The John Ball Legacy Project & The Pursuit of Justice for the Former General Electric Workers of Peterborough, Ontario

Author: Sebastien Sheldon

Affiliation: Trent University

Partner Institution/Host Organization: The John Ball Legacy Project

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Abstract

To address the outbreak of occupational cancers developed by the former workers of the Peterborough General Electric (GE) production facility, and more specifically the denial of many justified compensation claims submitted to Ontario's Workplace Safety and Insurance Board, this research, in partnership with the John Ball Legacy Project, aims to identify the best approach to determining compensation for those workers who became ill yet have not received compensation or justice. To fully understand the story behind what had occurred that led to the chemical exposures causing an excess of cancers in the Peterborough GE worker population, interviews were conducted with former workers, politicians, volunteers, and more, which served to guide and supplement further research including a literature review to further investigate the impact of relevant research on the adjudication of compensation claims submitted by injured workers. The literature review most notably revealed the extent of the chemical exposures within the GE plant, and the challenges which have prevented injured workers from having claims approved. Based on the prevalence and duration of exposures observed, as well as the current scientific understanding of how these exposures interact, it is suggested that presumptive entitlement is the best approach to determining compensation for those workers who became ill.

Introduction & Background

In honour of the Late John Ball, the former steering committee of the Occupational and Environmental Health Coalition – Peterborough (OEHCP) has formed the John Ball Legacy Project. This group of dedicated volunteers is committed to supporting and continuing John Ball's mission to provide justice for the ill and deceased former workers, and their families, of Peterborough's General Electric (GE) production facility, which ceased manufacturing in December of 2018 (1). While GE's manufacturing days in Peterborough have come to an end, and while John is no longer with us today, the story of John's tireless efforts to seek justice for his fellow coworkers and their families is remembered by those he fought for and with, some of whom have been able to share their stories with the John Ball Legacy Project. Having worked for GE in Peterborough from the early '60s to the late '90s, Mr. Ball was witness to a wide variety of toxic chemicals being used in the local plant, despite there being no education or safety in place for its workers. John took it upon himself to become an activist for these GE workers of Peterborough after he began to notice that many of his younger coworkers were dying from what he believed to

be occupational illnesses. Under the *Occupational Health and Safety Act*, an occupational illness "means a condition that results from exposure in a workplace to a physical, chemical, or biological agent to the extent that the normal physiological mechanisms are affected and the health of the worker is impaired thereby…" and would include illnesses such as cancers, chronic obstructive pulmonary disease (COPD), asthma, etc. (2). In 1979, when this *Occupational Health and Safety Act* came into force, Peterborough's GE production facility was required to have four health and safety representatives, committed to improving the workplace with regards to health and safety (2,3). John was one such safety representative. In order to support the plant's workers, and to provide guidance for planning and policies in the future, John utilized his acute memory and extensive documentation of activities and meetings at the plant as a tool to seek justice and social change. Unfortunately, during John's employment at GE, his efforts to improve the health and safety of his workplace, and to seek compensation for ill and deceased fellow coworkers were often met with resistance from GE, the Workplace Safety Insurance Board (WSIB), and his union at the time: UNIFOR. John would not quit so easily though, as he continued his fight well into his retirement, until his passing in 2018. Whether or not John would have felt as though he had accomplished his goals or achieved the impact that he had hoped to have, John is responsible for starting a movement which has spread far beyond the Peterborough region.

And so today, the John Ball Legacy Project aim to document the work and efforts of John Ball and his colleagues, so that it may be available and accessible both to current and future generations or communities. As an extension of the work that the John Ball Legacy Project originally sought out to complete, additional research regarding occupational illness and their compensation is directed to identify potential improvements to the adjudication system, particularly as it applies to the cases of former GE workers in Peterborough. The goal and purpose of this research is to determine, given the multiple long-term exposures of GE workers to toxins and carcinogens documented by John Ball, what the best approach might be to determining compensation for those workers who became ill. One of the complications with adjudicating these claims in the present day, or in the near future, is that the exposures which would have cause occupational illnesses to develop today occurred long in the past, in a building which no longer exists. Thanks to John Ball, however, documentation of these exposures does exist and is compiled in a retrospective exposure profile study by Robert DeMatteo, Dale DeMatteo, and a number of GE retirees (4). This document, commonly referred to as *The UNIFOR Report*, used worker

insight, government inspection reports, management records, and joint health and safety committee minutes to reflect the exposure conditions of the GE plant in Peterborough (4). Published in 2017, this research was used to support occupational disease claims, where there were concerns that despite the great number of carcinogens used at the plant and the irregularly high incidences of cancer among workers, the extent and nature of employees' exposure conditions were still being misrepresented, and this misrepresentation was negatively impacting the occupational disease claims submitted to the WSIB (4,5). Given that this evidence exists, it is important to re-evaluate how the claims of former GE workers submitted to the WSIB have been evaluated, attempt to understand why a high number of claims have been denied, and identify the means by which injured workers may obtain compensation and justice.

Of the 246 occupational cancer claims that had been submitted by former Peterborough GE workers to the WSIB between 2004 and 2018, 107 of these claims were denied compensation (6). It is not entirely understood why these claims have been denied, especially in the face of overwhelming evidence of exposures and the presence of a 'cancer cluster' among GE workers, where the incidence of cancer is higher than the general Ontario population (5,7). Despite workers being exposed to the same chemicals and developing similar cancers, some workers were being compensated and some were not. The unpredictable outcomes of claims have prompted some former workers to comment that "they seemed to be picking and choosing who they give claims to" (3). This research is significant in addressing the consistency of adjudicating claims, in an attempt to achieve compensation and justice for the former GE workers of Peterborough. It is important to achieve compensation not only to support those workers who have developed cancers in the past, but to support the workers and families who have suffered for decades without compensation following the wrongful denial of their claims. Beyond simply compensating the impacted individuals, it is also important to view this as an opportunity to achieve widespread justice. Incidents like those which have been described above are not isolated to GE Peterborough, but occur throughout the province, and even across the country, in all sorts of industrial workplaces. As such, restructuring the foundation upon which claims are adjudicated in Ontario, and even Canada, may be an essential step in addressing what is being called an occupational illness epidemic (8).

Methodology

To fully understand, from an outside perspective, what had occurred at Peterborough's former GE facility, the role that John Ball played in these events, and what has happened to remedy the situation since then, a review of the relevant literature as well as multiple interviews were conducted to obtain the necessary information. The literature review focussed specifically on documents produced as a direct result of the exposures at GE including, for example, *The Report of the Advisory Committee on Retrospective Exposure Profiling of the Production Processes at the General Electric Production Facility in Peterborough, Ontario,* which was alluded to in the introduction of this report (4). These documents provided insight not only into the health and safety conditions at the former GE plant, but they also revealed the conclusions and recommendations that would have or should have influenced the decisions of WSIB in adjudicating compensation claims. The interviews on the other hand, focussed less on the science or data-driven evidence available, and more so on how the parties involved used and collected this information in their fight for justice. As a guide, participants were asked the following key questions, developed with guidance from the host organization:

- What was your relationship with John Ball? How did you know him?
- What quality in John impressed you the most?
- What impact do you believe that John had on achieving justice for workers injured by exposures at Peterborough's General Electric production facility?

While there was no anticipated risk associated with the participation of most interviewees, it was understood that there was a possibility for those who are identified as former workers of the facility to experience some small level of risk. When participants were asked about their connection to John Ball, or what impact they believed John had on achieving justice for workers injured by exposures at the GE plant, there was a possibility that the responses given might unintentionally suggest that the individual in question or someone known to that individual had contracted an occupational illness as a result of exposures to toxic chemicals and/or carcinogens in the workplace. To ensure that the appropriate ethical and safety considerations were made, an ethics application had been submitted to the Trent University Research Ethics Board, and was both reviewed and approved by the Forensic Science Departmental Ethics Review Committee. This ethics review ensured that the risk to all participants involved was minimal, and that all interview

questions, the consent forms, and the information sheet associated with the interviews were reviewed and written appropriately. These ethical and safety concerns were important to the work of the John Ball Legacy Project, as it would have been contradictory to needlessly reveal the personal medical information, medical history, or vulnerabilities of research participants while simultaneously fighting for their safety and justice.

As these interviews were conducted, reviewed, and published on the John Ball Legacy Project website, the factors examined included the timeline by which events had occurred, the role of various professionals, politicians, volunteers, etc. involved in specific events, and the general outlook on the impact that was achieved (9). Prior to the interview process, it was understood that there was a potential for some of the results obtained to be biased, where many of the research participants were heavily involved or were very close to someone who was heavily involved in the GE workplace, claims process, research studies, or advocacy for injured workers, and this involvement might influence the individual's overall outlook on the impact that was achieved. For example, if an interview participant responsible for researching exposures at the GE plant were to defend their methods and hold them in high esteem, it would then be necessary when examining the results of such an interview to identify whether this partiality would have an effect on the accuracy of the response. While the primary purpose of these interviews was to highlight the work and efforts of John Ball, many responses also shared the experiences of the participants themselves, and so to account for this potential for bias and to protect the quality of the research, all factual information would be confirmed through other parties or the available literature on the subject. Essentially, these interviews were used as a guide for research rather than being treated as primary sources of information. Fortunately, there were no identifiable causes for concern in the actual interviews. Participants were very careful in expressing their opinions, and all results that yielded factual knowledge could be confirmed by other participants and by the available literature or other previous documentation, including documents examined as part of a literature review.

Major Findings

The Hosein Report & The Markowitz Report

Following concerns expressed by the Joint Health and Safety Committee of GE and the Canadian Auto Workers Union that there was a high rate of cancer development amongst workers of GE Peterborough, the company's own industrial hygienist, Dr. Roland Hosein, completed a

health study for the company to address these concerns (5). The report was broken up into two phases; Phase I and Phase II (5). Phase I of the report specifically addressed the apparent excess of cancers amongst GE Peterborough workers. Using a proportionate mortality ratio analysis, Dr. Hosein identified that there was a statistically significant excess of cancer within the population of workers, relative to the general Ontario population (5). *The Markowitz Report*, which was a review of Dr. Hosein's original study completed in 2017, noted that the use of a proportionate mortality ratio analysis was inherently limited for the purposes of this study as it excluded living victims diagnosed with cancer, victims who had not yet been diagnosed with cancer, and victims whose cause of death was a disease other than cancer, such as heart or lung disease (10). As such, the identified presence of an occupational cancer cluster amongst GE Peterborough workers would have been much greater than it had originally been represented, in terms of both size and statistical significance (10).

In Phase II of *The Hosein Report*, the author aimed to understand the relationship between the conditions of the workplace and the development of lung cancer in male workers at the GE Peterborough facility, to determine if the conditions of the workplace were in any way accountable for the statistically significant (albeit understated) excess of cancers reported in Phase I of the study (5). For this aspect of the study, an odds ratio analysis was performed, which essentially differentiates the odds that an outcome will or will not result from a particular exposure (11). Applied to this study, the 'outcome' would be the development of cancer, and the 'particular exposure' would be exposure to asbestos within the GE Peterborough facility. Using this method of analysis, Dr. Hosein concluded that "there was no association between lung cancer deaths and any of the carcinogens" (5). Dr. Hosein would expand his analysis to also include that there was no increase in the risk of lung cancer death associated with cumulative exposure, intense exposure, prolonged exposure, or exposure to multiple carcinogens (5). Once again, Dr. Markowitz's review of this health study would note significant disagreements with *The Hosein Report*, and would even go so far as to state "The Phase II study was too poorly conducted to instill any faith in its results", citing concerns such as exposure misclassification, limited statistical power, and most importantly, the fact that asbestos was the only carcinogen evaluated, and therefore the conclusion that "there was no association between lung cancer deaths and any of the carcinogens" is unwarranted (5,10). It is important to note that while the original health study was presented to the WSIB in 2002, there

is no evidence that the study was officially published or had undergone any form of peer-review, despite each of these steps being essential aspects of quality studies (10).

The UNIFOR Report

The Report of the Advisory Committee on Retrospective Exposure Profiling of the Production Processes at the General Electric Production Facility in Peterborough, Ontario, mentioned earlier in this report and also known as *The UNIFOR Report*, used worker insight, government inspection reports, management records, and joint health and safety committee minutes to reflect the exposure conditions of the GE plant in Peterborough (4). John Ball's work was instrumental to the completion of this report, as many of the documents used to confirm the presence and placement of several workplace hazards were collected by John throughout his career. With respect to the physical hazards and generally poor working conditions identified at the former GE plant, the report revealed that the facility was poorly ventilated and lacking adequate air replacement, resulting in negative air pressure which caused contaminants and other chemical hazards to travel amongst multiple departments (4). The chemical hazards most commonly included various solvent vapours, welding fumes, (which were produced in every department), epoxy, polyester and asphalt resins, asbestos, polychlorinated biphenols, metal working fluids, beryllium powder, and uranium, to name a few which workers were routinely exposed to (4). Within this short list of chemicals, asbestos, polychlorinated biphenols, and beryllium are all identified as known carcinogens (4). Furthermore, many of the solvent fumes present in the facility were contaminated with benzene, another known carcinogen, and additionally the epoxy, polyester and asphalt resins would break down to produce chemicals that were likely carcinogenic to humans (4). Beyond the carcinogenic effects of these chemicals, many of these substances would have other harmful effects. For example, welding fumes on their own were known to result in the development of COPD, however when trichloroethylene (one of the solvents regularly used as a degreaser) combined with these welding fumes produced in various departments, the reaction of these substances would yield hydrogen chloride (HCl) gas (4). Physical conditions in the plant only increased the risk of exposure to any number of these toxic substances, for reasons including high temperature, close proximity of working stations and prolonged exposure to sources of dangerous chemicals, and a general lack of housekeeping and safety measures (4). As mentioned before, these chemicals were free to travel between departments due to the negative air pressure

of the facility, however it is important to also consider that while the departments were said to be located in different "buildings", these buildings had no walls between them, and there were actually very few spaces in the large, open facility that were isolated from other departments (4).

In addition to providing factual evidence of physical working conditions and chemical exposure risks in various buildings throughout the facility, the report also noted several significant obstacles that workers were faced with in their attempts to file and fight for compensation claims (4). The committee identified that the most significant of these obstacles was the burden of proof on the applicant or worker, while the government required unrealistic standards of scientific certainty and demonstrated a general lack of understanding of occupational health research on their own part (4). The excessively stringent nature of this standard of proof has been expressed by the Supreme Court of Canada (SCC), which determined that the standards required by the government were not effective in determining the causation of occupational illness, and claimed that the reason for such a gross misunderstanding of causation stemmed from a "fundamental misapprehension of how causation – irrespective of standard of proof – may be inferred from evidence" (12).

The Demers Report

On an annual basis throughout the province, it is estimated that 6000 worker deaths occur as a result of toxic exposures, and 3000 individuals are diagnosed with cancer as a result of exposures in the workplace (4,13,14). Additionally, despite an estimation of 3000 annual diagnoses, only 400 occupational cancer claims for worker compensation are submitted to the Ontario WSIB each year, and only 170 of these cases are successful in receiving compensation (14). In light of these concerning statistics, the Ontario Ministry of Labour (MOL) requested Dr. Paul Demers to conduct an independent review which addressed the use of scientific evidence to determine the work-relatedness of cancer (14). The published report details an in-depth examination of the compensation claims process and describes the challenges which make the success o occupational cancer claims so difficult to obtain (14). The four main challenges described in the report include firstly, the lack of recognition and reporting of occupational cancers by primary care providers; secondly, the limitations of epidemiological findings as they are applied to individual attributions; thirdly, the lack of documentation for historical exposures; and finally, the difficulties associated with 'cluster investigations' and complex workplaces (14). While the report itself was focussed on occupational cancers in Ontario as a whole, the author mentioned that

in the case of GE, where John Ball and his fellow retirees had completed extensive documentation of historical exposure at the Peterborough GE production facility, the third challenge was not so much an issue (4,14). Of the remaining issues, the greatest challenge that stands in the way of occupational cancer claims submitted by the former GE workers of Peterborough is the poor manner of investigation with which occupational clusters are addressed (14). In *The Demers Report*, one of the reasons provided for this poor management of clusters and complex workplaces is that neither the WSIB nor the MOL have the research capacity to investigate occupational clusters, and there is no such agency in the province of Ontario that is tasked with this responsibility (14). As a result, claims are mostly dealt with on an individual level, with which there are associated limitations to epidemiological findings that assess exposures and the subsequent risk of cancer development at a group level (14). This means that if a group of victims, such as those who comprise the GE Peterborough occupational cancer cluster, were to submit compensation claims to the WSIB, these claims would be adjudicated on a case-by-case basis. Any study of the workplace exposure conditions, risk of cancer development, or other relevant factors will assess the risk of workers on a group level, but such epidemiological findings cannot accurately be applied to individual cases (14). The purpose of group level data is to assess whether or not a group, in general, experiences a higher risk of disease occurrence, but such data fails to establish causation in any one individual case (14). Additionally, group level data considers individuals who do not developed cancers as a result of workplace exposures, and this ultimately dilutes the perceived risk upon workers who do develop cancers as a result of workplace exposures (10).

An additional obstacle described in *The Demers Report*, is the complication associated with cases involving multiple exposures (14). In the case of GE Peterborough, where workers were exposed to several carcinogenic or otherwise toxic chemicals, there needs to be an understanding of how these chemicals interact and impact the human body. As explained by Dr. Demers, two or more exposures may act either independently or interdependently (14). Independent exposures will act independently of each other, meaning that the existence of one exposure will not impact the effect produced by another exposure, and vice versa (15). In contrast, interdependent exposures will interact with each other such that the two exposures will have a combined productive or preventative effect on the human body (15). Unfortunately, there is a significant lack of research regarding multiple exposures and their impact on human biology, and this has had some

consequence as to how claims are adjudicated in cases where exposure to multiple carcinogens is a relevant issue, as their relationship cannot be quantified (14). Alternatively, the risk associated with each carcinogen can be evaluated individually, however if all carcinogens are deemed to be below levels at which they would result in the development of cancers individually, an additive relationship between multiple exposures may still result in the development of cancer. Despite a general lack of quantitative data, Dr. Demers reports that "it would seem reasonable to assume in the absence of contrary evidence that [relationships between common workplace exposures] are independent and that therefore their relationship would be assumed to be additive" (14). Dr. Demers draws reference to similar considerations made by the American Conference of Governmental Industrial Hygienists, who would state that "When two or mor hazardous substances have a similar toxicological effect on the same organ or system, their combined effects, rather than that of either individually, should be given primary consideration" (14,16). As a very fair conclusion to his discussion of multiple exposures and the associated occupational cancer claims, Dr. Demers suggests that the same standards that are applied to preventing and compensating victims for the effects of individual exposures should also be applied to preventing and compensating victims for the effects of multiple exposures (14). Currently, these standards have only been applied to preventing multiple exposures, not compensating their victims (14,17).

Discussion & Conclusion

The Issue of Flawed Science to Assess Risk and Adjudicate Claims

The issue raised by Phase I of *The Hosein Report*, that there was a statistically significant excess of cancer with the population of Peterborough GE workers relative to the general Ontario population, was flawed in its use of a proportional mortality ratio to draw this conclusion (5,10). The manner in which it was used for the purpose of the Dr. Hosein's health study allowed for the exclusion of living individuals who had been diagnosed with cancer, victims who had not yet been diagnosed with cancer, and victims whose cause of death was a disease other than cancer, such as heart or lung disease (10). As a consequence of using this analysis, the significance of the excess of cancers discovered amongst the GE workers of Peterborough would have been underrepresented. The implication that this might have had on the approach taken towards or the results obtained from Phase II of the study, and eventually the interpretation of findings by the WSIB, would be a failure to accurately describe the seriousness of the issue at hand and understand

the plight of these workers. With the actual size of the occupational cluster being much larger than originally identified, knowledge of its true value would have provided much stronger support that some characteristic or characteristics of the GE workers of Peterborough produced an increase risk of developing cancer. Had the issue been clearly represented and given the sense of importance or urgency that it deserved, there would have been ample opportunity and no reason to oppose the allocation of all necessary resources to address the health risk posed to GE workers. If such a response had been implemented, it may very well have been possible that we would not still be dealing with this issue today.

While the conclusions drawn in Phase I of *The Hosein Report* fell short of accurately describing the magnitude of the issue, the conclusions drawn in Phase II sent readers in the complete opposite direction of the truth, and ultimately did more harm than good. Given the roughly fifteen-year gap between the presentation of this document to the WSIB and its first peer review in 2017, the information held by the board would have directly opposed the claims submitted by hundreds of workers in this time frame, despite this information being inherently flawed and incorrect (5,10). *The UNIFOR Report* was helpful in pointing out the general lack of understanding for occupational health sciences demonstrated by the Ontario government, and so when this lack of understanding is met with false information, there is no recognition that such research is invalid (4). Regardless of whether the validity of *The Hosein Report* was known or unknown at the time, it was irresponsible on behalf of the authors to proceed with its presentation to the WSIB prior to any peer review (10). The peer review process is essential to maintaining the integrity of research and the quality of published studies, and in this case may have prevented the damaging and unwarranted conclusions drawn in *The Hosein Report* from negatively impacting the lives of hundreds of victims of occupational cancers.

The issue of using flawed science to assess risk and adjudicate claims is not brough up to attack to work of previous researchers, but to reveal the fact that the information used to wrongfully deny the claims of injured workers was incorrect. The lessons learned from this failure can be used to inform future decisions regarding the reconsideration of past claims or the consideration of new claims in the future. Clearly there is an identifiable need to reconsider the denied claims of the past, as their consideration in the first place was biased by invalid research. In this process of reconsideration, an understanding of why *The Hosein* Report was flawed and the damage that it

caused should be considered when developing a proper plan to assess the risk and adjudicate the claims of the former GE workers of Peterborough.

The Benefit of Historical Documentation

A lack of historical documentation of the presence and placement of exposures in complex workplaces is one of the most significant obstacles which stands in the way of occupational cancer claims submitted by employees (14). Fortunately, in the case of GE Peterborough, the work of John Ball and fellow GE retirees was able to address this issue through the development and publication of *The UNIFOR Report* (4). The report provided evidence which would support the claims submitted by injured workers, however it would also reveal the significantly complex nature of the workplace and the cancers that had been developed from exposures within this workplace (4). Despite being reluctant to accept the report, especially after the information in *The Hosein Report* had been relied upon for many years, the WSIB and the MOL used the data from *The UNIFOR Report* to review 233 previously denied claims, and consequently overturn half of them (4,18). In future applications, this research will also be invaluable for its revelation of important data regarding multiple exposures (4).

The Issue of Multiple Exposures

The discussion of multiple exposures will refer again to the assumption presented in *The Demers Report*, where Dr. Demers states that "it would seem reasonable to assume in the absence of evidence to the contrary that [relationships between common workplace exposures] are independent and that therefore their relationship would be assumed to be additive" (14). One of the things that *The UNIFOR Report* was extremely helpful identifying was the presence of these multiple common workplace exposures at most locations within the Peterborough GE facility (4). Given the ability of each chemical or contaminant to spread throughout the facility and interact with other substances, for example, the spread of various benzene contaminated solvent fumes or the interaction of welding fumes and trichloroethylene to produce HCl gas, it appears that exposure to a mixture of dangerous chemicals in the plant was inevitable (4). As such, it would therefore be reasonable to assume that the former GE workers of Peterborough had been exposed to a chemical cocktail of which each individual substance contributed to an overall additive effect, in the absence of any contrary evidence. Now, it has been identified that there is a general lack of research regarding multiple exposures and their quantifiable relationships, however this can also be

considered to coincide with absent evidence to the contrary, and the assumption still holds that the impact of these exposures is additive (14). This has significant implications on the occupational cancer claims submitted by the former GE workers of Peterborough who had been subjected to multiple exposures, because even in the case that the risk associated with each individual exposure had been assessed, the data as a whole would still be incapable of describing the collective effect of the exposures, which we assume to be additive (14).

Limitations

One of the major limitations in determining compensation for the Peterborough GE workers who had developed occupational illnesses, is the lack of research regarding multiple exposures (14). If research were to advance in this topic, the information and quantitative data obtained would be invaluable to injured workers and the WSIB in accurately identifying the impacts of multiple exposures and how they affect the risk of developing cancers due to workplace exposures. Another limitation regarding the state of capabilities of current research, is that the WSIB and the MOL lack the resources and do not hold any responsibility for investigating occupational clusters (14). In some past situations where the need to investigate such clusters has been identified, occupational physicians have taken on this task, however investigations are likely to benefit from a more inter-disciplinary approach (14). Given that many of the workers of the GE plant in Peterborough constitute an occupational cancer cluster, it would be most effective to have an agency such as the WSIB or MOL to conduct a broad, inter-disciplinary investigation of the group. If the WSIB continues to address compensation claims on an individual, case-by-case basis, then any number of epidemiological studies, which provide risk assessments at the group level, will fail to accurately support the decision-making process (10,14). A consequence of adjudicating claims in this manner, and perhaps the most visible consequence to those involved with the workplace exposure of GE Peterborough, is that two individuals who had been subjected to the same workplace exposures would experience different outcomes in their compensation claims, giving the appearance, as stated by Don McConnell, that "they seemed to be picking and choosing who they give claims to" (3). In any case, the general limitation to determining compensation for the injured and ill GE workers of Peterborough appears to be the general lack of research and understanding on the topic of occupational

cancers, as expressed by the authors of *The UNIFOR Report*, the author of *The Demers Report*, and the Supreme Court of Canada (4,12,14).

Recommendations & Future Research Directions

The presumption of entitlement dictates that "If [an accident] occurs in the course of the worker's employment, it is presumed to have arisen out of the employment unless the contrary is shown" (19). Now, when dealing with occupational cancer claims, it is usually the case that the claimant takes on the burden of proof (4). More recently however, an exception has been made for firefighters and fire investigators in the province of Ontario who have provided service for a specific number of years and have been diagnosed with a prescribed cancer, where it is then presumed that the development of the occupational cancer is a due to the nature of their work (19,20). Given the multiple, long-term exposures of workers to toxins and carcinogens at the Peterborough GE production facility, presumptive entitlement would also be the best approach in this case to determining compensation for those workers who became ill. These multiple exposures have been carefully documented in a report by GE retirees, and based on the information provided in this report, it would be unreasonable to assume that any one worker was not subjected at some point to multiple exposures, not only due to the ample presence of dangerous chemicals and lack of safety measures throughout the plant, but also the physical working conditions that exacerbated the presence of these toxins and carcinogens (4). Furthermore, based on the work of Dr. Paul Demers, we can assume that each of these exposures were independent in nature, and imparted an additive effect on the workers subjected to such exposures (14). For these reasons, along with the fact that any evidence which has refuted these claims has been disproven, it is reasonable to suggest that the cancers developed in the former GE workers of Peterborough are presumed to have been caused by exposures experienced in the workplace. By using the same framework that currently exists for firefighters and fire investigators to adjudicate the occupational cancer claims that have arisen from the former GE facility in Peterborough, it could be ensured that those workers who developed occupational cancers as a result of exposures at the GE plant and submitted compensation claims would achieve the compensation that they deserve.

Of course, regardless of how future claims will be adjudicated, there is a need for further research in the field of occupational health and safety. Primarily, further research should be conducted to study the impacts of multiple exposures and explore the quantifiable relationships

between them. Such research will undoubtedly be extremely useful to adjudicate claims originating from other complex industrial workplaces in the future. With such workplaces, however, it is also possible that occupational clusters exist, in which case there should exist a system for investigating these group level exposures. Future efforts by the WSIB and the Ontario MOL should include the acquisition and direction of both human and financial resources designated with this task. Given that these two issues are some of the most significant obstacles in the process of adjudicating compensation claims in Ontario, it is of utmost importance that they are addressed urgently.

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