



# CTMS 2.0

**Construction trades mortality analysis and insights**

Our CTMS 2.0 provides the analysis and insights to help participating plans in the construction industry, and their actuaries, better determine assumptions regarding current and future mortality expectations, and enhance their understanding and assessment of longevity risk.

We believe that regularly monitoring mortality experience is an important element of pension plan risk management and governance.

## The need for more accurate and credible mortality assumptions

The Canadian Institute of Actuaries' (CIA) 2014 Canadian Pensioners' Mortality (CPM) study indicated that mortality rates for construction industry pensioners in Canada were, on average, **12.5% higher for males and 17.5% higher for females** than for pensioners in the Canadian private sector.

A mortality table that **accurately reflects** plan members' expected lifespans is **paramount** for the calculations of a plan's cost of future benefits, liabilities, and funded position.

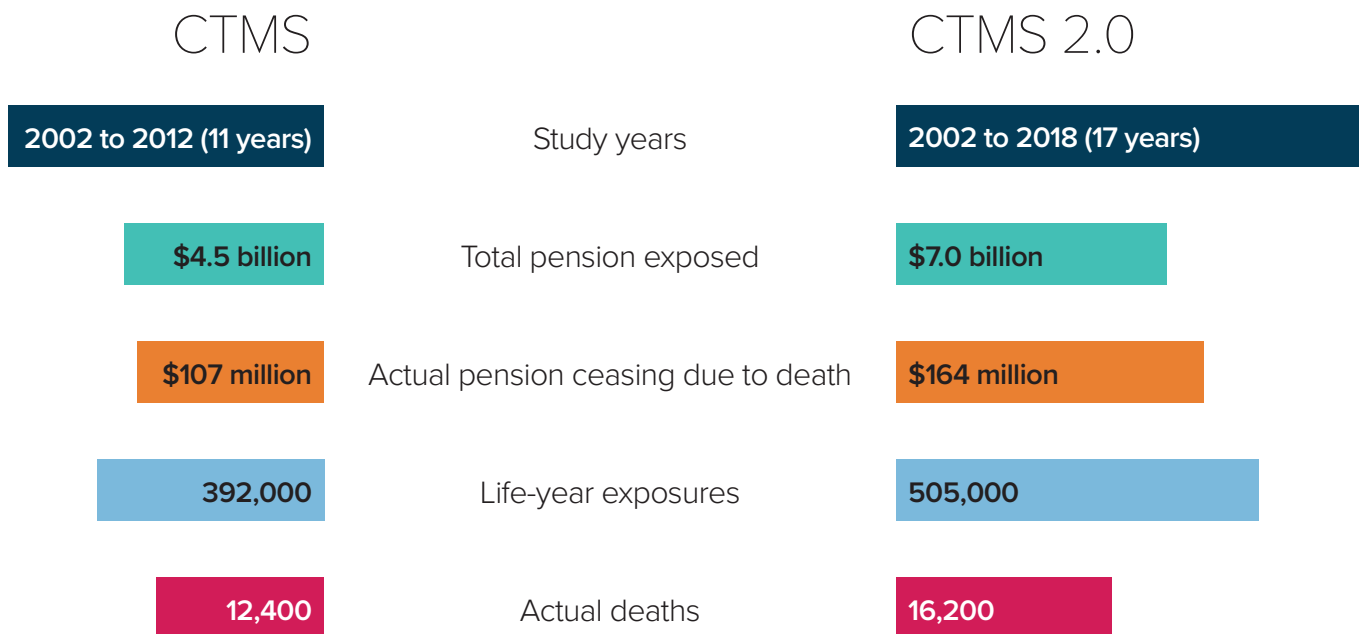
The CIA standards generally expect an actuary to use one of the CPM mortality tables, unless there's credible data and analysis to support using a different table (or tables). Given the limited construction industry-specific data in the CPM study, most boards of trustees and their actuaries were required to use a mortality table that they suspected was inaccurate for their plans.

Through the first CTMS in 2015, Eckler sought to build **a larger, more credible dataset** of mortality experience for Canadian construction trades pensioners, to provide participating plans with more appropriate mortality expectations for their valuation assumptions. The study was welcomed by plan stakeholders, actuarial professionals, and pension regulators.

# CTMS 2.0

Since the launch of the inaugural study, several developments have highlighted the importance of using the most *accurate mortality assumptions* possible for DB MEPPs and, in particular, construction trade DB MEPPs.

Two major legislative and actuarial developments have formally come into effect in several jurisdictions (with similar changes happening or expected to happen in other jurisdictions). Against this backdrop, Canadian population mortality data has showed that the rate of mortality improvements slowed in the years following the first CTMS.



Through our partnership with industry-leading longevity analytics provider Club Vita, we can now develop better, more reflective mortality assumptions based on participating plans' mortality experience data using sophisticated statistical methods.

CTMS 2.0 focuses on observation years 2013 to 2018 and builds on the data from the first CTMS that covered years 2002 to 2012. The dataset consists of mortality data contributed from 33 DB MEPPs with construction industry plan memberships across Canada. When combined, these plans provide records for over 16 thousand deceased pensioners and survivors covering years 2002 to 2018 and contribute close to 500 thousand pensioner life-year exposures to the CTMS 2.0 data.

# Our findings

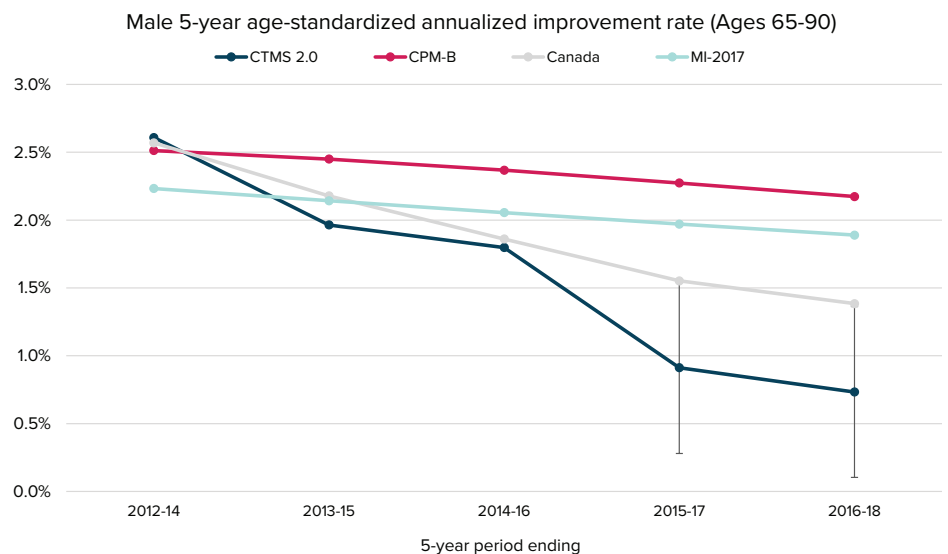
Our study confirms that, on average, construction trades pensioners have *higher rates of mortality* and, therefore, *shorter life expectancies* than indicated by the CPM mortality tables.



On average, pensioners of Canadian DB MEPPs from the construction industry are *dying at a rate 16% higher* than the mortality rates predicted by the CPM Private Table.

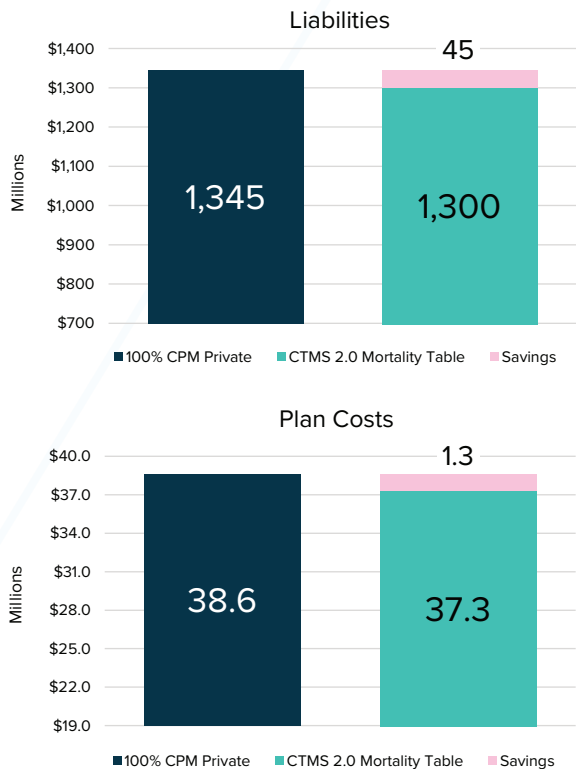
- There is evidence that pensioners from the construction industry particularly have higher mortality rates below age 85 and that mortality rates vary by pension size;
- To fully capture the unique mortality profile of the CTMS 2.0 Data, we have constructed new CTMS 2.0 Mortality Tables;
- Mortality experience in the construction industry varies by trade;
- The large differences between Canadian DB MEPP mortality experience and the CPM Private Table's expectations, including variations by age, indicate the CPM Private Table exposes DB MEPPs to a high risk of incorrectly measuring mortality expectations.

Analysis suggesting that the mortality improvement rates under CIA improvement scales currently recommended for use (CPM-B and MI-2017) are *higher (i.e., more conservative) than what has been recently experienced by construction trades pensioners.*



# Practical applications and illustrative impacts

One of the key goals of this report is to provide *insights on the practical applications and their illustrative impacts* for boards of trustees, plan actuaries, plan administrators and regulators.



We believe that the results of our report are appropriate for understanding the factors affecting baseline mortality and future longevity trends (i.e. mortality improvements).

Our report provides analysis and insights that will help assess a plan's mortality assumptions and therefore the level of conservatism in plan funding, if any, as well as providing a best estimate basis for calculating commuted values under the actuarial standards applicable to Target Pension Arrangements. In this report, we illustrate how a change in a plan's mortality valuation assumption from 100% of CPM Private to the CTMS 2.0 Mortality Tables can reduce plan costs, liabilities, and commuted values payable to members of Target Pension Arrangements by up to 3%.

Regardless of whether updated mortality analysis supports lower or higher costs and liabilities for a particular plan or trade, *it is important for trustees and their actuaries to have the most current and accurate information available* for setting their mortality assumptions.

**BUILD BETTER** *Mortality Assumptions* for your plan.

**Euan Reid**

[ereid@eckler.ca](mailto:ereid@eckler.ca) 604-673-6087

**Domenic Barbiero**

[dbarbiero@eckler.ca](mailto:dbarbiero@eckler.ca) 416-696-4003

**Mary Kate Archibald**

[mkarchibald@eckler.ca](mailto:mkarchibald@eckler.ca) 902-490-3322

Visit us at [eckler.ca](http://eckler.ca) to download your copy of **CTMS 2.0** or contact an Eckler consultant.

**ECKLER**

Connect with us: [in](#) [f](#) [t](#) [ECKLER.CA](http://ECKLER.CA)

**Vancouver**  
604-682-1381

**Quebec City**  
418-780-1366

**Winnipeg**  
204-988-1586

**Halifax**  
902-492-2822

**Toronto**  
416-429-3330

**Montreal**  
514-395-1188

**Barbados**  
246-228-0865

**Jamaica**  
876-908-1203