Designing exposure registries for improved tracking of occupational exposure and disease

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ABSTRACT

OBJECTIVES: Registries are one strategy for collecting information on occupational exposure and disease in populations. Recently leaders in the Canadian occupational health and safety community have shown an interest in the use of occupational exposure registries. The primary goal of this study was to review a series of Canadian exposure registries to identify their strengths and weaknesses as a tool for tracking occupational exposure and disease in Canada. A secondary goal was to identify the features of an exposure registry needed to specifically contribute to prevention, including the identification of new exposure–disease relationships.

METHODS: A documentary review of five exposure registries from Canada was completed. Strengths and limitations of the registries were compared and key considerations for designing new registries were identified.

RESULTS: The goals and structure of the exposure registries varied considerably. Most of the reviewed registries had voluntary registration, which presents challenges for the use of the data for either surveillance or epidemiology. It is recommended that eight key issues be addressed when planning new registries: clear registry goal(s), a definition of exposure, data to be collected (and how it will be used), whether enrolment will be mandatory, as well as ethical, privacy and logistical considerations.

CONCLUSIONS: When well constructed, an exposure registry can be a valuable tool for surveillance, epidemiology and ultimately the prevention of occupational disease. However, exposure registries also have a number of actual and potential limitations that need to be considered.

KEY WORDS: Registries; occupational exposure; exposure registries; surveillance

La traduction du résumé se trouve à la fin de l'article.

Can J Public Health 2016;107(1):e119–e125
doi: 10.17269/CJPH.107.5039

Effective surveillance systems can provide information on population-level trends in occupational exposure and disease. Surveillance is defined as the “systematic ongoing collection, collation, and analysis of data and the timely dissemination of information to those who need to know so that action can be taken”.¹ Registries are one of various approaches to collecting information on occupational exposure and disease. Others include population-based surveys that tend to be cross-sectional in nature (rather than ongoing), providing a ‘snapshot’ of exposure or disease in a population. Sentinel event notification systems are designed to detect individual cases of disease (or exposure); these systems may lead to the development of research studies or additional surveillance activities. Screening can also be used, but is most often focused on detecting disease among at-risk individuals rather than in the population as a whole.

Exposure registries involve the registration of individuals based on their exposure to a particular agent or agents and the collection of various types of information, including demography, employment, exposure and, sometimes, health information.² An exposure registry generally seeks to include all exposed individuals within a specified population.³ The information collected as part of an exposure registry may be used for several purposes, including: disease screening initiatives; compensation claims adjudication; primary prevention strategies (e.g., exposure reduction); and health

surveillance within populations. It may also serve as a basis for additional surveillance activities.

Several industries and jurisdictions use exposure registries for tracking occupational exposures, and in some cases these registries are used as a basis for monitoring occupational disease or health status (e.g., allergic sensitization). In Canada, the systematic collection of data on occupational exposure and disease data is rare and exposure registries are no exception. However, leaders in the Canadian occupational health and safety community have recently shown interest in the use of registries for monitoring

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Acknowledgements: This study was funded by WorkSafeBC through the Focus on Tomorrow – Innovation at Work Program in partnership with the Workers' Compensation Board of Nova Scotia and Alberta Human Services. VA was supported by a Career Development Award in Prevention from the Canadian Cancer Society Research Institute. The authors thank Dr. Mieke Koehoorn for providing valuable comments on the manuscript. Institution where work was completed: Memorial University, Newfoundland & Labrador, Canada

Conflict of Interest: None to declare.

Table 1. Key features of the five exposure registries

	Exposure	Year started	Exposure period	Target population	Approx. # registrants (year)
Canadian National Dose Registry	Ionizing radiation	1951	1951–ongoing	All radiation-exposed workers in Canada	500,000 (2012)
Ontario Asbestos Workers Registry	Asbestos	1986	1986–ongoing	All asbestos-exposed workers in Ontario, Canada	24,000 (2004)
Ontario WSIB Program for Exposure Incident Reporting	Various	2002	2002–ongoing	All workers in Ontario, Canada	16,000 (2011)
WorkSafeBC Exposure Registry Program	Various	2012	2012–ongoing	All workers in British Columbia, Canada	N/A
Baie Verte Miners' Registry	Asbestos	2008	1959–1994	All workers from the former Baie Verte, Newfoundland asbestos mine	1003 (2012)

N/A = not available.

occupational exposure and disease, in part driven by the continuing epidemic of asbestos-related disease.⁴ In particular, the recent development of the WorkSafe registry in British Columbia and the completion of the Baie Verte registry for asbestos miners in the province of Newfoundland and Labrador have drawn attention to the potential utility of registries for employees, employers, compensation boards and policy makers. The primary goal of this study was to review a series of existing exposure registries in order to identify their strengths and weaknesses as tools for tracking occupational exposure and disease in Canada. A further goal was to identify the features of an exposure registry that can contribute to prevention (primary, secondary or tertiary) and to identifying new exposure–disease relationships. A full report on this study is available online;⁵ this paper focuses on results from a review of five Canadian exposure registries.

METHODS

Five registries operated by provincial or federal agencies were identified as the only exposure registries operating in Canada (Table 1). These five Canadian exposure registries were reviewed: Canadian National Dose Registry (NDR), Ontario Asbestos Workers Registry (Ontario Asbestos), Workplace Safety and Insurance Board (WSIB) Program for Exposure Incident Reporting (PEIR), WorkSafeBC Exposure Registry Program (WorkSafe), Baie Verte Miners' Registry (Baie Verte).^{6–11}

Data on each registry were collected using documentary analysis of peer-reviewed literature, websites and reports. Supplementary information was collected through telephone conversations and e-mail exchanges with officials involved with each of the registries. Basic descriptive information was collected on all registries: the included exposure(s), active years of registration, exposure period captured, target population, number of registrants enrolled, methods used for data collection, data collected, data management and data access.

This study sought to examine the exposure registries with respect to a set of nine a priori features:

1. Overall registry goals
2. Legislated (L) or voluntary (V) registration – Did the organizations operating the registry, and the registrants themselves, have a choice in whether they participated in the registry?

3. Single (S) or multiple (M) occupational exposure(s) of interest – Did the registry monitor a single exposure, or multiple?
4. Inclusion of health surveillance (Y/N) – Did the registry also include health surveillance of any kind?
5. Prospective (P) or retrospective (R) exposure assessment – Did the registry collect exposure data prospectively or retrospectively?
6. Active (A) or passive (P) recruitment – Did the registry actively recruit registrants, or was enrolment left up to the workers?
7. Open (O) or closed (C) registration – Is the registry currently collecting data (open) or has data collection ceased (closed)?
8. Occupational (O) or environmental (E) exposure – Did the registry collect information on occupational, environmental or both types of exposure?
9. Individual (I) or population (P) focus – Did the registry focus on collecting information about individuals or about populations?

Of particular interest was whether enrolment in the registry was mandatory or voluntary and what types of data, especially involving exposure, were collected. If the registry used its data for research purposes, issues of informed consent were investigated, including ethical approval and how personal identifying information was handled. Any formal evaluation of the registry and its success in achieving its goals was reviewed, including whether each registry had contributed to prevention activities in the relevant jurisdiction.

RESULTS

The exposure registries examined varied considerably; they represent a variety of approaches to occupational exposure and disease tracking. In all cases, the target population was defined by exposure rather than disease. Table 1 presents key features of the registries, including the exposure being monitored, the population of interest, the date on which the registry activity began, and the period for which exposure was recorded. The NDR, Ontario Asbestos, WSIB and WorkSafe registries collected only exposure data, while the Baie Verte registry collected both exposure and health data. Table 2 presents the principal goals that each registry set for itself (the first of our nine a priori themes). Table 3 provides a summary of the five registries on the remaining eight a priori themes.

Table 2. The stated goal(s) of each exposure registry

	Goal(s)
Canadian National Dose Registry	To assist regulatory authorities in the monitoring and control of occupational radiation exposures, provide exposure information for legal/compensation purposes and to serve as a source of exposure data for epidemiological analyses.
Ontario Asbestos Workers Registry	To identify asbestos-exposed workers and notify workers and their physicians of the potential need for appropriate diagnostic testing and, potentially, therapeutic treatment.
Ontario WSIB Program for Exposure Incident Reporting	To provide a method for workers and employers to report individual unplanned exposure incidents in the workplace that do not result in lost time and do not result in an immediate injury or illness.
WorkSafeBC Exposure Registry Program	To provide a system for workers, employers and others to report an exposure to a harmful substance in the workplace as a means to assist the adjudication of any future occupational disease claim as a result of the reported exposure.
Baie Verte Miners' Registry	To establish contact with as many former employees as possible from one former asbestos mine and to collect (with full informed consent) as much information as possible on work histories, asbestos exposure, personal health history, and current health status.

Table 3. Thematic analysis of the five registries (themes 2–9)

	Legislated (L) or voluntary (V)?	Single (S) or multiple (M) occupational exposure(s) of interest?	Health surveillance? (Y/N)	Prospective (P) or retrospective (R)?	Active (A) or passive (P) recruitment?	Open (O) or closed (C)?	Occupational (O) or environmental (E) exposures?	Individual (I) or population (P) focus?
Canadian National Dose Registry	L	S	N	P	A	O	O	P
Ontario Asbestos Workers Registry	L	S	N	P	A	O	O	I
Ontario WSIB Program for Exposure Incident Reporting	V	M	N	P	P	O	O	I
WorkSafeBC Exposure Registry Program	V	M	N	P	P	O	O	I
Baie Verte Miners' Registry	V	S	Y	R	A	C	O	P

The goals of the registries varied. The WorkSafe and WSIB registries focused on reporting individual exposure incidents, in the hope that this information might be helpful in the future. The Ontario Asbestos registry aimed to identify asbestos-exposed workers and to notify them, when a set level of exposure is reached, about possible testing and treatment options. The Baie Verte registry was slightly different, aiming to collect a diverse range of information from former workers in order to assist in compensation claims and undertake epidemiological analysis. The NDR had the most complex goals, aiming to assist in the monitoring and control of radiation exposure in Canada as well as to provide data for compensation and research purposes. Evaluation of the exposure registries' success in achieving their stated goals was seldom undertaken; only the NDR was found to have undergone any evaluation.

Several strengths and weaknesses of these exposure registries were identified during the documentary review (Table 4). One of the main strengths of exposure registries generally is that workers are usually enrolled before disease occurs, which allows for primary prevention activities (e.g., removal from, or limitation of, exposure). The corollary to this is that exposure information is

collected prospectively, before disease occurs, and is thus less subject to the challenge of recalling historical exposures. This issue is of particular concern when data are used in epidemiological studies of occupational disease (recall bias) but it can also be an important issue in the adjudication of workers' compensation claims.

Not all the exposure registries reviewed were prospective in nature. The Baie Verte registry was a retrospective exposure registry that enrolled workers many years (even decades) after exposure ceased; information on both exposure and disease was collected retroactively. All other reviewed exposure registries were designed to collect exposure information prospectively, though both WSIB and WorkSafe permitted retrospective reporting of exposure incidents. Only the NDR and Baie Verte registries included quantitative exposure measurements. The remainder of the exposure registries relied on a variety of reported exposure information, which could include the amount of a toxicant used, hours of work, or a simple yes/no report of exposure.

Exposure registries can be useful either when the exposure of interest is linked clearly to one or more health outcomes, or in situations where an exposure-response relationship is not yet

Table 4. Strengths and limitations of exposure registries as a tool for tracking occupational exposure and disease in Canada

Strengths	Limitations
<ul style="list-style-type: none"> • Can provide the opportunity to intervene before the onset of disease (primary prevention). • Can collect exposure information prospectively on workers. • If participation is high (more likely in a mandatory registry), a registry can be used as a basis for population-level surveillance of occupational exposure and/or disease. • Allow for the investigation of new exposure-response relationships. • If detailed personal exposure information is collected, this can assist individuals in the assessment of workers' compensation claims, regardless of the population participation rates. 	<ul style="list-style-type: none"> • Financial costs for design, implementation and operations. • Utility of registry data for population surveillance is limited if participation is not mandatory. • A mandatory registry may require legislation. • Development of a registry presents many challenges, including participation of workers, cooperation between workplace parties, operational costs, ethics requirements. • National registries are difficult to organize in Canada because occupational health and safety (for most workers) is a provincial and not federal responsibility.

Table 5. Exposure registry goals, requirements and limitations

Goal	Information required to achieve this goal	Limitations
1. To conduct exposure surveillance in order to prevent or reduce hazardous workplace exposure in populations of workers → <i>Primary Prevention</i>	<ul style="list-style-type: none"> • exposure information for the entire population of interest (or of a representative sample) • if not available, the registry may still contain data that are useful for individuals in compensation (see Goal #4) 	<ul style="list-style-type: none"> • best undertaken with a mandatory registry
2. To conduct health surveillance in order to prevent or reduce disease occurrence in populations of workers → <i>Secondary Prevention</i>	<ul style="list-style-type: none"> • a population with known exposure • health information for the entire population of interest (or a representative sample) 	<ul style="list-style-type: none"> • will not necessarily include detailed exposure information at the individual level • may not be useful for epidemiology
3. To protect individual workers who are known to have had hazardous exposures from the progression of disease (screening) → <i>Secondary Prevention</i>	<ul style="list-style-type: none"> • a population with known exposure • provision of health screening at the individual level 	<ul style="list-style-type: none"> • will not necessarily include detailed exposure information at the individual level • may not be useful for epidemiology
4. To assist in the filing and adjudication of future compensation for individual workers → <i>Tertiary Prevention</i>	<ul style="list-style-type: none"> • detailed personal exposure information • if a large proportion of the population enrolls, the data may also be useful for population-level health surveillance 	<ul style="list-style-type: none"> • limited uses for the data beyond the individual • data likely not to be useful for exposure (or health) surveillance purposes
5. To identify new exposure-disease relationships through epidemiological analyses in populations of workers	<ul style="list-style-type: none"> • detailed exposure and health information for a representative population, including both exposed/unexposed and healthy/diseases (cases/controls) 	<ul style="list-style-type: none"> • expensive

known. The Ontario Asbestos and Baie Verte registries focused on asbestos-exposed individuals. The NDR focused specifically on radiation. The remaining exposure registries (WSIB and WorkSafe) set no restrictions on the types of exposure that could be reported.

Data collected as part of an exposure registry can also be used in the adjudication process for compensation claims. In the case of PEIR and WorkSafe, where any exposure can be reported by any workplace party, the hope is that this information will be archived for use in any future claims process. Workers electing to participate in these two exposure registries provide information on individual exposure incidents with no requirement for the provision of complete job or exposure history information.

Many of the registries reviewed were voluntary rather than mandatory. Only the NDR and the Ontario Asbestos registry were mandatory and both are prescribed as part of legislation. Data collected as part of a voluntary registry may not be suitable for population surveillance or epidemiology as information on the population as a whole is likely to be lacking. Where possible, comparison of participants and nonparticipants can assist in assessing generalizability of the registry.

The review of the five Canadian exposure registries led to the development of eight key factors to consider when planning an exposure registry: overall goal(s), definition of exposure, intended uses of registry data, whether registration will be voluntary or mandatory, logistics, privacy, management of expectations and equity. The registry goals are arguably the most important determinant of what information needs to be collected and how (Table 5). It is important to note that it is possible for a registry to fulfill multiple goals (i.e., both to facilitate compensation and to conduct exposure surveillance in a population), though this is likely to increase the resources and costs involved.

The definition of the exposure of interest must be clear and this definition must be communicated clearly to stakeholders and potential participants. A decision will be required as to whether a self-reported exposure will suffice or whether reported exposures will have to be independently confirmed. When a registry is using previously collected data, this point may be moot. If there is interest in using the collected data beyond the basic registry activities (for research purposes, for example), this should be considered early on and should involve stakeholders, both those

whose data will be collected and those who might wish to make use of the data. It is critical to understand the limitations of voluntary registries. Voluntary registries can be sufficient for collecting information to assist with individual compensation claims or for providing individual-level screening. However, if a voluntary registry is also intended to contribute to population-level surveillance, it will need to capture a very large (and representative) portion of the target population.

Registries that operate prospectively and want to monitor workers' exposure to a particular hazard or hazards will need to be able to link registrants' exposure information collected over time and potentially across workplaces. This will require a system for identifying the individual within the registry and care should be taken to protect the privacy of registrants, preferably through the replacement of personally identifying information with encrypted identification codes.

Logistical issues will also need to be considered, specifically who will be responsible for managing the registry, how data will be collected, how errors will be corrected and entries updated, who will have access to the data, and how access will be monitored. The expectations of registrants also need to be addressed. Equitable access to exposure registries must be ensured, particularly voluntary registries that may confer benefits at a later date in terms of compensation or medical care.

DISCUSSION

The design and implementation of exposure registries (and other surveillance approaches) are complex tasks and are likely to involve trade-offs in terms of cost and prospective benefits for both individuals and policy-makers. Many of these decisions hinge on the goals of the registry, the exposure of interest, and the reasons for initiating a registry. The five Canadian exposure registries varied considerably. Our review led to the identification of eight key factors to consider when planning an exposure registry: overall goal(s), definition of exposure, whether registration will be voluntary or mandatory, intended uses of registry data, management of the registry and logistical arrangements, privacy, management of expectations, and ensuring equitable access to registry activities.

Some of the Canadian registries, for example the NDR, focus on a single exposure, collecting detailed exposure information on workers and playing a significant role in the prospective monitoring of exposure levels at the individual and population levels, as well as triggering removal from exposure when set thresholds are reached. The NDR has also been an important source of data for several epidemiological investigations of exposure and disease among different occupational groups in Canada.¹²⁻¹⁴ The Ontario Asbestos Workers Registry, also a mandatory registry, has similar goals in terms of prospectively monitoring exposure and notifying workers who reach a particular duration of exposure, but has not to date been used for any surveillance or epidemiological investigations, though these activities could be supported.¹⁵ Though none of the Canadian registries did so, exposure registries can also be used as a basis for medical screening in individuals. Examples of this exist in the US and include the Beryllium Associated Workers Registry at the U.S. Department of Energy and the Tremolite Asbestos Registry in Libby, Montana.^{16,17}

With the exception of the NDR, the data in Canadian exposure registries have not been extensively used for research or surveillance purposes. The WorkSafe and the Baie Verte registries are relatively new; data from the latter have been used in epidemiological analyses and publications are expected.¹⁸ The Ontario Asbestos Workers Registry data have been described by Koné Pefoyo et al. (2014) but never used for any type of tracking, surveillance or research.¹⁵ The WSIB PIER data seem only to be used internally for evaluating claims.

One challenge for three of the Canadian registries (WSIB, WorkSafe, Baie Verte) was their voluntary nature. In these cases, information collected will likely be incomplete at both the individual and the population level, making it challenging to reconstruct individual exposure histories at a later date, and rendering the data less useful for surveillance or epidemiology in the population. The key piece of information when undertaking surveillance is the population size, which serves as the denominator when calculating rates of exposure or disease; without this, it is challenging to estimate the rate of exposure or disease occurrence in the population accurately.

Voluntary registries also offer fewer options for undertaking rigorous evaluation. A mandatory registry can be linked to enforcement efforts within the health and safety system. An example of this is the mandatory Finnish ASA registry* which collects information on carcinogen use (both type and amount) in Finnish workplaces.^{19,20} Kauppinen et al. (2007) undertook an evaluation of the ASA registry by focussing on workplaces that had ceased reporting, to determine whether carcinogens were no longer in use, or whether the cessation of reporting was in error.²¹ Making the exposure registry reporting available to front-line inspectors provides a mechanism for reminding workplaces about the need to report (where mandatory) or the benefits of reporting (where voluntary). Linkages with regulatory bodies that collect exposure measurement can also provide the opportunity for evaluating whether a registry has any effect on exposure prevalence or exposure levels in workplaces, or industries more broadly. The only Canadian registry where some form of evaluation had been undertaken is the NDR; exposure data in this registry have been compared to self-reported exposure among a cohort of nurses.²² Results highlighted the gaps in the NDR data in this occupational group. Evaluating an exposure registry against its initial goals is challenging but is important for ensuring effectiveness and also for allowing ongoing adjustment and improvement of registry design and activities. In a voluntary registry, participation rates are not particularly informative, but measures of data completeness and evaluation of the reliability and/or validity of exposure reports can provide alternative ways of assessing the success of a registry. Though superior in many ways, mandatory registries are likely to require legislative or regulatory action. This can make them more difficult to initiate as well as to modify later on.

Three of the Canadian registries relied on self-reported exposures; two (NDR and the Baie Verte registry) included measurement data. The inclusion of measurement data comes at a significant cost. In the US, the Beryllium Associated Workers Registry collects exposure measurements from all sites; this program has an annual budget in excess of US \$1 million (personal communication, B. Richter,

* Finnish Register of Employees Exposed to Carcinogens.

September 18, 2013). Exposure registries that include quantitative exposure information allow for the investigation of dose–response relationships within an exposed population, a necessary condition for demonstrating a causal relationship. If a registry is relying on self-reported exposures, it may be better to set the bar low and recruit any worker who may have been exposed even at a low level. Challenges with exposure assessment and verification of self-reported exposure have previously been discussed in the context of environmental exposure registries.²³ In an occupational exposure registry, it is possible to assign exposure estimates at a later date based on job histories, historically collected data from similar workplaces, or existing job-exposure matrices. These activities will be best supported if job history data are collected systematically, using standardized job and industry codes. Where possible, information on exposure duration, frequency, job tasks, processes, chemical names, personal protective equipment, ventilation used, and the specific time periods involved should be collected.²⁴

There are many factors to consider when planning an exposure registry; eight were highlighted in the results section. The goals of a registry will determine what information should be collected and from whom. It is clear that planning and consultation are necessary.^{2,25} It is advisable to engage with the stakeholders at an early stage so that concerns, comments, ideas and expectations can be discussed before decisions about these issues are made.²⁵ This can also serve to ensure that the goals, data to be collected, method of collection, storage methods and format are amenable to the intended secondary uses. If the data required for secondary uses are not collected upfront, or consent for their future collection is not obtained, future health surveillance and epidemiology may require making contact with each individual registrant to obtain consent for these activities. This is likely to be prohibitively expensive and logistically challenging and may run up against privacy issues.

With regards to privacy, the inclusion of personal health information at the outset or as a secondary health surveillance activity will be subject to the laws in the relevant jurisdictions. Privacy and legal concerns can present challenges to the development of an exposure registry, particularly in cases where the collection of, or linkage with, additional health information is the goal. In some cases, a third party can be contracted to carry out the data collection and registry management, as in the case of the Finnish ASA Registry. If so, the contracted party should ideally be an organization with expertise in the area of exposure assessment, data management and analysis – areas in which employers, worker representatives, governments, regulatory agencies and compensation boards often lack sufficient expertise. The potential downside is that this third party then becomes the data steward for registrants' personal information; some parties may not support this arrangement.

In terms of communicating with workers and potential registrants, an exposure registry must not create or support unrealistic expectations among registrants, especially concerning the relationship between exposure and disease or the impact of registration on future compensation decisions. Not all exposed workers will become ill and, among workers who do become ill, not all of these cases will be the result of occupational exposures. Clear and careful communication with potential registrants may help limit confusion and frustration. Barriers to registration should

also be minimized. Inequity could arise from differences in company size, unionization status of the workplace, type of employment contract (e.g., temporary/permanent, domestic/foreign), demographics, or workplace culture across occupational or industry groups. Communication to potential registrants should be broad so that all exposed workers are made aware of the registry and of the opportunity to enrol.

CONCLUSION

Existing Canadian exposure registries vary considerably. They offer several options on which to model new exposure registries, as do various international registries. The exposure registry approach has numerous strengths for collecting data on targeted populations but also a number of actual and potential limitations. Exposure registries provide the opportunity to intervene early in the exposure-disease pathway and can facilitate primary prevention through elimination or reduction of exposure. Registries can also facilitate secondary prevention through screening in high exposure groups and population surveillance activities. However, what can be achieved with data from an exposure registry depends on several factors, most notably the proportion of the target population who enrol and what information is collected from participants.

The development of new exposure registries, regardless of their area of focus (industry, occupation or specific exposures), requires careful consideration. When planning new registries, the overall goals should be clearly defined and the registry designed to support the stated goals. Canada faces unique challenges because of the size of the country, our federal system that assigns primary responsibility for occupational health and safety to the provinces and territories, and the diversity of industry within and between provinces. New registries will ideally have mandatory registration and be linked to enforcement activities, while ensuring that appropriate privacy protections are in place and enrolment is accessible for all eligible workers.

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Received: April 7, 2015

Accepted: October 27, 2015

RÉSUMÉ

OBJECTIFS : Les registres sont une stratégie possible pour recueillir de l'information sur les expositions professionnelles et les maladies dans des populations. Dernièrement, des chefs de file de la communauté canadienne de la santé et de la sécurité au travail se sont intéressés à l'utilisation des registres des expositions professionnelles. Le principal objectif de notre étude était d'examiner un ensemble de registres des expositions canadiens pour en cerner les forces et les faiblesses en tant qu'outils de localisation des expositions professionnelles et des maladies au Canada. L'objectif secondaire était de déterminer les caractéristiques nécessaires d'un registre des expositions pour qu'il contribue spécifiquement à la prévention, notamment à l'identification de nouveaux liens exposition-maladie.

MÉTHODE : Nous avons procédé à l'examen documentaire de cinq registres des expositions du Canada. Nous avons comparé les forces et les contraintes de ces registres et déterminé les principaux éléments à considérer pour concevoir de nouveaux registres.

RÉSULTATS : Les objectifs et la structure des registres des expositions variaient considérablement. L'inscription à la plupart des registres examinés était volontaire, ce qui complique l'utilisation des données à des fins de surveillance ou d'épidémiologie. Il est recommandé d'aborder huit questions clés en planifiant de nouveaux registres : la clarté de l'objectif ou des objectifs du registre; la définition de l'exposition; les données à recueillir; la façon dont elles seront utilisées; le caractère obligatoire (ou non) de l'inscription; l'éthique; la confidentialité; et la logistique.

CONCLUSIONS : Bien construit, un registre des expositions peut être un précieux outil de surveillance, d'épidémiologie et finalement de prévention des maladies professionnelles. Cependant, les registres des expositions ont aussi des contraintes réelles et potentielles dont il faut tenir compte.

MOTS CLÉS : registres; exposition professionnelle; registres des expositions; surveillance