired through government funding. Other revenues will be in the form of new university contributions (e.g., overhead costs redistribution (RSF)), revenue generation (consulting fees), and new research grant applications (Table 1). The total budget is \$1,063,615 disbursed over a five year period.

The main expenditures fall under the “personnel” category, primarily for the support of staff working on existing and future projects. These include two Post-Doctoral Fellows until the end of 2020 and one thereafter, a Research Associate and Assistant for each of the five years. Travel expenses will cover staff travel to conferences and visiting scholars. Minimal expenses for equipment and supplies are expected beyond the initial set-up of the Institute.

Table 1. Funding expenditures and revenues for first five years of EPID@Work

Expenditures	Year 1 2018/19	Year 2 2019/20	Year 3 2020/21	Year 4 2021/22	Year 5 2022/23	Total
Personnel						
- <i>Post-Doctoral Fellows</i>	60,000	60,000	45,000	45,000	45,000	255,000
- <i>Research Associate</i>	60,000	60,000	60,000	60,000	60,000	300,000
- <i>Research Assistant</i>	40,000	40,000	40,000	40,000	40,000	200,000
- <i>Director teaching relief</i>		16,650	16,980	17,320	17,665	68,615
- <i>Administrative Assistant (PT)</i>	35,000	35,000	35,000	35,000	35,000	175,000
Travel (staff/invited lecturers)	6,000	6,000	6,000	6,000	6,000	30,000
Equipment/supplies	15,000	5,000	5,000	5,000	5,000	35,000
Total	216,000	222,650	207,980	208,320	208,665	1,063,615
Income						
CIHR (awarded)	132,600					132,600
SSHRC (awarded)	57,850	69,400				127,250
LU matching funds for	8,750	8,750				17,500

SSHRC partnership development grant (awarded)						
Federal Research Support Fund (RSF)	15,000	15,000	15,000	15,000	15,000	75,000
Kristman MRI ERA (awarded)	40,677	38,000	10,000	14,000		102,677
LU Start-up grant (pledge from VP Research)	10,000					10,000
New research grant funding (estimated)		50,000	50,000	50,000	50,000	200,000
Contract Research services	2,000	3,000	4,000	5,000	5,000	19,000
Anticipated revenues through targeted funding mechanisms		100,000	100,000	100,000	100,000	400,000
Total	266,877	284,150	179,000	184,000	170,000	1,084,027

3.1 Potential Funding Sources

To sustain and strengthen the Research Institute’s activities and infrastructure, we will pursue both traditional and non-traditional sources of funding. A particular strength of the Institute is the applicability of its research, which will assist in developing financial partnerships with industry and revenue generation through workshops and research services. All grants will have to be secured under the Institute’s umbrella to generate overhead revenues where possible:

- Canadian Institutes of Health Research
- Social Sciences and Humanities Research Council
- Natural Sciences and Engineering Research Council of Canada
- Canadian Foundation for Innovation
- Worker’s Compensation Boards across Canada
- FedNor/NOHFC
- Other avenues: Federal Labour Minister Patti Hadju has her personnel currently seeking targeted funding avenues to support this research institute.

4. Research Institute Plan

4.1 Vulnerable populations theme

Research under this theme will focus on ensuring equitable distribution of injury and disability prevention resources, including research. Given that it is a relatively new area of research, the focus over the next five years will be on establishing the burden of the injury and disability problem in various vulnerable populations.

4.1.1 Projects currently ongoing in the Vulnerable populations theme

Ongoing projects that are relevant to this research theme include (EPID@Work investigators in italics):

- *Gignac MA, Kristman VL, Kosny A, Cameron J.* Conceal or reveal? Facilitators and barriers to older workers' communication of accommodation needs in the workplace and its relationship to work outcomes. SSHRC Insight Grant, \$232,331, 04/2016-03/2020.
- *Kristman VL, Moeller H, Mushquash C, Chambers L, Matthews R, Schiff R, Stroink M, Shaw W, Gignac M.* Understanding labour force participation, work productivity and disability in the Indigenous context: a partnership with the Nokiiwin Tribal Council. SSHRC Partnership Development Grant, \$200,000, 04/2017-03/2020.
- *Kristman VL, Gilbeau A.* Designing an E-health intervention for Indigenous mental health in the workplace: a partnership with the Nokiiwin Tribal Council. CIHR Catalyst Grant: Work Stress and Wellbeing Hackathon, \$75,000, 04/2017-04/2019.

4.2 Musculoskeletal (MSK) disorders theme

Research on workplace MSK disorders has been ongoing for quite some time.[17] Yet, we have not developed interventions effective in the prevention of MSK disorders and disability.[18] Research under this theme will focus on program implementation to identify ways of using our knowledge of MSK and MSK disability risk factors to implement and evaluate effective prevention programs. Additionally, we will focus on issues of measurement to ensure we are capturing relevant outcomes.

4.2.1 Projects currently ongoing in the MSK disorders theme

Ongoing projects that are relevant to this research theme include (EPID@Work investigators in italics):

- *Jetha A, Tucker L, Backman C, Kristman VL, Proulx L, Gignac M.* Work disability prevention for Millennial young adults with rheumatic disease. The Arthritis Society Young Investigator Operating Grant, \$142,647, 01/2018-12/2020.
- *Kristman VL, Shaw W, Loisel P, Amick B, Boot C, Hogg-Johnson S.* A supervisor training program for work disability prevention: a Cluster Randomized Controlled Trial. CIHR, \$331,223, 10/2013-03/2019.
- *Kristman VL.* Preventing work disability through accommodation. CIHR New Investigator Salary Award, \$300,000, 09/2014-08/2019.
- *Kristman VL, Shaw W, Loisel P, Amick B, Boot C, Hogg-Johnson S.* Work disability prevention in Ontario: testing a supervisor training intervention. Ontario Ministry of

Research and Innovation Early Researcher Awards Round 11, \$150,000, 06/2016-05/2021.

- Mustard C, Kosny A, McLeod C, Robson L, *Kristman VL*, Jetha A. Strengthening disability management practices in the Ontario municipal sector. Ontario Workplace Safety & Insurance Board (WSIB) 2016 Grant program, \$250,000, 01/2017-01/2019.
- *Sinden, KE*, Hay J, MacDermid JC, Carnahan H, Brazil. Adapting firefighter TEAM-Feedback modules to context: Building capacity in firefighter injury prevention. Canadian MSK Research Network (CIHR Funded), \$10 000.00, 04/2017 – 04/2018
- *Sinden, KE*, Hay J. A pilot study to identify impacts of 24 hour shifts on firefighter work health. Lakehead University - Research Development Fund, \$7 000.00, 04/2017 – 03/2018.
- *Sinden, KE*, Hay J, MacDermid JC, Firefighter burden of injury relative to specific fire response characteristics. The Council of Canadian Fire Marshalls and Fire Comissioners and The Canadian Association of Fire Chiefs, \$19 950.00, 04/2017 – 03/2017.
- MacDermid JC, D'Amico R, Grieve C, *Sinden K*, Stock S, Pysklywec M, Scott L, Frewen P, Petersen S, Jamnik V. FIRE-WELL: Firefighter Illness Remediation Enterprise: Work-Accommodations for Enabled Life & Livelihood. Canadian Institute of Health Research (CIHR) and Social Sciences and Humanities Research Council (SSHRC) - Healthy and Productive Work: Partnership Development Grant. \$147,636.00, 2016-2018.

4.3 Mental health in the workplace theme

Although the mental health of workers has become the focus of many new interventions across the globe, inconsistent outcome measures and study designs have inhibited the ability of employers to see the relevance to their workplace.[19] More data on return to work, absenteeism, and presenteeism need to be presented to help employers see the relevance. Thus, more research is needed to understand return to work and stay at work processes from the employer perspective and how to best develop and disseminate improved policies, procedures, and training methods in workplace disability management.

4.3.1 Projects currently ongoing in the Mental health disorders in the workplace theme

Ongoing projects that are relevant to this research theme include (*EPID@Work* investigators in italics):

- Armstrong S, Cernigoj M, Danchuk A, *Kristman VL*, Sawula E, Sawula S, Fraser L,

Moeller, H. Superior Mental Wellness @ Work: Standard to Action Project. Ministry of Labour Occupational Health & Safety Prevention and Innovation Program, \$132,900, 04/2016-05/2018.

- *Kristman VL, Gilbeau A.* Designing an E-health intervention for Indigenous mental health in the workplace: a partnership with the Nokiiwin Tribal Council. CIHR Catalyst Grant: Work Stress and Wellbeing Hackathon, \$75,000, 04/2017-04/2019.
- *Kristman VL, Corbière M, Shaw WS, Harlos K, Cernigoj M.* Supervisor and worker perspectives on workplace accommodations for mental health disorders. Workers Compensation Board of Manitoba, \$170,839, 06/2016-05/2018.
- *Gignac, M. A. M., Saunders, R., Van Eerd, D., Jetha, A., Franche, R.-L., MacDermid, J., Tompa, E., Beaton, D., Breslin, C., Hogg-Johnson, S. (2016).* Sustainable work participation: work disability prevention and improvement of employment outcomes among those with chronic, episodic health conditions. Social Sciences & Humanities Research Council (SSHRC)-Canadian Institutes of Health Research (CIHR) Joint Initiative in Healthy and Productive Work: Partnership Development Grant. \$149,950, 04/2016-05/2018.

4.4 Quarterly Plenaries

Quarterly plenaries will provide an opportunity for researchers to discuss emerging issues, disseminate research results, and stimulate interdisciplinary exchanges. These half-day sessions will also provide a venue for students to present their research ideas/proposals and research findings. Invited guest speaker presentations from outside collaborators will also be encouraged where funds allow. Given the relatively large number of ongoing projects and students working in this area, we expect that the quarterly plenaries should be up and running within a few months of the Institute's start date. These plenaries will provide a forum for achieving our goals of knowledge exchange.

4.5 Workshops

Business and employer training workshops will be developed gradually over the first four years of the Institute as ongoing research enhances our knowledge and allows us to develop novel programs. These workshops will also provide a venue for trainees to gain relevant work experience.

4.6 Training and Research services

A one-stop-shop through the Institute for training and research services will also be gradually developed over the first five years of operation. In the first year, we will invest considerable time in the development of a website to highlight and advertise the services we can provide to employers. Trainees will also have an opportunity to participate in the development and offering of consulting services.

4.7 Advisory Board

The Advisory Board will be constructed within the first six months of the Institute's initiation. (See section 8).

5. Commitments by Lakehead University

The University commitments will not differ from current commitments to individual faculty members. These will include the typical services provided to faculty members by the Office of Research Services, Finance, Human Resources, Physical Plant, and other departments. We have a confirmed agreement with the Dean of the Faculty of Health and Behavioural Sciences confirming teaching release for the Director of EPID@Work and an agreement with the Vice-President of Research and Innovation, Andrew Dean, confirming that suitable space will be provided. The Vice-President Research and Innovation has also committed to a start-up grant of \$10,000.

6. University Facilities

6.1 Current Facilities

The Institute currently has no dedicated space. Two post-doctoral fellows, who will become Institute trainee members upon Institute start-up, are currently located in the Braun Building Room 1042. Braun Building Room 1052, which was initially to be shared research space for all faculty in the Department of Health Sciences, is currently consumed with researchers and students who will become staff and trainee members of EPID@Work.

6.2 Anticipated Facilities

New space will need to be secured to support the enhancement of the Research Institute's activities and to provide office space for post-doctoral fellows, research assistants, an administrative assistant, and students. Given the large number of external stakeholders who will be visiting this space it is imperative that it have an inviting, professional atmosphere. Ideally, an

area where seven rooms can be co-located is required. These rooms could include:

- Post-doctoral office where at least 2 desks could be comfortably arranged;
- Research and administrative assistant room where at least 3 desks could be comfortably arranged;
- Student space where cubicles could be set up to house at least 6 students at any one time;
- Two meeting rooms of approximately the size of ATAC 3004 that can be opened by a removable wall to create one large space for plenary presentations;
- One office each for the Director and Associate Director, if the Research Institute cannot be located close to their departmental offices.

The Vice-President Research and Innovation has committed to finding suitable space for the Institute.

7. Membership

It is expected that members of the EPID@Work Research Institute will be active researchers who demonstrate scholarly excellence in research relevant to the Institute's mandate. The Institute will also facilitate the mentoring of new faculty members, students, and community partners in order to strengthen and expand existing research programs.

Membership in the Institute will range from “**Full**”, “**Adjunct**”, “**Staff**” and “**Trainee**” membership categories:

Full membership will require an academic appointment from Lakehead University or the Northern Ontario School of Medicine and a research interest in injury and/or disability prevention. “Full” members will further be distinguished as “Senior scientist”, “Scientist”, or “Associate scientist”. All faculty who join the Institute will start at a rank corresponding to their university appointment. For example, Assistant Professors will be Associate Scientists, Associate Professors Scientists, and Full Professors will be Senior Scientists.

Adjunct membership will be reserved for academics from other institutions or professionals involved in research relevant to the Institute's mandate.

Staff membership will include research associates, research assistants, and administrative staff. Their time will generally be available to all members to work on specific projects within the Institute. The Director and Associate Director will ensure there is appropriate staffing for the Institute.

Trainees will include post-doctoral fellow, graduate and undergraduate students. Trainees actively working with a “Full” member of the Institute on a project of relevance would be considered “Trainee” members automatically. The proposed initial membership represents a unique combination of expertise at various appointment levels; one will have an appointment at the Senior Scientist level, six at the Scientist level, six at the Associate Scientist level, two at the

Adjunct level, one research associate, two post-doctoral fellows, and four graduate students.

Other individuals can apply to join the Centre at the Full or Adjunct member level. The process will include a nomination from an existing Full member, the support of the Director, and a 2/3 support by existing full members. The applicant's curriculum vitae would be circulated by the Director for a period of two weeks prior to the formal vote; the Director would oversee the voting process but would not cast a ballot.

7.1 Full Members

- **Vicki L Kristman (Director and Scientist)**
 - CIHR New Investigator Award in Community-based Primary Health Care
 - Associate Professor, Department of Health Sciences
 - Associate Professor, Northern Ontario School of Medicine
 - Associate Scientist, Institute for Work & Health
 - *Expertise:* epidemiologic methodology, injury and work disability prevention
- **Kathryn Sinden (Associate Director and Associate Scientist)**
 - Assistant Professor, School of Kinesiology
 - Assistant Professor (Part time), School of Rehabilitation Science, McMaster University
 - Affiliate Member, Centre for Research in Occupational Safety and Health
 - *Expertise:* applied ergonomics, work and health, gender and work, knowledge translation
- **Lori Chambers (Senior Scientist)**
 - Professor, Women's Studies
 - *Expertise:* Sex, gender and law
- **Salimur Choudhury (Associate Scientist)**
 - Assistant Professor, Department of Computer Science
 - Adjunct Assistant Professor, School of Computing, Queen's University, ON, Canada
 - *Expertise:* Use of information technology
- **Kristen Jones-Bonofiglio (Associate Scientist)**
 - Assistant Professor, School of Nursing
 - Director, Centre for Health Care Ethics

- Associated Medical Services (AMS) Phoenix Fellow
- Adjunct Professor, Department of Health Sciences
- *Expertise: mental health and addictions, resilience and well-being, narrative inquiry, ethics and moral distress*
- **Anna Kone (Associate Scientist)**
 - Assistant Professor, Department of Health Sciences
 - *Expertise: Epidemiology and biostatistics; health services research and outcomes*
- **Lynn Martin (Scientist)**
 - Associate Professor and Chair, Department of Health Sciences
 - *Expertise: Health and service utilization of vulnerable populations (intellectual or developmental disabilities, mental health disorders, older adults)*
- **Helle Moeller (Scientist)**
 - Associate Professor, Department of Health Sciences
 - *Expertise: Indigenous and maternal/women's health*
- **Christopher Mushquash (Scientist)**
 - Canada Research Chair in Indigenous Mental Health and Addiction
 - Associate Professor, Department of Psychology
 - Associate Professor, Northern Ontario School of Medicine
 - Director, Centre for Rural and Northern Health Research
 - Psychologist, Dilico Anishinabek Family Care
 - *Expertise: Indigenous mental health and addiction, Indigenous health*
- **Kathy Sanderson (Associate Scientist)**
 - Assistant Professor, Faculty of Business Administration
 - *Expertise: Ostracism in the workplace*
- **Deborah Scharf (Associate Scientist)**
 - Assistant Professor, Department of Psychology
 - *Expertise: Healthcare access for poor and underserved groups, behavioural health delivery systems*
- **Rebecca Schiff (Scientist)**
 - Associate Professor, Department of Health Sciences
 - *Expertise: poverty, housing and homelessness, food security, indigenous health,*

rural and remote health, social exclusion, sustainable development

- **Jo-Ann Vis (Scientist)**
 - Associate Professor, School of Social Work
 - *Expertise: Participatory Action Research (PAR;) Mental Health/Peer support; Occupational Stress injury*

7.2 Adjunct members

- **Monique Gignac**
 - Associate Scientific Director & Senior Scientist, Institute for Work & Health
 - Professor, Dalla Lana School of Public Health, University of Toronto
 - *Expertise: psychosocial aspects of work; chronic disease and employment; disability management and accommodation; aging and work; survey methods; measurement; qualitative methods*
- **William Shaw**
 - Assistant Professor, University of Connecticut Health Center
 - *Expertise: Clinical psychology, occupational health and safety, return-to-work, musculoskeletal disorders*

7.3 Staff members

- **Joshua J Armstrong (Research Associate)**
 - Research Associate, Department of Health Sciences

7.4 Trainee members

- **Neha Dewan (Post-doctoral fellow)**
 - Post-doctoral fellow, Department of Health Sciences
 - *Project: Worker perspectives on the impact of supervisor training*
- **Tanya Watson (Post-doctoral fellow)**
 - Post-doctoral fellow, Department of Health Sciences
 - *Project: Understanding labour force participation, work productivity and disability in the Indigenous context*
- **Chris Viel (MHSc Graduate student)**

- Graduate student, Department of Health Sciences
- *Thesis: The association between mental health disorder training and supervisors' likelihood to accommodate employees with mental health disorder*
- **Shofia Akhtar (MPH Graduate student)**
 - Graduate student, Department of Health Sciences
 - *Thesis: Title TBD, in area of indigenous workplace mental health*
- **Katherine Hood (MHSc Graduate student)**
 - Graduate student, Department of Health Sciences
 - *Thesis: Title TBD, in area of workplace MSK disorder*
- **Sara Sayed (MSc Graduate Student)**
 - Graduate Student, School of Kinesiology
 - *Thesis: Title TBD, in area of work injury prevention in firefighting*

7.5 Collaborations

We believe the nature and scope of this transdisciplinary research initiative will not only strengthen existing collaborations, but also lead to new academic and community partnerships in the near future. The team is actively involved in on-going collaborations with many researchers from other institutions and community partners (the list is provided in Appendix II). We will continue to foster the existing collaborations and endeavour to expand on them. Involvement of these individuals, and others, in the Institute (e.g., graduate student supervision) will be encouraged and considered for Adjunct Membership.

8. Governance

As per the University policy on Research Centres and Institutes, EPID@Work "...will operate with an internally appointed management committee and an externally appointed advisory committee. The management committee will include the Director (ex officio) and relevant members of the faculty. The management committee will meet on a quarterly basis. The advisory committee will include the Director (ex officio), relevant members of the faculty (including the Dean of the Faculty of Health and Behavioural Sciences), community partners and will be chaired by the Vice-President (Research and Innovation) or his/her designate. The advisory committee shall meet at least once a year." Stakeholder representatives for the advisory committee will include a representative from groups of employers, injured workers, unions, health care, and compensation. Dr. Joel Andersen will fulfill the role of the health care representative, as he is an active occupational physician. Other representatives are yet to be

identified.

9. Employment Opportunities

Employment opportunities will be created by using current grant funding, securing additional external peer-reviewed funding, and seeking external contracts and internal support from the university. Most of the employment opportunities will be for research positions (e.g., Graduate Students, Research Assistants, Project Coordinators, Research Associates, Post-Doctoral Fellows) while some may be for support capacity (e.g., Administrative Assistant, Technicians). The initial staff of the Institute will include the personnel currently engaged in research directly related to the mandate of the Institute. As new grants are secured we expect this complement to increase.

10. Personnel

10.1 Human resources

Typically, personnel will be hired by, and will report to the Principal Investigator of the research project they are hired for. In situations where individuals are hired through internal funding in a support capacity for the Institute as a whole, the hiring will be made through the management committee and these individuals will report to the Director who will assume the supervision responsibilities.

10.2 Student involvement

Students will be recruited from the following academic units: Health Sciences (MPH, MHS), Kinesiology (HBKin, MSc), Psychology (HBA/HBSc, MA/MSc, PhD), Nursing (BScN, MN(PHCNP)), Women's Studies (BA, MA/MSJ/Med/MSW), Computer Science (BSc, MSc), Business Administration (BAdmin/HBComm, MBA/MSc Mgt), Social Justice Studies (MA), and Social Work (HBSW, MSW). In addition, we are confident that the PhD program in the Department of Health Sciences will commence either fall 2018 or 2019. The majority of the doctoral students recruited for the Institute would fall under the PhD program in Health Sciences or Psychology. To stimulate transdisciplinary research, we would require that any supervisory committee includes members from at least two different academic units.

11. Legal Implications

The Research Institute will function as a sub-unit of the university with the inherent protection from legal liability provided by the institution and its insurance. While we foresee no legal implications with the proposed Institute itself, there may be implications by the research

conducted as is typical of university-based research. Most of the work will rely on human participants where legal implications are always present. Nonetheless, these implications would not be different if the research were conducted outside the auspices of the Institute. Furthermore, all work conducted will be approved by the Research Ethics Board and will adhere to the Tri-Council Policy Statement 2 guidelines. Additional contract work or initiatives related to commercialization may also have legal implications. Involvement in these activities would take place through Lakehead University in accordance with relevant policies and only take place after consultation with the Office of Research Services, Economic Development and Innovation Office, the relevant academic authorities, and the University Lawyer.

12. Conclusion

The EPID@Work Research Institute would represent a strong transdisciplinary commitment to research excellence in an area of considerable importance for Northwestern Ontario and Canadian society. This dynamic partnership across disciplines builds upon existing research infrastructure while creating original and exciting opportunities for current and new researchers. The initiative would also provide a unique and exciting bridge between academic researchers and community partners to address issues of importance to all segments of the population. Support of the Institute may prove valuable to attract new faculty and graduate students and to further place Lakehead University at the forefront of emerging research areas.

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14. Appendices

14.1 Appendix I – WSIB Injury Rates

2.2 WSIB Covered Employment and Injury Rates Schedule 1



14.2 Appendix II – Current external research partners

Sandra Dorman, Centre for Research in Occupational Safety and Health (CROSH)

Pierre Cote, University of Ontario Institute of Technology

Cam Mustard, Institute for Work and Health (IWH)

Liz Scott, Organizational Solutions Inc.

John Hay, Thunder Bay Fire Rescue

Greg Snider, Thunder Bay and District Injured Workers Support Group

Audrey Gilbeau, Nokiiwin Tribal Council

Gerry Heinrichs, Richardson International

Eugene LeFrancois, Thunder Bay and District Injured Workers Support Group

Michelle Knudson, St Joseph's Care Group

Chris Brassard, Lakehead University

Angel Poitras, Workplace Safety North (WSN)

Illia Tchernikov, Workplace Safety and Prevention Services (WSPS)

Jan Chappel, Canadian Centre for Occupational Health & Safety

Paul Devoe, Infrastructure Health & Safety Association (IHSA)

Dwayne Fuchs, Occupational Health Clinics for Ontario Workers

Lisa Beck, Trauma Program, Critical Care & Emergency Services, Thunder Bay Regional Health Sciences Centre

Robbin Lavoie, Resolute Forest Products

Josh Pellizzari, Cando Rail Services

Bill Dickerson, WSPS Volunteer

Georgie Ostrowski, Avenue II Community Program Services

Patty Hajdu, Minister of Employment, Workforce Development and Labour

Doug Gross, Rehabilitation Medicine, University of Alberta

Cecile Boot, EMGO, Vrije University, Netherlands

Ayumi Bailly, Public Services Health and Safety Association (PSHSA)

Wayne Gates, Superior North Emergency Medical Services

Kate Fraser, Thunder Bay District Children's Aid Society

14.3 Appendix III - Past and current students involved in work-related injury and disability prevention research

- MSc:
 - Zhanna Lyubykh: Perceived disability severity and employee outcomes: the role of leader-member exchange and leader empathy (graduated 2016 from University of Lethbridge)
 - Sara Sayed: Specific project TBD but will be focused to identify impacts of firefighting on physiological response and kinematics

- MPH:
 - Catherine Chambers-Bedard: The combined effect of socioeconomic status and compensation policy on return to work following musculoskeletal injuries (withdrew to attend NOSM, 2017)
 - Shofia Akhtar: Mental illness and risk factors for First Nation Workers in Northwestern Ontario (in progress)

- MHSc:
 - Chris Viel: The association between supervisor mental health training and workplace mental health accommodation and stigma (in progress)

- MSW:
 - Jenny Armstrong: Emergency Medical Personnel Mental Health Wellness: Superior North Emergency Medical Services Pilot Project (2015)
 - Amy Rubino-Start: Peer Mental Health Wellness Program: Using Peer Support to Manage Critical Incidents among Paramedics in the Workplace(2016)
 - Jenny Peever: Child Welfare Mental Health Wellness: Children's Aid Society of Thunder Bay Pilot Project(2017)
 - Jessica Bannon: Use of Technology as a Peer Support Tool: Usage Among Child Welfare Workers.(in progress)

- Student (undergraduate or summer):
 - Jessica Lowey: Factors associated with employer non-participation in workplace-based research: a cross-sectional study (Summer 2014)
 - Erica Marcassa: Dementia and human rights (including the right to

- work/accommodation (Winter 2018)
- Hayley Yorke: Dementia and human rights (including the right to work/accommodation (Summer 2017)
 - Laura Deschamps: Firefighter burden of injury relative to specific fire response characteristics (Summer 2017)