

**Heightened COVID-19 Risks to
Temporary Foreign (Migrant) Agricultural Workers (TFAWs)
And Recommended Actions in the 2020 Agricultural Season
Occupational Medicine perspective paper**

by

Donald C Cole MD, DOHS, MSc, FRCP(C)
Occupational, Environmental and Public Health Medicine Consultant

2020 June 4

Contents:

- I. Introduction
- II. Greater risks of TFAW *exposure* to COVID-19
- III. Greater risks of COVID-19 *infection* among TFAWs
- IV. Greater challenges in care-support to TFAWs contracting COVID-19
- V. Recommendations
- VI. Appendices - Attachments
 - A. Dr. Donald Cole's one-page integrated bio
 - B. Key tables from Cole et al., 2019

I. INTRODUCTION

The COVID-19 pandemic has brought new urgency to long-standing concerns about health risks facing temporary foreign/migrant farm/agricultural workers¹⁶. In Canada, the [Temporary Foreign Worker Program](#) is the broad umbrella under which foreign nationals are accepted into the country to work in the Canadian agri-food sector (including food processing as well as production and distribution), while the [Seasonal Agricultural Workers' Program](#) focuses on coordinating these workers into agricultural food production jobs, particularly farms and greenhouse operations. TFAW will be the term I use in this paper. Although somewhat fewer TFAW have come this agricultural season compared to prior years (~78% in Ontario and the Maritimes among horticultural producers as of mid-May¹¹), there are still “approximately 50,000 to 60,000 foreign agricultural, food and fish processing workers coming to work in Canada each year”¹.

The Occupational Health Clinics for Ontario Workers (OHCOW) has provided occupational health support to TFAW since 2000²⁸. OHCOW staff bring occupational health expertise to numerous issues and multi-stakeholder activities as part of its [Migrant Farm Worker Program](#) (MFWP). In light of the COVID-19 pandemic, the MFWP has focused on curating guidance²⁵ and identifying existing, or creating new, accurate and accessible support resources for TFAW and their employers on a [specific COVID 19 resource page](#). Program staff are actively collaborating with government, industry, and worker stakeholders, and are also part of the recently formed [Migrant Worker Health Expert Working Group](#) lead by key academics from across the country, all of which has led to fruitful discussions continuing to synthesize the experience of TFAW, support workers, academics and health professionals with existing evidence.

As an active supporter of a family farm and an occupational, environmental and public health medicine specialist, I have participated in research, practice and policy in agriculture and health for over three decades (Occ Med Profile in Appendix A). In addition, I have served TFAW, and those assisting them, through OHCOW, community health centres, public health units, farms and universities. This paper aims to provide a complementary occupational medicine perspective to existing documents such as the MWHEWG's recent [recommendations to ESDC²⁴](#). It is informed by OHCOW accumulated primary literature, relevant literature reviews (e.g. <https://www.nccmt.ca/knowledge-repositories/covid-19-evidence-reviews>), and the wide array of guidance documents (e.g. <https://ncceh.ca/environmental-health-in-canada/health-agency-projects/environmental-health-resources-covid-19>), particularly those relevant to the agricultural sector (e.g. <https://www.ontario.ca/page/agriculture-health-and-safety-during-covid-19>). Specific references are included and key tables, figures and excerpts from such documents are reproduced in Appendix B.

In stages, the paper aims to describe potentially greater risks of *exposure* to SARS-CoV2 (the virus) and *infection* with COVID-19 (the illness) among TFAW, greater challenges in *care support* to TFAW, and a set of recommendations. The nature of the comparison varies in each sub-section e.g. difficulties in physical distancing on agricultural equipment versus workers in other industries such as construction, or congregate housing and group transportation for TFAW versus locally living agricultural workers. General recommendations, some of which cover more than one stage, endeavour to recognize the variation in farm operations and their organizational and financial capacities and the continuing uncertainties associated with the evidence available at the time of writing (June 2020). At the same time it conveys some urgency given the greater risks and multiple outbreaks occurring.

II. GREATER RISKS OF TFAW EXPOSURE TO SARS-COV2

Agricultural *workplaces* can create enclosed conditions favourable to SARS-COV2 exposure e.g. greenhouse operations with at least partial air re-circulation (particularly in winter) and limited filtering may spread viruses, as has occurred in cruise ships and restaurants⁵. In fact, an Ontario outbreak in Chatham-Kent occurred in a greenhouse operation (Greenhill Produce) in which an infected local worker is thought to have exposed TFAW to SARS-COV2. Some agricultural *equipment* forces proximity on workers e.g. horticultural planting and harvesting equipment in which workers are side by side (< 1 metre) (as pictured for asparagus harvesting in this [news story](#)), seldom with physical barriers, as might occur in retail settings. Certain agricultural *tasks* place workers in close proximity during regular workflow or throughput situations e.g. in produce packing operations, similar to meat processing workstations⁸. Each of these is best considered through the use of control banding, a framework which recognizes levels of risk and control options by job tasks and which has been applied to aerosol transmissible infectious diseases, like COVID-19²⁹, though not yet in agricultural operations.

Distinct from most locally hired workers, TFAW face particular risks of exposure corresponding to an expanded framing of their workplace. Congregate housing, either on or off the farm or agricultural operation, can range from adapted farm building bunkhouses, through rented houses, to town accommodation of different kinds. Literature has documented housing standard deficiencies in many jurisdictions^{30, 3} including Ontario²², such as windows that cannot open (limiting ventilation and increasing heat stress), inadequate laundry facilities for work clothes (elevating other occupational health and safety risks such as pesticide exposure), etc. As well, generally, the density of TFAW (from

distinct households and even regions) in such housing (like other congregate settings)^{26, 4} exceeds that permitting adequate physical distancing in sleeping quarters, shared washroom facilities, and cooking areas. A prime example of the risks associated with congregate housing is the vast proportion of Singapore's COVID-19 cases occurring during a second wave of the pandemic in the dormitories of migrant workers, substantiating concerns about housing²¹

It is important to recognize that, although respiratory and mucous membrane contact and aerosol spread between people are primary routes of viral transmission, other sites such as washroom contamination¹², flooring and other fomites may also be important. Crucial sanitation and disinfection requirements fall under uncertain and unclear shared responsibility of both the employer and the TFAW, potentially elevating risk, though provision of adequate supplies is usually a key employer responsibility. In addition, off-farm TFAW are usually transported in collective vehicles, both to and from the farm, as well as town (when permitted), with the likely occurrence of over-crowding of occupants³¹. Public transportation has been a recognized form of viral dissemination during the COVID-19 pandemic¹⁷, requiring significantly reduced, suitably spaced loads, which some farms are now doing with protocols on worker distancing in vehicles.

Much of the emphasis in current guidance e.g. <https://www.ontario.ca/page/agriculture-health-and-safety-during-covid-19> or <https://www.wsp.ca/WSPS/media/Site/Resources/Downloads/covid-19-agricultural-supervisors-health-and-safety-guidance.pdf?ext=.pdf> is on physical distancing, cleaning and sanitizing and visitor-delivery protocols. Although these factors are important, I would submit that Health & Safety representatives, or active members of an agricultural operation's Joint Health and Safety Committee (JHSC) (part of a strong Internal Responsibility System (IRS) or Health & Safety Management System) could identify, analyze and address risks more comprehensively, despite the limited scope of application of JHSCs currently in agriculture under the Occupational Health and Safety Act in Ontario (limited to six specified farming operations only as per subsection 3 (2) of Ontario Regulation 414/05, Farming Operations.)

Unfortunately, a number of language, reporting, broader communication, and structural social barriers have historically reduced opportunities for active TFAW participation and agricultural operation responsiveness to TFAW concerns²³. These indirectly put TFAW at greater risk of exposure to a variety of hazards, including SARS-COV2. The current Covid-19 pandemic provides an opportunity to foster and support the IRS on farms, for the protection of all who live and work there.

III. GREATER RISK OF COVID-19 INFECTION AMONG TFAW

Although TFAW undergo formal health screenings in their countries of origin, pre-pandemic entrants were not screened for SARS-COV2 (see report on [Kelowna garden centre outbreak](#)). Nor does airport screening of TFAW, or workplace screening of locally hired workers, identify asymptomatic COVID-19 cases. TFAW who have been coming for many years may have chronic health problems such as diabetes or hypertension⁹, which increase their risk of becoming seriously ill with COVID-19, as they would local Canadian workers.

Despite the [guidance](#) that employers implement active screening for COVID-19 symptoms, most resources on confidential self-assessment are in English (not useful for many Latin American and Asian

TFAW) and presume internet access (often not available on farms), and IT capacity and capabilities. Despite being in congregate housing settings, TFAW have not yet been prioritized for systematic COVID-19 testing to detect asymptomatic spreaders²⁰, unlike other settings such as shelters. Many TFAW may be reluctant to declare both chronic conditions, and new symptoms, due to fear of loss of work and medical repatriation²⁷.

Hence, monitoring of a TFAW workforce and detection of new cases is likely to be compromised, with greater likelihood of undetected COVID-19 cases and resultant spreading of infection among TFAW, than local employees. For example, per US physician & medical anthropologist Seth Holmes, [similar circumstances](#) have led (and continue to lead) to large outbreaks in Florida. Compounded by inadequate physical distancing, congregate housing, lack of isolation facilities, and sanitation-disinfection challenges, such difficult monitoring for cases has already led to outbreaks of infection with COVID-19 in agricultural (e.g. Norfolk county farm, Chatham-Kent greenhouse) and food processing operations (e.g. meat-packing plants in Alberta). Outbreaks have progressed widely before adequate assessments have been made, gaps identified and control measures instituted in conjunction with public health units.

IV. GREATER CHALLENGES IN CARE - SUPPORT FOR COVID-19 TFAW CASES

Despite substantial efforts by some farmers, TFAW experience greater difficulties than local employees in accessing appropriate clinical care^{18,9}. Like emergency departments, most COVID-19 Assessment centres in rural areas do not include multi-lingual staff, nor are the latter trained or oriented to the TFAW context. Once diagnosed, quarantine of a TFAW with COVID-19 may be challenging unless separate housing is allocated. Social supports for an isolated TFAW who develops mental health difficulties, already a greater risk as TFAW are so distant from family and friends, may be particularly challenging. Note, that the young TFAW who recently died in Ontario was, [reportedly](#), isolated (and alone) in a hotel room until minutes before his death.

Also, we can't disregard the possibility that, similar to racialized populations in the UK, "When taking into account age in the analysis, Black males are 4.2 times more likely to die from a COVID-19-related death and Black females are 4.3 times more likely than White ethnicity males and females.... After [also] taking account of ... other socio-demographic characteristics and measures of self-reported health and disability at the 2011 Census, the risk of a COVID-19-related death for males and females of Black ethnicity reduced to 1.9 times more likely than those of White ethnicity."³², TFAW who are black (Caribbean) could also be at greater risk of death, due to a range of reasons, including challenges in obtaining quality health care.

Further, recognition of the workplace origin of an infection, and associated income support throughout recovery, could be delayed if the WSIB continues to use a case by case adjudication process with difficulties in determining the source of infection³³. Workers' compensation as part of the social safety net has a mixed history for TFAW at each stage²². The lingering and recurring nature of COVID-19 among an important proportion of cases¹⁴ may be particularly disturbing for TFAW and their employers, and puzzling to WSIB adjudicators following guidelines for a several week, rather than several month, clinical course, similar to what currently occurs with work-related musculoskeletal disorders. Work modifications may be required for return to work. Although the current [Ontario guideline](#) states that "The staff member must report to Occupational Health and Safety prior to return to work" (top of p 4),

this may be particularly challenging in the majority of agricultural operations without such capacity or expertise.

V. SUGGESTED RESPONSES - RECOMMENDATIONS

1. Primary Prevention (At the source/in the Workplace)

Current COVID-19 sector specific recommendations from the WSPS³⁴ employ the RACE approach: **R**ecognize hazard; **A**ssess risks; **C**ontrol exposure; and **E**valuation. As per the recommendations below, reducing *exposure* (and hence risks) will require further changes which respect the occupational health and safety hierarchy of controls, from most to least effective, i.e. elimination, substitution, engineering controls, administrative controls, and personal protective equipment (PPE) last. They have been applied well to the health care setting for infectious disease exposure⁷ but have yet to be explored fully in the agricultural sector. This would be a useful cross-disciplinary endeavour for OHCOW to spearhead, involving stakeholders with different experience and expertise.

1.1 Elimination

Exposure risk is highest in enclosed spaces with extended duration convergence. Physical distancing is Elimination, and should be practiced at all times, especially indoors or in vehicles. Recent research reinforces that separation needs to be >1m at minimum, and preferably 2m, which doubles the protection¹⁰. Given that agricultural workplaces for TFAW involve not only fields, greenhouses, and out-buildings, but also transportation and housing, recently available funding to address COVID-19 as part of the federal—provincial [Workplace Protection Program](#) appropriately includes support to upgrade TFAW housing, install barriers, increase the frequency and extent of cleaning, and provide PPE. These controls are critical and need to be reviewed (and improved) on an ongoing basis.

Not touched upon in most guidance is the need for greater transportation resources (or scheduling) to reduce occupancy in vans or buses to maintain physical distancing, along with frequent vehicle sanitation, as being implemented in transit systems.

1.2 Engineering Controls

Ventilation is an engineering control that needs to be maximized wherever people gather, boosting air changes in buildings and vehicles, and adding HEPA filtration when/where feasible (see Evans, 2020¹³ for a more comprehensive explanation and approach to ventilation and occupancy). Directional fans may be of some use as well, especially if they are directed outdoors. Barriers too can be very effective at separating people to reduce risk, including plastic & plexiglas in tight quarters, but also gates & barrier tape or work “circles”. For example, innovative approaches involving barriers have been developed e.g. plexiglass panel retrofit to a planting machine¹⁵. Using signage & flow markings on floors (and even the ground), can also be an effective way to reduce exposure, as is incorporating easily cleanable surfaces into high touch point or traffic areas.

1.3 Administrative Controls

The need to immediately develop more accessible, language appropriate resources for TFAW is also evident (something OHCOW is actively working on) to support farms and inform TFAW. Better

understanding and multi-lingual tools will improve workers' ability to self-assess, a key activity for reducing *infection*.

Greater supports to agricultural workplaces, including people resources, could promote a more robust IRS for all, including communication plans for non-English speaking workers (eg. interpretation plans, including bilingual supervisors which some farms have). Structural reforms which facilitate the engagement and empowerment of TFAW through workplace culture changes and greater job security could contribute to the uptake and utilization of TFAW specific tools. These type of controls can also include shift work and facility (eg. Kitchen or Shower) scheduling as well as education and training.

1.4 Personal Protective Equipment (PPE)

As supply becomes more viable outside healthcare settings, the use of PPE may reduce exposure, but in occupational health and safety, it is regarded as the weakest level of control. The extent of reduction is currently debated – from substantially effective¹⁹ to marginally effective in most situations⁶. Respirator effectiveness is conditional on fit, training, use (especially doffing) and hygiene protocols, all part of a broader health and safety management system. Otherwise, they can provide a dangerously false sense of security. The wearing of non-medical face coverings and masks as a form of source control has been advocated in many places and arenas, however fit, doffing and hygiene are also critical, and potentially challenging in hot weather and/or heavy work common in agriculture.

2.0 Secondary (Early identification & response) Prevention

Given the importance of COVID-19 screening in other congregate settings, planning for COVID-19 screening (antigens currently, with antibodies as their validity becomes better understood) with appropriate confidentiality and ethical safeguards, should start now. However, care must be taken to support COVID-19 cases identified among TFAW, without stigmatization, layoff, or medical repatriation

3.0 Tertiary (Recovery, Support & Insurance) Prevention

Promoting care, recovery and appropriate return to work involves both systemic changes (as per Cole et al., 2019 tables in Appendix B) as well as specific ones in the context of the pandemic. Sweeping social protection measures have been implemented in Canada during the COVID-19 epidemic, but the extent to which these will support TFAW has yet to be fully tested. Arrival isolation/quarantine pay seems to be occurring, though requests by employers to initiate work earlier have occurred. A transformation in WSIB processing to fast-track adjudication and support provision could be crucial, particularly for those with longer duration COVID-19 illnesses¹⁴. Adequate support to community organizations which could facilitate negotiation and implementation of work modifications during recovery would also provide the supports to increase the likelihood of TFAW successfully returning to work.

4.0 RACE includes Evaluation

Finally, an often neglected element of the *RACE* approach is evaluation. Planned review of implementation, and assessment of the effectiveness of the different activities/interventions undertaken, and their periodic adjustment, is critical. Given the opportunities to do things differently for TFAW, as a result of learning, experimenting and analysis during the COVID-19 pandemic, we can generate work and health evidence that can serve agricultural (and other) workplaces better in the future.

References

1. Agriculture and Agri-Food Canada. (2020). Keeping Canadians and workers in the food supply chain safe. Accessible at <https://www.canada.ca/en/agriculture-agri-food/news/2020/04/keeping-canadians-and-workers-in-the-food-supply-chain-safe.html>
2. Alberta Health Services, COVID-19 Scientific Advisory Group. (2020). *Serologic Testing for SARS-CoV-2*. April 15. Accessible at <https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-sag-priority-indications-for-serologic-testing-for-covid-19-rapid-review.pdf>
3. Arcury TA, Weir MM, Summers P, Chen H, Bailey M, Wiggins MF, Bischoff WE, Quandt SA. (2012). Safety, security, hygiene and privacy in migrant farmworker housing. *New Solutions: A journal of environmental and occupational health policy* 22(2): 153-173. <https://doi.org/10.2190/NS.22.2.d>
4. Baggett TP, Keyes H, Sporn N, Gaeta JM. (2020). COVID-19 outbreak at a large homeless shelter in Boston: Implications for universal testing. medRxiv preprint (Apr 15) doi: <https://doi.org/10.1101/2020.04.12.20059618>
5. Blackwell T. (2020) COVID-19 can be spread by building ventilation, say Canadian researchers. April 26. Accessible at <https://torontosun.com/news/national/covid-19-can-be-spread-by-building-ventilation-say-canadian-researchers>.
6. Brainard J, Jones N, Lake I, Hooper L, Hunter PR. Facemasks and similar barriers to prevent respiratory illness such as COVID-19: a rapid systematic review. medRxiv preprint doi: <https://doi.org/10.1101/2020.04.01.20049528>
7. Brown CK, & Mitchell AH (2020). Realigning the conventional routes of transmission: an improved model for occupational exposure assessment and infection prevention. *J Hospital Infection* 105; 17-23. <https://doi.org/10.1016/j.jhin.2020.03.011>
8. CDC (US Center for Disease Control) and Occupational Health and Safety Administration). (2020 May 12). Meat and Poultry Processing Workers and Employers. Interim Guidance. Accessible at <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/meat-poultry-processing-workers-employers.html>
9. Cole DC, McLaughlin J, Hennebry J, Tew M. Precarious patients: A mixed methods study of health professionals' perspectives on providing care to Mexican and Jamaican migrants in Canada's Seasonal Agricultural Worker Program. *Rural and Remote Health* 2019; 19: 5313. <https://doi.org/10.22605/RRH5313>
10. Chu D, Duda S, Solo K, Yaacoub S, Schuneman J. (2020). Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. *The Lancet*. [https://doi.org/10.1016/S0140-6736\(20\)31142-9](https://doi.org/10.1016/S0140-6736(20)31142-9)
11. Davison K. (2020). Labour shortages persist. *The Grower*, May 18. Accessible at <http://thegrower.org/news/labour-shortages-persist>
12. Ding Z, Qian H, Xu B, Huang Y et al. (2020). Toilets dominate environmental detection of SARS SARS-CoV-2 virus in a hospital. medRxiv preprint doi: <https://doi.org/10.1101/2020.04.03.20052175>
13. Evans J. (2020). Avoiding COVID-19: Aerosol Guidelines. <https://doi.org/10.1101/2020.05.21.20108894>

14. Garner P. (2020) For 7 weeks I have been through a roller coaster of ill health, extreme emotions, and utter exhaustion. *BMJ Opinion* May 5. Accessible at <https://blogs.bmj.com/bmj/2020/05/05/paul-garner-people-who-have-a-more-protracted-illness-need-help-to-understand-and-cope-with-the-constantly-shifting-bizarre-symptoms/>
15. Gordon S. (2020). Holland Marsh farmers invent Plexiglass protection for workers during COVID Fruit and Vegetable. Accessible at https://www.fruitandveggie.com/holland-marsh-farmers-invent-plexiglass-protection-for-workers-during-covid-19/?oly_enc_id=7243H5896512I2B
16. Haley E, Caxaj S, George G, Hennebry J, Martell E, & McLaughlin J. (2020). Migrant farmworkers face heightened vulnerabilities during COVID-19. *Journal of Agriculture, Food Systems, and Community Development*, 9(3), 1-5.
<https://www.foodsystemsjournal.org/index.php/fsj/article/view/810/793>
17. Harris JE. (2020). The Subways Seeded the Massive Coronavirus Epidemic in New York City. National Bureau of Economic Research (NBER) Working Paper No. w27021. Available through SSRN: <https://ssrn.com/abstract=3580579>
18. Hennebry J, McLaughlin J, & Preibisch K. (2016). Out of the loop:(in) access to health care for migrant workers in Canada. *Journal of International Migration and Integration*, 17(2), 521-538.
https://www.researchgate.net/publication/271713953_Out_of_the_Loop_Inaccess_to_Health_Care_for_Migrant_Workers_in_Canada
19. Liang M, Gao L, Cheng C, Zhou Q, Patrick J, Heiner K, Sun C. (2020). Efficacy of face mask in preventing respiratory virus transmission: a systematic review and meta-analysis. medRxiv preprint doi: <https://doi.org/10.1101/2020.04.01.20049528>
20. Mandić-Rajčević S, Masci F, Crespi E, et al. (2020). Contact tracing and isolation of asymptomatic spreaders to successfully control the COVID-19 epidemic among healthcare workers in Milan (Italy). medRxiv preprint May 8 doi: <https://doi.org/10.1101/2020.05.03.20082818>
21. McKenna T. (2020). While Singapore touts its COVID-19 success, migrant workers face the greatest risk. May 13. Accessible at <https://www.cbc.ca/news/investigates/singapore-covid-19-1.5564641>
22. McLaughlin J. (2009). *Trouble in our Fields: Health and Human Rights among Canada's Foreign Migrant Agricultural Workers*. Doctoral Thesis. Department of Anthropology, University of Toronto. Accessible at <https://www.semanticscholar.org/paper/Trouble-in-our-Fields%3A-Health-and-Human-Rights-and-McLaughlin/bd5e698197c9a5f4c5f1ff12a26dd754b23c04d8>
23. McLaughlin J, Hennebry J, & Haines T. (2014). Paper versus practice: occupational health and safety protections and realities for temporary foreign agricultural workers in Ontario. *Perspectives interdisciplinaires sur le travail et la santé*, (16-2), 17 pp
https://scholars.wlu.ca/cgi/viewcontent.cgi?article=1004&context=brantford_hs
24. Migrant Worker Health Expert Working Group (MWHEWG). (2020). Recommendations for Overcoming Health Challenges Faced Migrant Agricultural Workers during the COVID-19-Virus Pandemic. Living document, May 19 version, shared with Employment and Social Development Canada.

25. OHCOW. (2020). Temporary Foreign Agricultural Workers and COVID 19 Safety Considerations. March 22 Draft\Working document. Accessible at http://www.ohcow.on.ca/edit/files/news/covid19/ohcow_-_covid_19_recommendations_for_tfaws.pdf
26. Orkin A. (2020). Medical Affidavit on Congregate Living COVID Risk. Accessible at https://www.ohcow.on.ca/edit/files/miscellaneous/affidavit_of_dr_aaron_orkin_-_april_7_2020.pdf
27. Orkin AM, Lay M, McLaughlin J, Schwandt M, Cole D. (2014) Medical repatriation of migrant farm workers in Ontario: a descriptive analysis. *Canadian Medical Association Journal OPEN* 2014; 2(3): e192-e198. <https://doi.org/10.9778/cmajo.20140014>
28. Pysklywec M, McLaughlin J, Tew M, Haines T. (2011) Doctors within borders: meeting the health care needs of migrant farm workers in Canada. *Canadian Medical Association Journal* 183(9): 1039-1042. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3114895/>
29. Sietsema M, Radonovich L, Hearl FJ, et al. (2019) A control banding framework for protecting the US workforce from aerosol transmissible infectious disease outbreaks with high public health consequences. *Health Security* 17(2), 124-132. DOI: 10.1089/hs.2018.0103
30. Tomic P, Trumper R, Aguiar LLM. (2010) Housing Regulations and Living Conditions of Mexican Migrant Workers in the Okanagan Valley, B.C. *Canadian Issues* (Spring): 78-82. Accessible at <https://search.proquest.com/openview/08d0341f5c6078fd91a2d53da293df5a/1?pq-origsite=gscholar&cbl=43874>
31. Walia H. (2010). Transient servitude: migrant labour in Canada and the apartheid of citizenship. *Race & Class* 52(1): 71-84 <https://doi.org/10.1177/0306396810371766>
32. White C, Nafilyan V. (2020) Coronavirus (COVID-19) related deaths by ethnic group, England and Wales: 2 March 2020 to 10 April 2020. Office for National Statistics. Accessible at <https://cy.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/coronavirusrelateddeathsbyethnicgroupenglandandwales/2march2020to10april2020?hootPostID=d1475f08e0b8a19355073935b433c488>
33. Workplace Safety and Insurance Board (WSIB of Ontario). (2020). Adjudicative approach document: Novel coronavirus (COVID-19) claims. March 23 version. Accessible at <https://www.wsib.ca/sites/default/files/2020-03/adjudicativeapproach2019novelcoronavirus20200322.pdf>
34. Workplace Safety and Prevention Services (WSPS). (2020). *Health and Safety Guidance for Agricultural Workers during COVID-19* <https://www.wsps.ca/WSPS/media/Site/Resources/Downloads/covid-19-agricultural-workers-health-and-safety-guidance.pdf?ext=.pdf> and *Health and Safety Guidance for Agricultural Supervisors during COVID-19* <https://www.wsps.ca/WSPS/media/Site/Resources/Downloads/covid-19-agricultural-workers-health-and-safety-guidance.pdf?ext=.pdf>

Appendix A. Donald C Cole MD, DOHS, MSc, FRCP(C) Occupational Medicine Profile – 2020 May

Donald Cole graduated in medicine from the University of Toronto (MD, 1978). After initial work as an occupational physician in Ontario (e.g. Leaside Medical Associates, Toronto) and Central America (e.g. Regional Occupational Health Department, Ministry of Health, Nicaragua), he pursued further training (with an Ontario Ministry of Labour Bursary, 1988) at McMaster University obtaining a Diploma in Occupational Health and Safety (DOHS, 1989) and a Masters in Design, Measurement and Evaluation in Health Services (MSc, 1991). Concurrent residency training resulted in Fellow of the Royal College of Physicians and Surgeons of Canada (RCPSC #413045) specialty certifications in Occupational Medicine (1990) and Public Health & Preventive Medicine (1992). He is registered in good standing with the College of Physicians and Surgeons of Ontario (CPSO#31128).

As an occupational physician at a multi-service centre (LAMP 1991-2001), he conducted patient assessments, provided literature references with patient consultation notes, assessed hazards, conducted workplace surveys, and wrote reports framed within the relevant evidence base. Early consultant activities included Occupational Health Expert, Public Health Coalition Intervenor with Environmental Assessment Board for Ontario Hydro's 25 Year Demand Supply Plan (1990-92) Occupational Epidemiology Consultant, Industrial Disease Standards Panel (1993-1994).

Dr. Cole joined the Institute for Work & Health in 1993 as a researcher on work-related musculoskeletal disorders, initially with literature reviews and existing WSIB data analyses. As he participated in prognostic studies and then led multi-disciplinary teams in workplace intervention studies, he moved into both Interim Director of Research (1997-99) and Senior Scientist (1999-2006) roles, remaining an Adjunct Scientist. He involved occupational physicians, physiotherapists, health educators, employee assistance providers, hygienists and occupational health nurses. Workplace parties included union groups, health and safety associations and members of joint health and safety committees in specific workplaces as part of workplace health intervention research. Joining the University of Toronto in 2001, he has taught and mentored practitioners, researchers and policy makers from a variety of disciplines, progressing from Associate to Full Professor (2014-), now emeritus. In brief, he led or participated in: projects which garnered several millions of dollars, over 300 reports and peer reviewed publications (about ¼ first authored), reviews for over 45 peer-review journals, and over 50 trainees from undergraduate through residents, graduate students to post-doctoral fellows.

Dr. Cole's practice, research, teaching, program and policy work have covered a range of:

- exposures (e.g. pesticides, biomechanical, psychosocial, multiple chemical exposures),
- health outcomes (e.g. neurotoxic, dermal, reproductive, musculoskeletal, mental, cancer),
- severities (e.g. early symptoms, through function impairments, no-lost time, lost-time, other work disability, permanent impairment, to death),
- populations (e.g. farmers & farmworkers, manufacturing, office workers, transportation), and
- locations (e.g. Ontario, Central America, South America, East Africa).

Dr. Cole's current involvements are with specialty occupational health clinics in Ontario (OHCOW) and primary care teams in Grey-Bruce. Relevant funding, reports, publications, scientific journal reviews, and trainees in different substantive areas available upon request.

Appendix B – Tables from Cole et al., (2019)



Table 1: Overview of challenges perceived by health professionals serving migrant agricultural workers

| Category | Types |
|--|--|
| <i>Structural challenges posed by migrant farmworkers' context</i> | <p>Nature of being a migrant (e.g. temporary, tied work permit; temporary, visa tied to work permit; family separation, etc.)</p> <p>Lack of health & safety protection</p> <p>Difficulties preventing and managing work-related health conditions</p> <p>Dependence on employers or supervisors to access health care compromising confidentiality (10, 20%)*</p> <p>Vulnerability in work context – MAW fear of retributions</p> <p>Isolation: lack of transportation (15,31%)*; communication difficulties (18, 37%)*</p> |
| <i>Health services related to structural challenges</i> | <p>Lack adequate translation /interpretation services (18, 37%)*</p> <p>Lack of information about:</p> <ul style="list-style-type: none"> government health care eligibility/coverage (16, 33%)*, supplementary insurance coverage (9, 18%)*, workers' compensation coverage (13, 27%)* work/living contexts of MAWs (12, 24%)* <p>MAWs' lack of access to and delays in receiving health insurance cards (1, 2%)*</p> <p>Lack or regular primary care & preventive service availability</p> <p>Scheduling conflicts: Clinic/facility vs MAWs' hours/schedules (16, 33%)*</p> <p>Difficulty identifying and prevention of work-related health problems</p> <p>Difficulties arranging follow-up tests, treatments, exams, etc.(9, 18%)*</p> |
| <i>Intercultural challenges</i> | <p>Language/ communication barriers (38, 78%)*</p> <p>Cultural barriers /perceptions (19, 39%)*</p> <p>MAWs' different expectations of care ((12, 24%)*</p> |
| <i>Transnational challenges</i> | <p>Understanding prevention and health care practices in the other country</p> <p>Breakdowns in continuity of care</p> <p>MAWs leaving Canada during/prior to receiving care (4, 8%)*</p> <p>Dealing with health problems acquired in Canada in challenging health care access models of sending countries</p> |

* Those mentioned by knowledge exchange session participants, 46/65 (71%) responding

From Cole et al., (2019)

Table 2: Towards continuity of culturally safe, transnational care for migrant agricultural workers

| Sending Country | Canada |
|--|---|
| Governance – Bi-National Meetings (Including provincial/state representatives, health care sector and migrant worker representatives) | |
| Orientation re rights/responsibilities, benefits, Preventive actions based on multilingual resources For MAWs and health care providers | Orientation re rights/responsibilities, benefits, Preventive actions based on multilingual resources For MAWs, employers and health care providers |
| Confidential health passport (bilingual) sent with  MFW | <ul style="list-style-type: none"> • Expedited health card provision • Seasonal surge capacity in rural areas • Modification of clinic hours, locations, modes of delivery • Translation services on demand • Provider training in cultural safety, structural vulnerability assessment & management and on-line resources • Funded health and social service navigation assistance • Occupational therapy for return to work implementation • Confidential follow-up mechanisms Occupational health prevention strategy link |
| Health check-up upon return – inform primary care and binational meetings |  Health passport updated/translated sent with MFW |
| Secondary and tertiary care for severe injury/chronic illness involves effective protection from termination of employment while under treatment, transnational case coordination, transfer protocols as occurs for medical evacuations, and agreements between Canadian and sending country insurers. | |