



Occupational Therapists in Canada, 2010 Database Guide

October 2011



Who We Are

Established in 1994, CIHI is an independent, not-for-profit corporation that provides essential information on Canada's health system and the health of Canadians. Funded by federal, provincial and territorial governments, we are guided by a Board of Directors made up of health leaders across the country.

Our Vision

To help improve Canada's health system and the well-being of Canadians by being a leading source of unbiased, credible and comparable information that will enable health leaders to make better-informed decisions.

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About the Canadian Institute for Health Information

The Canadian Institute for Health Information (CIHI) collects and analyzes information on health and health care in Canada and makes it publicly available. Canada's federal, provincial and territorial governments created CIHI as a not-for-profit, independent organization dedicated to forging a common approach to Canadian health information. CIHI's goal: to provide timely, accurate and comparable information. CIHI's data and reports inform health policies, support the effective delivery of health services and raise awareness among Canadians of the factors that contribute to good health.

For more information and a list of the current members of CIHI's Board of Directors, visit our website at www.cihi.ca.

Acknowledgements

The Canadian Institute for Health Information (CIHI) would like to acknowledge and thank the many individuals and organizations that contributed to the development of this database.

We would like to express our appreciation to the regulatory authorities and national associations:

- Alberta College of Occupational Therapists
- Canadian Association of Occupational Therapists
- College of Occupational Therapists of British Columbia
- College of Occupational Therapists of Manitoba
- College of Occupational Therapists of Nova Scotia
- College of Occupational Therapists of Ontario
- New Brunswick Association of Occupational Therapists
- Newfoundland and Labrador Occupational Therapy Board
- Ordre des ergothérapeutes du Québec
- Prince Edward Island Occupational Therapists Registration Board
- Saskatchewan Society of Occupational Therapists

We also wish to extend our thanks and gratitude to all occupational therapists who work with Canadians to improve their quality of life.

Occupational Therapist Database (OTDB) publications represent the work of CIHI staff within the Health Human Resources department.

Production of this material has been made possible through a financial contribution from Health Canada. The views expressed herein do not necessarily represent the views of Health Canada. Please note that the analyses and conclusions in the present document do not necessarily reflect those of the individuals or organizations mentioned above.

Want to Know More?

Other OTDB documents that may be of interest and are available free of charge in English and French on CIHI's website at www.cihi.ca:

- *Occupational Therapists in Canada, 2010*
 - *National and Jurisdictional Highlights and Profiles*
 - *Data Tables*
- Previous reports
 - *Occupational Therapists in Canada* series (2006 to 2009)
- Reference documents
 - *Data Dictionary*
 - *Data Submission Specifications Manual*
 - *Privacy Impact Assessment*

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About the CIHI Occupational Therapist Database

In order to determine the number of health professionals required in any jurisdiction, it is necessary to understand the current supply and how that supply is changing. Since 2006, the Occupational Therapist Database (OTDB) has collected information on the supply and distribution, demographics, geography, education and employment of occupational therapists (OTs) in Canada.

OTDB Data Providers

The provincial regulatory authorities are the primary data collectors for the OTDB. Since OTs are not currently regulated in the territories, the Canadian Association of Occupational Therapists (CAOT) provides voluntary membership data for OTs in the Yukon, the Northwest Territories and Nunavut. All provincial regulatory authorities except Quebec's have participated since 2006. Where possible, information on the supply and demographics of the OT workforce in Quebec has been provided by CIHI's Health Personnel Database (HPDB).

Table 1: Occupational Therapist Database Data Providers

		2006	2007	2008	2009	2010
N.L.	Newfoundland and Labrador Occupational Therapy Board	✓	✓	✓	✓	✓
P.E.I.	Prince Edward Island Occupational Therapists Registration Board	✓	✓	✓	✓	✓
N.S.	College of Occupational Therapists of Nova Scotia	✓	✓	✓	✓	✓
N.B.	New Brunswick Association of Occupational Therapists	✓	✓	✓	✓	✓
Que.	Ordre des ergothérapeutes du Québec	†	†	†	†	†
Ont.	College of Occupational Therapists of Ontario	✓	✓	✓	✓	✓
Man.	College of Occupational Therapists of Manitoba	✓	✓	✓	✓	✓
Sask.	Saskatchewan Society of Occupational Therapists	✓	✓	✓	✓	✓
Alta.	Alberta College of Occupational Therapists	✓	✓	✓	✓	✓
B.C.	College of Occupational Therapists of British Columbia	✓	✓	✓	✓	✓
CAOT	Canadian Association of Occupational Therapists	✓	✓	✓	✓	✓

Notes

† Did not participate in the OTDB.

Aggregate data for Quebec was provided to the OTDB by the Health Personnel Database (HPDB) at CIHI. The HPDB reports the number of active registered OTs in Canada, including Quebec. The aggregate data for Quebec reflects its workforce as of March 31. Therefore, the data for Quebec may include different membership categories for registrants. Quebec data is useful for some purposes but should be used within the limitations of the Methodological Notes section of *Canada's Health Care Providers, 2000 to 2009: A Reference Guide*.

Source

Canadian Institute for Health Information.

Official registration with the provincial regulatory authorities requires the completion of a registration form on an annual basis, in either written or electronic format. Registration forms typically contain details with respect to personal information, education credentials and employment history. The collection of these specific pieces of information tends to be common across jurisdictions. Other information collected on the form may vary according to the bylaws and business needs of the respective provincial regulatory authorities.

The administrative data collected by provincial regulatory authorities and the CAOT is well suited to informing health human resource planning and management in Canada. Collecting and collating this data provide a unique opportunity to examine aggregate information about OTs registered in Canada, which is essential to identifying supply-based issues for future health human resources planning. In consultation with provincial regulatory authorities, the CAOT and other stakeholders, CIHI developed a standardized set of data elements to capture supply-based information on the OT workforce in Canada. These data elements cover demographic, geographic and distribution characteristics, as well as education and employment details. From this consultation, a data dictionary containing specific information on the development process, data elements and associated values, as well as definitions and rationale for collection, was created.

The *Occupational Therapist Database Data Dictionary* is available for download on CIHI's website at www.cihi.ca.

Under the agreement with CIHI, a portion of the administrative information collected by the provincial regulatory authorities and the CAOT is submitted to CIHI on an annual basis. CIHI, the regulatory authorities and the CAOT jointly review the new data and apply rigorous principles of data quality assurance. Once data quality assurance is complete, CIHI adds the new data to the OTDB for analysis and reporting. Over time, this information will provide a historical record of changes in the supply of the OT workforce on a year-to-year basis.

Note: CIHI figures on OTs may not be the same as figures published by provincial regulatory authorities or by the CAOT for the following reasons:

a. Collection period—The statistics typically released by provincial regulatory authorities or the CAOT include all registrations received during the 12-month registration period. In contrast, CIHI collects data as of October 1 of the data collection year. In consultation with provincial regulatory authorities and the CAOT, this point-in-time data collection was established to ensure timely and comprehensive information in spite of the different registration periods.

b. Reference population—For the OTDB, provincial regulatory authorities submit data for active registrations received during the registration year. The active total presented in OTDB publications represents the number of OTs deemed eligible to work by the regulatory authority in that particular jurisdiction in that year. Specifically, active registration includes those registration categories that authorize a registrant, based on the assessment and issuance by a regulatory authority, to engage in professional practice, as defined by the relevant laws, regulations and/or policies associated with a specific jurisdiction. In the case of the territories, active registrations include those OTs who have voluntarily registered with the CAOT during the registration year and, as a result, may not represent the maximum number of OTs in these regions. Information on inactive registrants is not submitted to CIHI for the OTDB.

c. Exclusions from CIHI data—Active registrants fall into three categories: *employed, unemployed and seeking employment in occupational therapy* and *unemployed and not seeking employment in occupational therapy*. For this publication, CIHI removes unemployed registrants falling into either of the latter two categories, as well as those OTs for whom Employment Status information is missing or unknown.

d. Other exclusions from CIHI data—CIHI statistics do not necessarily include OTs who are on leave (for example, maternity/paternity leave) as of October 1 of the data collection year.

e. CIHI editing and processing—The CIHI database is not simply an amalgamation of provincial regulatory authority and CAOT data. When data files are submitted, CIHI attempts to remove those records for OTs who may be registered with more than one provincial regulatory authority. For example, when an OT has employment in both Alberta and B.C., she or he is required to register with both colleges. These registrants are called secondary registrations or interprovincial duplicates. This duplicate information is removed by CIHI according to the methodology described in the Methodological Notes section of this guide in order to avoid double counting and to more accurately reflect the primary jurisdiction of employment.

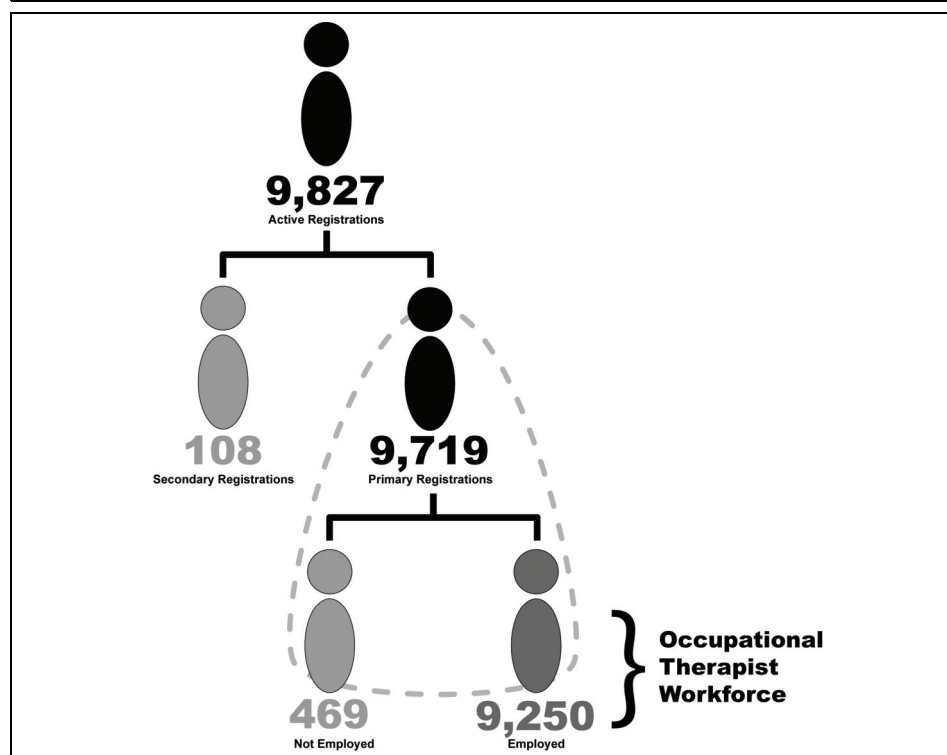
f. Data quality processes—Some jurisdictions perform their data quality review at the end of their registration period. As CIHI receives the data in October for the data collection year, it is possible that some of the data quality activities of some jurisdictions have not yet been completed. As a result, at the time of data submission, a jurisdiction may have records for which the information is unknown for some data elements. Although every reasonable effort is made to acquire the information at the time of data submission, the correction may not be reflected in the CIHI database.

g. Territorial duplicates—Data submitted by the CAOT for the territories does not include secondary registrations/interprovincial duplicates. Data for the territories is based only on those registrants who are working and living in the territories.

CIHI's Definition of the OT Workforce in Canada

In CIHI's OTDB publications, "OT workforce" is defined as the total number of OTs holding active registrationsⁱ in Canada who are employed and are not considered secondary registrationsⁱⁱ or interprovincial duplicates. For more detailed information on the inclusion and exclusion criteria, please see the Methodological Notes.

Figure 1: Defining the CIHI OTDB Occupational Therapist Workforce, 2010



Notes

Quebec data was not available.

Total does not include Quebec.

The Methodological Notes provide more comprehensive information regarding the collection and comparability of OTDB data.

Source

Occupational Therapist Database, Canadian Institute for Health Information.

- i. Active registrations: Provincial regulatory authorities provided data to CIHI for the OTDB for those OTs who held an active membership for 2010. This includes those specific membership categories authorizing a member as eligible to work in the particular jurisdiction in the particular year. In regard to the territories, data was provided by the CAOT for those OTs who reside and work there and who chose to obtain a voluntary membership for 2010.
- ii. Secondary registrations: This group includes OTs who maintain provincial registration while living outside of Canada or whose Province of Residence and/or Province of Primary Employment is in a Canadian jurisdiction that is different from the Province of Registration.

In 2010, information on 9,827 OTs in Canada was submitted by the provincial regulatory authorities (excluding Quebec) and the Canadian Association of Occupational Therapists (CAOT). Of these, 108 (1.1%) were secondary registrations and 469 (4.8%) were either not employed in occupational therapy or had an unknown Employment Status and so were removed from the analysis (see 2010 OTDB data tables).

Methodological Notes

These notes outline the basic concepts behind the data provided in OTDB publications and the underlying methodology of the data collection, as well as key aspects of data quality. They will help to provide a better understanding of the strengths and limitations of the data and show how the data can be used effectively. This information is of particular importance when comparisons are made with data from other sources and in regard to conclusions based on changes over time.

The Canadian Institute for Health Information relies on superior principles of data quality, privacy and confidentiality. CIHI's commitment to ensuring the collection of quality data in a privacy-sensitive manner is applied to data collection, processing, analysis and dissemination. For further details regarding CIHI's privacy principles, outlined in *Privacy Policy on the Collection, Use, Disclosure and Retention of Personal Health Information and De-Identified Data, 2010*, go to www.cihi.ca.

Background

Purpose of the OTDB Publications

OTDB publications will provide the reader with the most recent statistics on the occupational therapist workforce, including information on demographic, geographic, education and employment dimensions. Analyses are supplemented with detailed information about the data collection process, pertinent limitations of the current data and an explanation of the analytical methods.

The information in OTDB publications will be used by a wide variety of government and nongovernmental organizations to better understand the changing supply and distribution of OTs throughout Canada. Accordingly, it will contribute to policy formulation and decision-making at both the pan-Canadian and provincial/territorial levels.

Value of the Information

The supply and distribution information presented here is a key component to health human resource planning at the pan-Canadian and provincial/territorial levels. Any planning or projection of the number of health professionals required for a particular jurisdiction must begin with an understanding of the current supply and how that supply is changing. The presentation of clear, objective data and data analysis enables informed decision-making and supports policy formulation.

History

Policy reports and research papers have consistently demonstrated that there is very little standardized data available on health professionals on a pan-Canadian basis, with the exception of physicians and regulated nurses. Based on consultations with federal and provincial/territorial ministries of health, the profession of occupational therapy has been identified as a priority for the development of standards to collect such data. The collection of data from across Canada for the Occupational Therapist Database began in 2006.

Scope of the Data

Population of Interest

The population of interest for the OTDB includes all OTs registering with a regulatory authority within a Canadian province or territory.

Population of Reference

The population of reference includes all OTs who submit active registrations with a Canadian provincial licensing authority. It also includes active voluntary registrations with the Canadian Association of Occupational Therapists (CAOT) for those who reside and are employed in the territories (the Yukon, the Northwest Territories or Nunavut).

Period of Reference

For any given year, the population includes those OTs who register between the start of the registration period for the provincial regulatory authority/CAOT and October 1.

Data Inclusions

Data collected for the OTDB includes the following:

- Registration information from the provincial registrars (except Quebec for 2006 to 2010) and the CAOT for data pertaining to the territories. When appropriate, CIHI's Health Personnel Database (HPDB) was used as the source of data for Quebec.
- All active registrations received by the participating jurisdictions before October 1, 2010.
- Depending on the individual business process, some provinces and territories include OTs who are on temporary leave (such as maternity/paternity leave or short-term illness/injury leave) and have maintained their active registration with their provincial regulatory authority or with the CAOT for registrants residing and working in the territories.

Data Exclusions

Data collected for the OTDB does not include the following:

- Data from the province of Quebec except where provided to the HPDB, because the Ordre des ergothérapeutes du Québec did not provide data to the OTDB for 2006 to 2010;
- OTs residing and working in the territories who chose not to obtain a voluntary membership with the CAOT;
- OTs who registered with a provincial regulatory authority after October 1, 2010; and
- OTs with an inactive registration type.

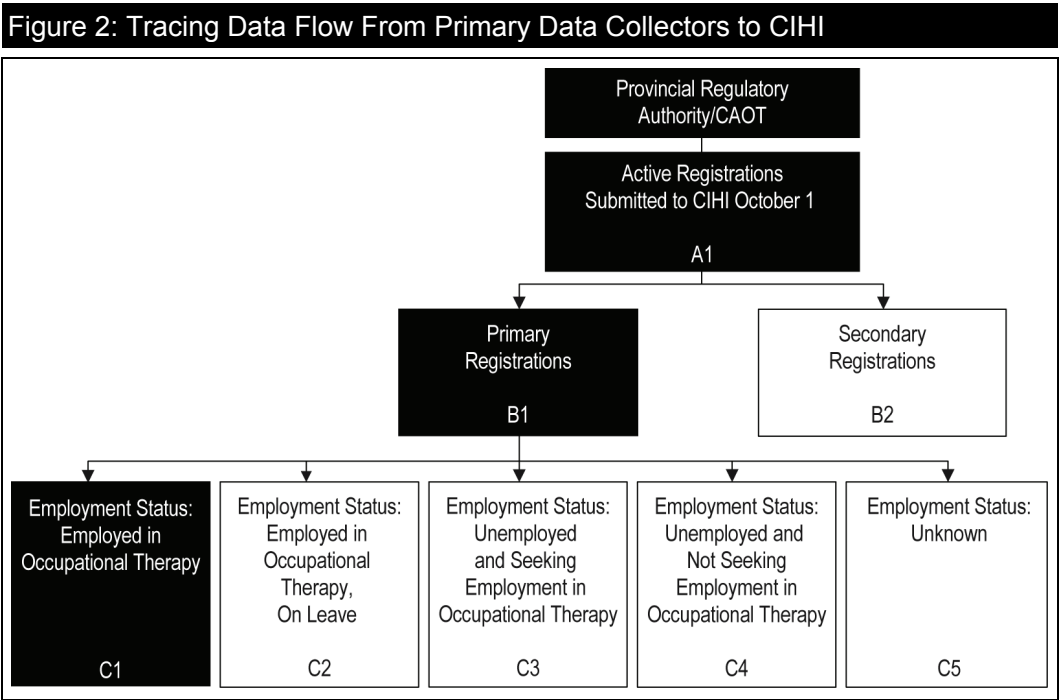
Data Flow From Primary Data Collector to CIHI

As part of their registration/licensing process, the regulatory authorities collect membership data on an annual basis. They collect data for all members applying for active and inactive registrations.

The purpose of this database is to gain information on the OT workforce in Canada, so the population of reference for the OTDB focuses on OTs who are currently authorized to engage in practice, meaning that they have active registration as of October 1, 2010.

Since the data collected by the provincial regulatory authorities is wider in scope than the population of reference for the OTDB, a filtering methodology is applied by CIHI from the point of data collection through data processing. It targets the relevant records that meet the criteria for the population of reference for the OTDB and also meet the information needs addressed in the annual report for the analysis.

The figure below illustrates the data flow when this methodology is applied. Explanations of each step within the data flow are provided in the text following the diagram.



Note in Regard to Territorial Data

This methodology is not applicable for the data regarding the territories (the Yukon, the Northwest Territories and Nunavut). All registrants in these areas reside and are employed in the territories and are therefore considered primary registrations. In addition, since there are no regulatory authorities in the territories, the CAOT collects voluntary registrations for OTs residing and working there; thus it is expected that those OTs who register with the CAOT are, in fact, employed in occupational therapy.

The total number of registrations submitted to an occupational therapy regulatory authority is composed of both active and inactive registration types.

Box A1: Of all the registrations received by the occupational therapy regulatory authority, only the active registrations as of October 1 are submitted to CIHI.

Box B1: This represents the primary registrations, where the province of registration reflects the registrant’s primary jurisdiction of practice (see also Box B2 below).

Box B2: OTs in Canada can work in more than one jurisdiction concurrently as long as they are registered/authorized by the proper authorities. In the interest of preventing double-counting of OTs who work in more than just one jurisdiction, this box represents the secondary registrations or interprovincial duplicates. The methodology that identifies primary and secondary registrations is explained in detail in the Data Processing Methods section.

Boxes C1 to C5: In most cases, statistics produced by provincial regulatory authorities and CAOT include all active practising registrations, regardless of Employment Status. In contrast, CIHI statistics typically include only those registrants who explicitly state their employment in occupational therapy (Box C1). Those OTs who are on leave, employed outside of occupational therapy or unemployed, or whose Employment Status is unknown, are excluded from the final statistics (boxes C2 to C5).

Point-in-Time Data Collection

The point-in-time approach to data collection provides a snapshot of the OT workforce across jurisdictions. Using the same point consistently will enable comparability in time, which is necessary for the accurate determination of a trend. However, depending on the jurisdiction, this approach may not capture the entire year-end totals equally in every province and territory.

Data collection begins at the onset of the data provider's respective annual registration period and ends on October 1. This collection period was identified as the period that captures most of the registrants renewing or applying for membership, including new graduates writing the CAOT exam.

How CIHI Defines the OT Workforce

By carefully selecting the reporting population for the OT workforce, CIHI is able to provide standardized comparable data suitable for analysis and trending purposes. As explained previously, the population of reference includes all OTs who hold active registration authorizing them to practise as of October 1, 2010. The population of reference for reporting by provincial regulatory authorities and the CAOT may differ for various reasons, such as differences in the time frame used, inclusion of other registration types (such as inactive and others), differences in Employment Status (employed versus unemployed) and the inclusion of secondary registrations. Discrepancies between the data in the CIHI publications and data presented by provincial regulatory authorities and the CAOT (OTDB data providers) are often the result of these differences. We therefore caution readers to be mindful of these differences when comparing OTDB data with other data holdings and publications.

Data Collection Methods

Data Sources

The sources of data for the OTDB are the provincial regulatory authorities and the CAOT, which collect the data in written or electronic format. Annual registration with a regulatory body is mandatory for OTs seeking employment within the provinces. Since there are no regulatory bodies in the territories, OTs working there may choose to obtain a voluntary membership with the CAOT, or in some cases they may be required by their employer to register with the CAOT. This data is held by the respective provincial regulatory bodies and the CAOT for the territories, which are considered primary data collectors.

Data Collection

Paper or online registration forms completed by the registrant for registration/licensing purposes are the usual methods of primary data collection for the provincial regulatory authorities and the CAOT. Once in electronic format, an extract of the data is prepared for submission to CIHI. Only those data elements defined in the *Occupational Therapist Database Data Dictionary* (available at www.cihi.ca) are submitted to CIHI. The data extract must conform to the specifications of the OTDB, as outlined in the *Occupational Therapist Database Data Submission Specifications Manual* (available at www.cihi.ca). The data is transmitted from the data provider to CIHI via a secure online system. A letter of agreement governs CIHI's collection of OT data. Each year, those provincial regulatory authorities participating in the OTDB and the CAOT will review the core set of elements each data provider collects on its registration form. Under the current agreement, each data provider agrees to make every reasonable effort to collect and submit the 78 data elements for each registrant according to the definitions outlined in the *Occupational Therapist Database Data Dictionary*.

Key Concepts and Definitions

Only data elements used in the analysis of this publication are described below. For a complete list of data elements in the OTDB, as well as definitions, please visit CIHI's website (www.cihi.ca) to download the *Occupational Therapist Database Data Dictionary*.

Demographics

Gender

The reported gender category of a registrant at the time of registration or renewal, used for administrative purposes.

Age

Derived from the year of birth for the registrant.

Geography

Province/Territory of Residence

At the time of registration or renewal.

Country of Residence

At the time of registration or renewal.

Province/Territory of Registration

Based on the jurisdiction or organization submitting OT data.

Urban/Rural/Remote (for Primary Employment)

Please see the definition for Postal Code of Employment (for Primary Employment).

Health Region

Please see the definition for Postal Code of Employment (for Primary Employment).

Education

Level of Basic Education in Occupational Therapy

This refers to initial education in occupational therapy used, in whole or in part, for consideration of licensure as an OT in Canada.

Year of Graduation for Basic Education in Occupational Therapy

Year of completion of initial educational program used to prepare an OT for practice.

Country of Graduation for Basic Education in Occupational Therapy

Name of country where initial educational program used to prepare an OT for practice was completed.

Level of Post-Basic Education in Occupational Therapy (1, 2, 3)

Other post-secondary education achieved in occupational therapy, which resulted in a degree. This includes any post-basic occupational therapy education leading to a degree, such as bridging or upgrade education.

Year of Graduation for Post-Basic Education in Occupational Therapy (1, 2, 3)

Year of completion of post-basic education in occupational therapy.

Level of Education in Other Than Occupational Therapy (1, 2)

Level of post-secondary education completed in a field of study outside of occupational therapy.

Year of Graduation for Education in Other Than Occupational Therapy (1, 2)

Year of completion of education in a field other than occupational therapy.

Field of Study of Education in Other Than Occupational Therapy 1

Field of study for education in other than occupational therapy 1. Reflects education outside of basic and post-basic occupational therapy education.

Current Level of Education in Occupational Therapy

This represents the highest and the most recently acquired level of education in occupational therapy reported by the registrant. It is derived from the data elements Level of Basic Education in Occupational Therapy and Level of Post-Basic Education in Occupational Therapy (1, 2, 3). If Level of Post-Basic Education in Occupational Therapy (1, 2, 3) exists, then the Level of Basic Education in Occupational Therapy is compared to the Level of Post-Basic Education in Occupational Therapy (1, 2, 3). Whichever one is greater becomes the current level of education. If the Level of Basic Education in Occupational Therapy is the same as the Level of Post-Basic Education in Occupational Therapy (1, 2, 3), then whichever one is acquired later becomes the current level of education. However, if the Level of Post-Basic Education in Occupational Therapy (1, 2, 3) does not exist, then the Level of Basic Education in Occupational Therapy becomes the level of current education.

Years Since Graduation From Basic Education in Occupational Therapy

This is derived from the difference between the data elements Year of Graduation for Basic Education in Occupational Therapy and Current Reporting Year (2010) for each registrant.

Highest Overall Education

Highest Overall Education includes education in any field of study (that is, in the field of occupational therapy and/or outside the field of occupational therapy).

Employment

Employment Status

A registrant's work status (employed or unemployed) at the time of registration or renewal.

Primary Employment

Employment, with an employer or in a self-employed arrangement, that is associated with the highest number of usual weekly hours worked.

Secondary Employment

Employment associated with the second-highest number of usual weekly hours worked, whether employed or self-employed.

Employment Category (for Primary and Secondary Employment)

At the time of registration or renewal.

Full-Time/Part-Time Status (for Primary and Secondary Employment)

The official status with an employer or, if official status is *unknown*, the classification of status based on the usual number of hours worked at the time of registration or renewal.

Province/Territory of Employment (for Primary Employment)

At the time of registration or renewal.

Country of Employment (for Primary Employment)

At the time of registration or renewal.

Postal Code of Employment (for Primary Employment)

The postal code assigned by Canada Post is for the registrant's employment at the time of registration or renewal. It reflects the site where service is delivered with the employer or business office postal code provided as an alternate (for example, if the employer or business office location is different from the site where service is delivered and only the employer or business office postal code is available). This refers to the location where the registrant is directly engaged in an occupational therapy area of practice such as direct service, client management, administration, education or research. The Postal Code of Employment (for Primary Employment) is used to derive the geographic distribution of the workforce into urban, rural and remote areas using the

Postal Code Conversion File (PCCF) from Statistics Canada. For more information on the methodology used for this geographic classification scheme please see the Analytical Methods section within the Methodological Notes. The PCCF is also used to assign health regions.

Position (for Primary Employment)

The main role within the primary employment at the time of registration or renewal. For registrants with multiple roles within primary employment, it reflects the role associated with the greatest number of hours worked.

Employer Type (for Primary Employment)

The type of employer (whether an employee or self-employed) at the time of registration or renewal. This is at the site where service is delivered. Service delivery level refers to the location where the registrant is directly engaged in an occupational therapy area of practice, such as direct service, client management, administration, education or research.

Area of Practice (for Primary Employment)

The major focus of activities in employment at the time of registration or renewal.

Total Usual Weekly Hours of Work (for Primary, Secondary and Third Employment)

The total weekly hours of work that are typical in employment related to practice at the time of registration or renewal. For registrants in an employee–employer employment category, hours indicated are inclusive of all practice hours but should not exceed the hours for which a registrant is scheduled/approved and recognized (including overtime). For registrants in a self-employed employment category, hours indicated are inclusive of all practice hours, such as travel time, preparation and service provision.

Funding Source (for Primary and Secondary Employment)

The main funding source for employment at the time of registration or renewal.

Data Processing Methods

File Processing

Once data files are received by CIHI, all records undergo two stages of processing before they are included in the national database. The first ensures that data is in the proper format and that all responses pass specific validity and logic tests. If the data submitted does not match the standardized CIHI codes, an exception report and data file summary (identifying and explaining the errors) is sent to the data provider. In addition, the data is tested for a logical relationship between specific fields. (For example, an error is identified in the exception report if the year of graduation is earlier than the year of birth). Errors are reviewed jointly by CIHI and the respective data provider representative. In cases where the data provider is not able to make the corrections, CIHI may make them directly with the explicit consent of the provider. If a correction cannot be made, the code is changed to the appropriate default/missing value.

Identification of Secondary Registrations

Once the file has passed all validity and logic tests, the second stage of processing begins. Since OTs are able to register simultaneously in more than one jurisdiction, a methodology has been developed to identify those who are living outside of Canada or are registered in more than one province or territory, in order to ensure an accurate count of the number of those registered and working in Canada only.

For example, there are administrative incentives for OTs to maintain their Canadian occupational therapy licence while living and/or working outside of the country. An OT living abroad may continue to register with a Canadian regulatory authority each year, even though she or he may have no intention of returning to Canada in the subsequent 12-month period. CIHI must identify those who are living abroad and remove their data from analysis, since it reports on only the OT workforce within Canada.

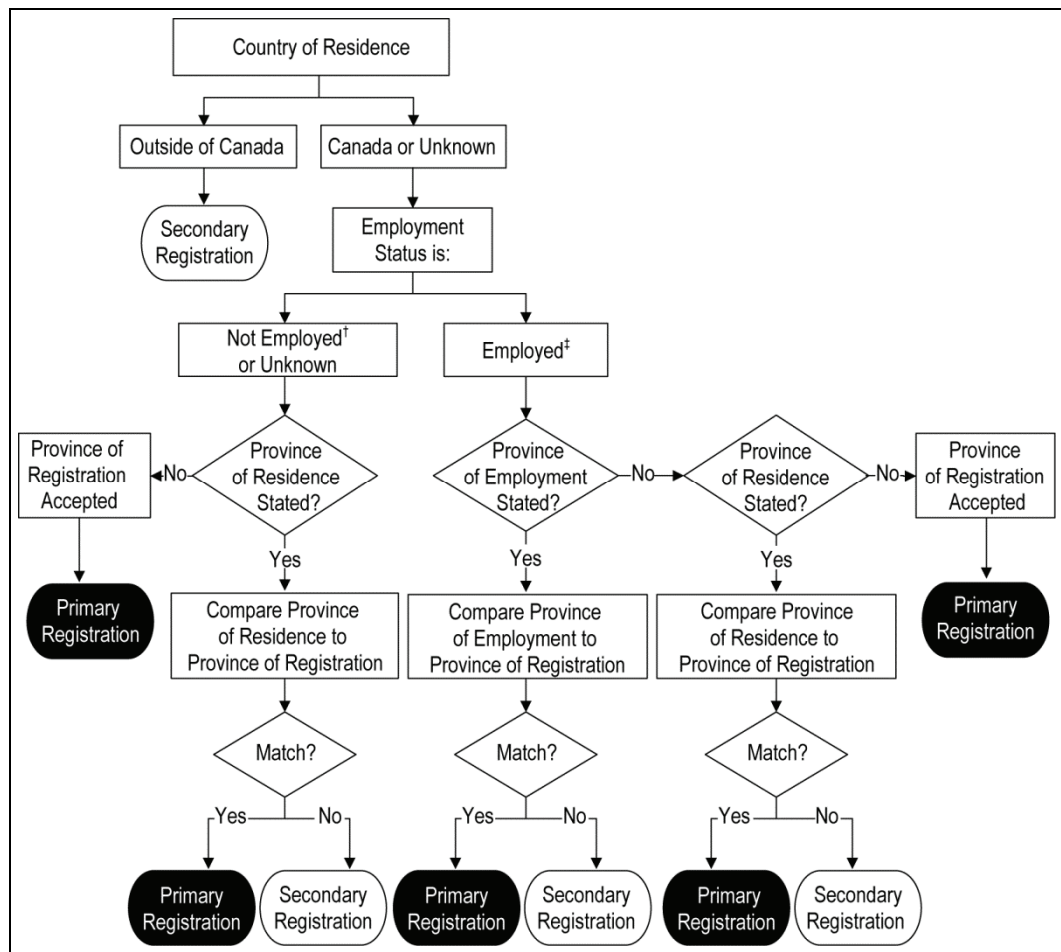
For those living and working in Canada, CIHI must also identify registrations that do not reflect the primary jurisdiction of practice. Similar to the international situation, there are administrative incentives for OTs to maintain their provincial or territorial occupational therapy licence while living and/or working in another Canadian jurisdiction. To avoid double-counting, CIHI evaluates each registration to ensure that it reflects the primary jurisdiction of practice. These secondary registrations are also termed interprovincial duplicates.

Primary registrations are defined as records meeting the following conditions:

- Province/Country of Residence is either in Canada or *unknown*.
- For OTs employed in occupational therapy, Province of Primary Employment equals Province of Registration; if Province of Primary Employment is *unknown*, then Province of Residence equals Province of Registration.
- For OTs not employed in occupational therapy (or for OTs with an Employment Status of *unknown*), Province of Residence equals Province of Registration; if Province of Residence is *unknown*, then Province of Registration is accepted.

The methodology for the removal of secondary registrations/interprovincial duplicates has remained relatively consistent over time. However, it is not without its limitations. For example, an OT living in the United States but working in Canada will be erroneously removed as living abroad. Also, when an OT is registered and employed in a Canadian province and decides to provide short-term relief staffing in another province, the temporary residence information may result in a double count.

Figure 3: Flow Diagram Illustrating the Process for Identifying Secondary Registration



Notes

† Not employed (*unemployed and seeking employment in occupational therapy, unemployed and not seeking employment in occupational therapy or unknown*).

‡ Employed in occupational therapy and employed, on leave.

Analytical Methods—Northwest Territories, Nunavut and Yukon Data

The methodology detailed above regarding the identification of secondary registrations does not apply to the data received from the CAOT for the territories. CAOT data submission to CIHI includes only those members with voluntary active registration who work and reside in the territories.

Analytical Methods—Urban/Rural Statistics

For analytical purposes, urban areas are defined (in part) as communities with populations that are greater than 10,000 people and are labelled by Statistics Canada as either a census metropolitan area (CMA) or a census agglomeration (CA). Rural/remote is equated with those communities outside the CMA/CA boundaries and is referred to as rural and small town (RST) by Statistics Canada. RST communities are further subdivided by identifying the degree to which they are influenced, in terms of social and economic integration, by larger urban centres. Metropolitan influenced zone (MIZ) categories disaggregate the RST population into four subgroups: strong, moderate, weak and none. These urban/rural/remote categories are applied to those communities (cities, town, villages) that can be equated with the Statistics Canada designation census subdivision (CSD).

For the purpose of the OTDB, the CMA/CA and MIZ categories were collapsed and may be interpreted in the following simple manner:

CMA/CA = large urban centre (urban).

Strong/moderate MIZ = small towns and rural areas located relatively close to larger urban centres (rural).

Weak/no MIZ = small towns and rural and remote communities distant from large urban centres (remote).

Details of the RST and MIZ classification scheme can be found in McNiven et al.,¹ du Plessis et al.² and CIHI.³

Missing Values in Urban/Rural Statistics

Missing values listed in the urban/rural statistics signify a sum of *not in PCCF* and *unknown* responses. For example, where the data provider has not submitted a postal code for a registrant, then it is coded as *unknown*. If the data provider has submitted a postal code for a registrant but it does not match the PCCF, then it is coded as *not in PCCF*.

Data Suppression

CIHI is committed to protecting the confidential information of each OT. Guidelines have been developed to govern the publication and release of health information in order to safeguard the privacy and confidentiality of the data received by CIHI. These policies also govern CIHI's release of data through ad hoc queries and special analytical studies. To ensure the anonymity of individual OTs, cells with counts from 1 to 4 are suppressed in the data tables presented in this publication and have been replaced by a single asterisk (*). However, presenting accurate row and column totals also necessitates the suppression of a second value to prevent the reader from determining the suppressed value through subtraction. Therefore, in each row and column with a suppressed value, a second value is also suppressed, which generally is the next smallest value. However, if the second value suppressed is greater than 4, it must be replaced by a different symbol. In this case, the OT publication uses a double asterisk (**).

Note: Cell suppression does not apply to missing values (such as *not collected*, *not applicable* and *unknown*) in the data tables.

Symbols

Wherever possible, standard symbols and numerical presentations are used in OTDB publications:

- * Value suppressed in accordance with CIHI's privacy policy; cell value is from 1 to 4.
- ** Value suppressed to ensure confidentiality; cell value is 5 or greater.
- Data not applicable or does not exist.
- .. Data not currently collected.

When necessary, other symbols are footnoted at the bottom of the respective tables or figures.

Data Quality Assessment

To ensure a high level of accuracy and usefulness, CIHI developed a framework for assessing and reporting the quality of data contained in its databases and registries. This framework focuses on the five dimensions of data quality: timeliness, usability, relevance, accuracy and comparability. The Methodological Notes section outlines the limitations of data interpretation in detail. Briefly, they are as follows:

- Timeliness is achieved by collecting data at a point in time determined and agreed upon by the data providers and which reflects a majority of total records. This allows CIHI to analyze and release the data in a timely manner.
- Usability includes the availability and documentation of the data and the ease of interpretation.

- Relevance of the data set includes the adaptability and value of the data when used by decision-makers, policy developers, researchers and the media.
- Accuracy is an assessment of how well the data reflects reality or how closely the data presented in this publication reflects the population of reference—specifically, those OTs holding active membership in Canada as of October 1 who have an active registration with a provincial regulatory authority or with the CAOT in the territories.
- Comparability measures how well the data for the current year compares to the data from previous years and how data from the OTDB compares to data from other sources.

OTDB publications present data from 2006 onward. In some cases, previous data years are available only in aggregate counts from the Health Personnel Database at CIHI. It is important to note that the levels of accuracy and completeness necessary to meet the financial and administrative requirements of a registry can differ from those required for research. An extensive mapping exercise took place collaboratively with each data provider to ensure alignment between the data collected on the registration forms and the data elements of the CIHI *Occupational Therapist Database Data Dictionary*. When discrepancies were detected, these differences were documented and accounted for in the analysis and described in either the Methodological Notes or the footnotes. In some cases, data providers included CIHI definitions of some of the data elements and/or values in their registration guides, which facilitated a higher level of data accuracy.

Definitions for Missing Values

Missing values are those attributed in instances where a data provider is unable to provide information for a registrant for a specific data element. This involves three potential situations:

- *Not collected*—where the information is not collected by the data provider on the registration form, or a data provider cannot submit the information;
- *Unknown*—where the information was not provided by the registrant; and
- *Not applicable*—where the data element is not relevant to the situation of the registrant. (For example, when an OT resides in the United States, Province of Residence is *not applicable*).

For the missing values *unknown* and *not applicable*, CIHI implemented the following validation and correction methodology:

- When a registrant provided valid data to one or more data elements within the same education or employment grouping and other related elements are missing values, then the value *unknown* (rather than *not applicable*) is appropriate.

- When a registrant did not provide any data for all data elements within the same education or employment grouping, the value *not applicable* (rather than *unknown*) is appropriate.
- For OTs not currently employed in occupational therapy, all employment data in the OTDB is coded as *not applicable*.

The OTDB findings remove all OTs not currently employed in occupational therapy, so that *unknown* values accurately represent non-response for the OT workforce. Some of the results with a large percentage of missing values were not included in the data analysis section of this publication because their questionable accuracy limits their usability and opens the door to erroneous interpretations. In other cases, the number of missing values is clearly identified in the analysis and footnoted for explanation when necessary (see 2010 OTDB data tables).

Under-Coverage

Under-coverage results when data that should be collected for the database is not included. There are no known sources of under-coverage for the OTDB.

Over-Coverage

Over-coverage is the inclusion of data beyond the target population. Over-coverage may occur when an OT is on leave for a certain reason (such as maternity/paternity leave, education leave or short-term illness or injury); she or he may have the option to register as active or inactive, or to not register at all. However, those who choose to register as active and submit employment information will be included in the workforce numbers when, in fact, they are not working.

Non-Response

In the OTDB, item non-response refers to the percentage of *unknown* responses for each data element (see 2010 OTDB data tables).

Quebec Data—The absence of data from Quebec is the largest source of under-coverage for the OTDB; the data used in OTDB publications is based on information from the HPDB.

OTs working in the territories—Since OTs are not regulated in the territories (the Yukon, the Northwest Territories and Nunavut), unless required by their employer, they have the choice to register or not with the CAOT. Therefore, the data submitted to CIHI by the CAOT may not represent all OTs working in the territories.

In addition, not all data providers were able to align their registration forms to the data elements and values outlined in the *Occupational Therapist Database Data Dictionary*. As a result, some provinces and territories were not able to collect some data elements.

Data Limitations

In addition to the data limitations listed below, analytical findings may not include all jurisdictions due to lack of participation in the OTDB, data quality issues and item non-response (unknown information and data elements not collected) (see 2010 OTDB data tables).

Supply

- *Territories (2006 to 2010)*—The OTDB captures only those OTs who reside and are employed in the territories and voluntarily register with the CAOT. Therefore, these counts may exclude temporary relief workers or those who are registered only with provincial regulatory authorities.
- For 2006 and 2007 data years, the supply differs slightly due to enhancements made to the methodology for secondary registrations.

Demographics

Year of Birth

- *Manitoba (2006 to 2010)*—The College of Occupational Therapists of Manitoba (COTM) provides record-level information only for registrants who have given their consent to share this information with CIHI. For registrants who do not consent, the value *not collected* is submitted by the COTM. Manitoba Health provides CIHI with aggregate analyses with respect to the year of birth for OTs in Manitoba. In 2010, the non-consent rate was 6.7% (4.2% in 2006, 9.3% in 2007, 7.4% in 2008 and 6.9% in 2009).

Gender

- *Manitoba (2006 to 2010)*—The COTM provides record-level information on gender only for registrants who have given their consent to share this information with CIHI. For registrants who do not consent, the value *not collected* is submitted by the COTM. Similar to Year of Birth data, Manitoba Health provides CIHI with aggregate totals for gender distribution of OTs in Manitoba. In 2010, the non-consent rate was 6.7% (4.2% in 2006, 9.3% in 2007, 7.4% in 2008 and 6.9% in 2009).

Education

Level of Basic Education in Occupational Therapy and Level of Post-Basic Education in Occupational Therapy 1, 2, 3

- In 2007, CIHI proposed the addition of two new values to these education-related data elements. *Research master's* and *professional master's* were added to the existing *master's* unspecified value in order to make the distinction between those graduating from entry-level occupational therapy programs versus research-based occupational therapy programs. At the present time, business processes for the collection of these new values vary across data providers. CIHI is working with the data providers to enhance the *Occupational Therapist Database Data Dictionary* so these values may be collected in the future.

Level of Education in Other Than Occupational Therapy 1, 2

- *Territories (2006 to 2010)*—The CAOT records up to three degrees in areas other than occupational therapy on its registration forms and submits the two most recent degrees to CIHI.
- *New Brunswick (2006 to 2010)*—The New Brunswick Association of Occupational Therapists (NBAOT) records up to four degrees in areas other than occupational therapy on its registration form and submits the two most recent degrees to CIHI.

Country of Graduation for Basic Education in Occupational Therapy

- *Alberta (2008)*—The Alberta College of Occupational Therapists did not provide any information for country of graduation other than Canada; therefore, Alberta was excluded from findings on internationally educated OTs.

Employment

Employment Status—On Leave

- The 2006 to 2010 OTDB does not specifically identify registrants who are on leave. Business processes vary between data providers in terms of the range of data collected and options for registration types. CIHI is working with the data providers to enhance the *Occupational Therapist Database Data Dictionary* so that the Employment Status *on leave* may be collected in the future. In 2007, B.C. was the only province to report on registrants who were *employed, on leave*. In 2008 and 2009, Nova Scotia, New Brunswick, Ontario, Saskatchewan and B.C. reported on registrants who were *employed, on leave*. In 2010, Alberta and the Yukon also began to collect this information.

Funding Sources for Primary, Secondary and Third Employment

- For 2006 to 2010, funding sources for occupational therapy services presented slight variations for Ontario and B.C. in regard to *private sector or individual clients*. At this time, the *Occupational Therapist Database Data Dictionary* does not define values specifically for auto insurance and other types of insurance. For Ontario and B.C., these two specific values are collected to address particular information needs for these jurisdictions. Within the OTDB, these values are assigned to the CIHI value *private sector or individual clients*.

Employment Category for Primary and Secondary Employment

- *New Brunswick (2006 to 2010)*—Self-employment data for Employment Category for Primary and Secondary Employment was not provided by the New Brunswick Association of Occupational Therapists.

Privacy and Confidentiality

The Privacy and Legal Services Secretariat at CIHI developed a set of guidelines to safeguard the privacy and confidentiality of data received by CIHI. These policies govern the release of data in publications, media releases, CIHI's website and through ad hoc requests and special studies. The documents entitled *Privacy Policy on the Collection, Use, Disclosure and Retention of Personal Health Information and De-Identified Data, 2010* (Privacy Policy, 2010) and *Occupational Therapist Database Privacy Impact Assessment* can be found on CIHI's website (www.cihi.ca).

OTDB Workforce Products and Services

The following publications relevant to the OTDB may be downloaded in electronic (PDF) format, free of charge, at www.cihi.ca:

- *Occupational Therapists in Canada, 2010*
 - *National and Jurisdictional Highlights and Profiles*
 - *Data Tables*
- Previous reports
 - *Occupational Therapists in Canada* series (2006 to 2009)
- Reference documents
 - *Data Dictionary*
 - *Data Submission Specifications Manual*
 - *Privacy Impact Assessment*

Request for Services

CIHI completes ad hoc requests and special analytical projects on a cost-recovery basis using data from the OTDB. Such requests are short queries that generally can be handled through standard reports and do not require major programming resources, while special analytical projects require project planning and the commitment of extra resources.

For an estimate of the costs associated with these products and services, please contact

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