



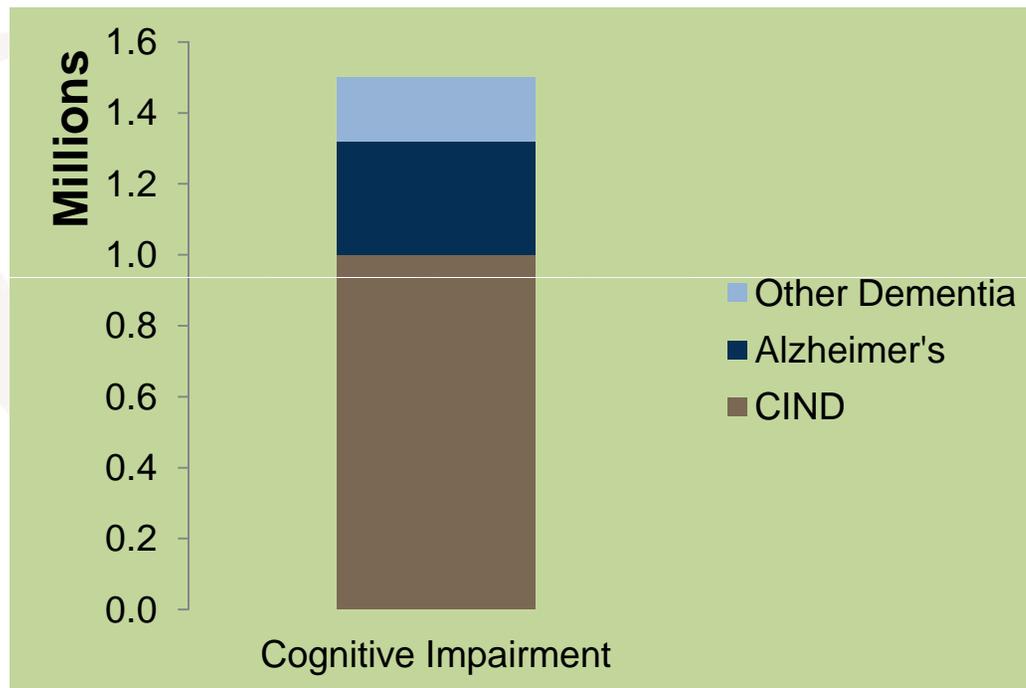
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 **brainscreen**
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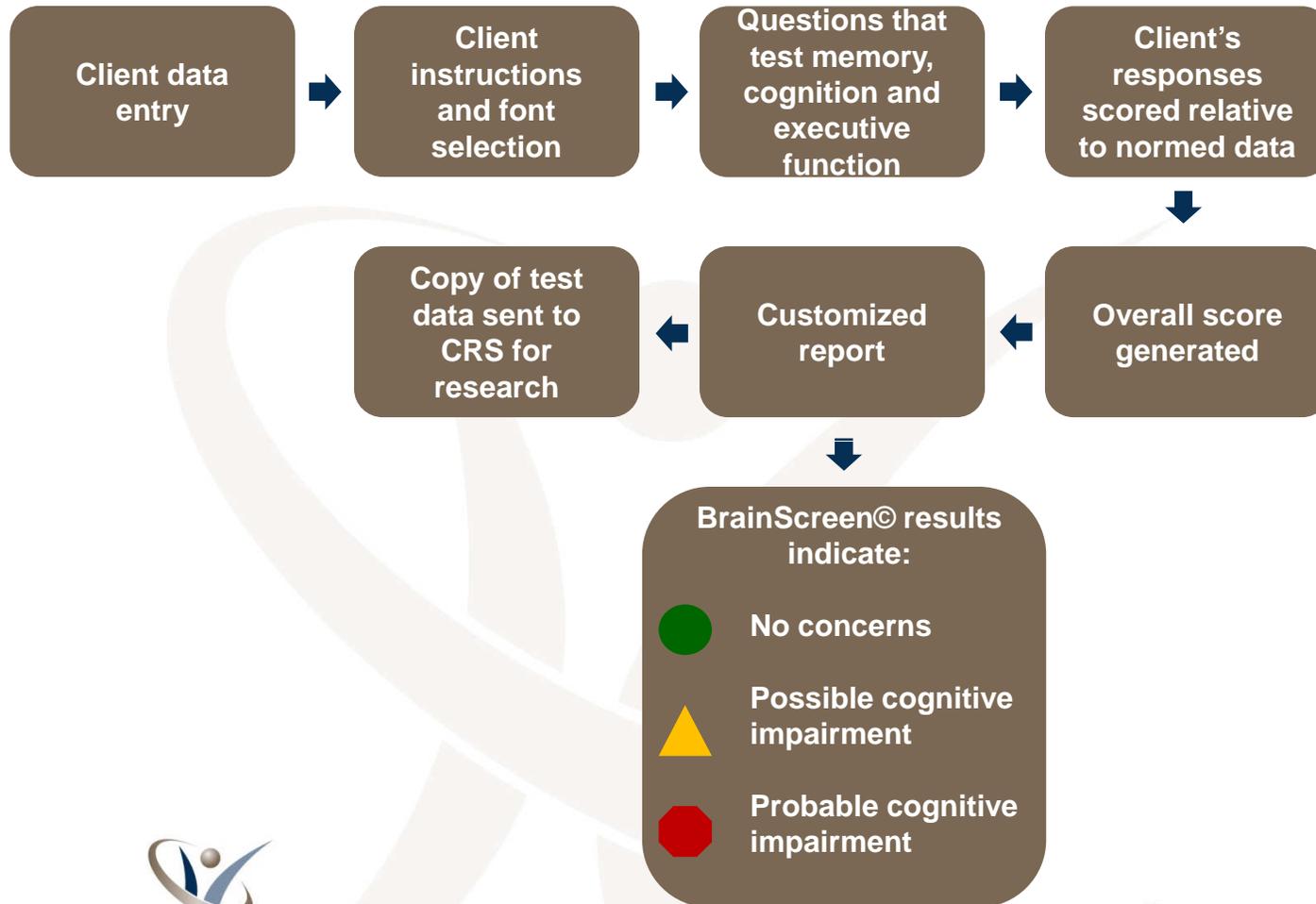
April 2012

Cognitive impairment in Canada: Definition and prevalence

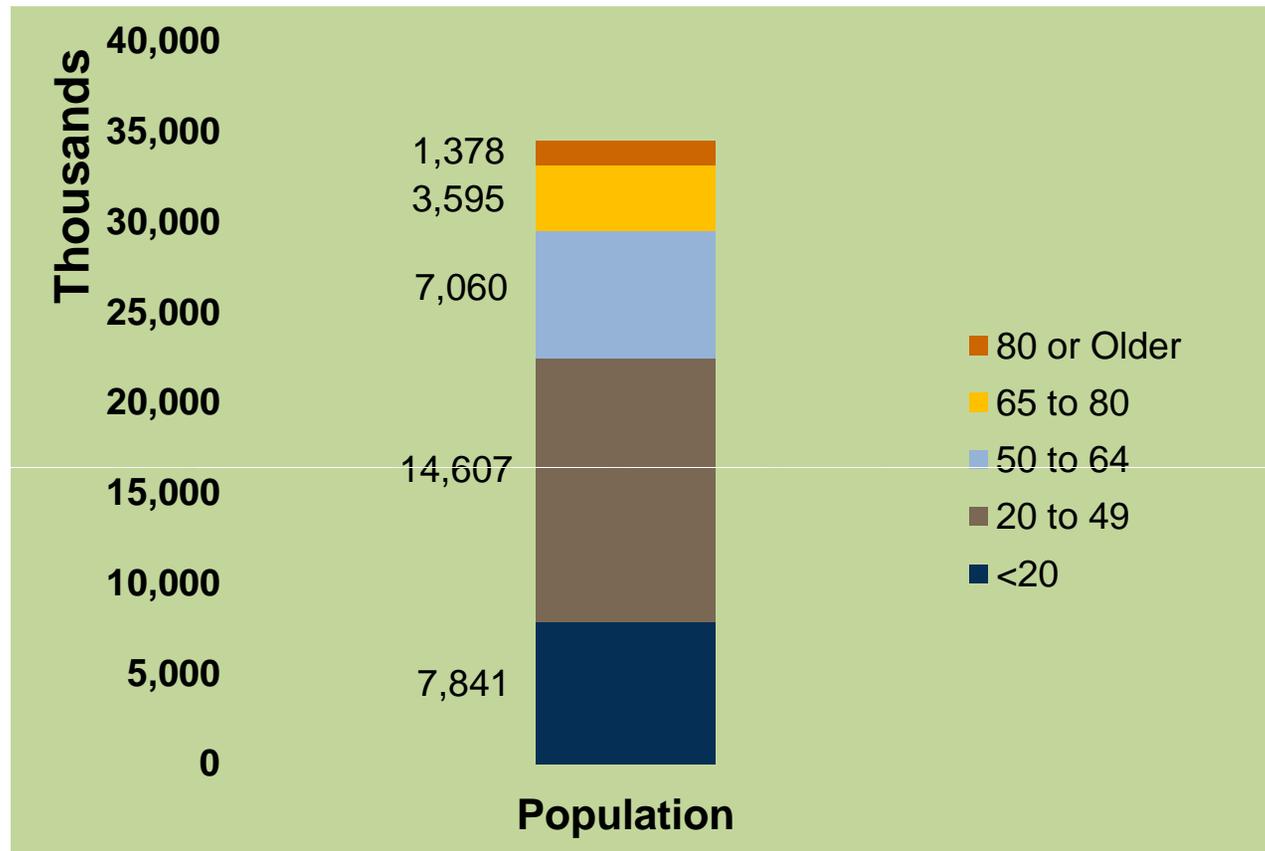
Cognitive Impairment is a term used to describe a condition which affects the ability to think, concentrate, formulate ideas, reason and remember



BrainScreen© is simple to use and easy to deploy over the web

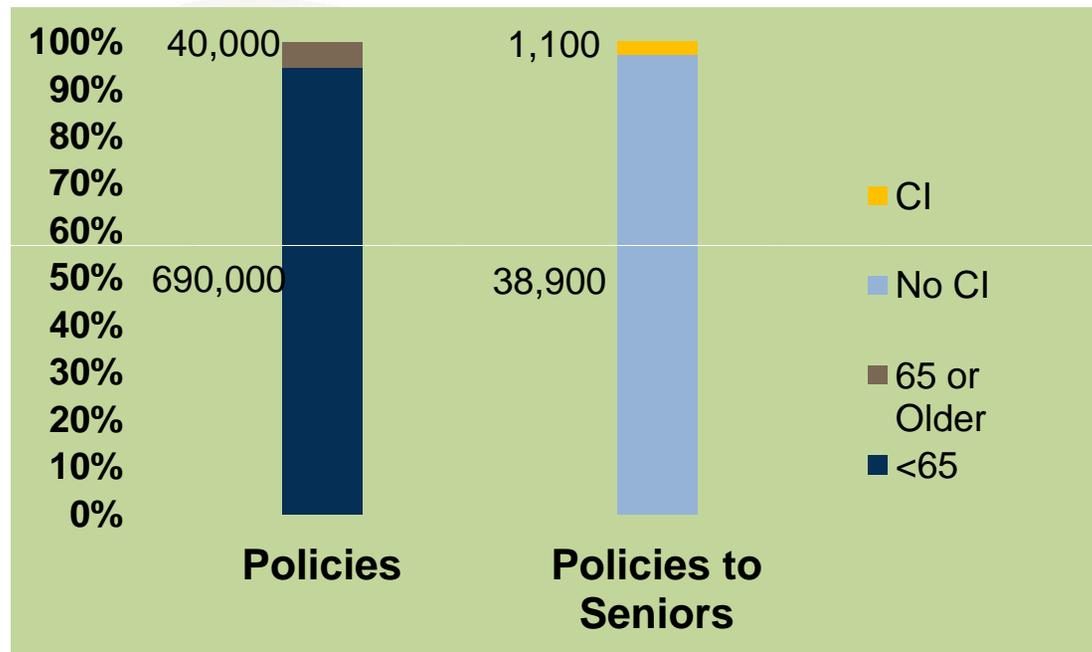


Canada's aging population drives the need for the BrainScreen solution



Life insurers will be able to make more informed underwriting decisions

- Individuals with CI have a 50% mortality rate over a 5 year period and a near 100% mortality rate over 10 years
- Average life policy issued for 11 years with a \$300,000 benefit



Value Proposition

- In 2010 there were over 730 000 Ind. Life policies issued in Canada
- Avg. death benefit of \$300 000.
- Assume 5% issued to Age 65 or older
- Assume 10% rejection rate within this age group
- BrainScreen utilization within 40 000 applications



Value Proposition

- Our business case scenario indicates an insurer break even point of BrainScreen adoption to underwriting.
- Breakeven is achieved if BrainScreen identified fewer than 10 out of 40 000 (0.02%) applicants as previously undiagnosed cognitive impairment
- Research indicates that within this age group the incidence of undiagnosed cognitive impairment is 2.8%



BrainScreen Underwriting Tool

- Both insurers and policy applicants expect that the policy issuance decision will be based on health diagnostics results
- Focus is traditionally on physical health
- insurers will be able to enhance their underwriting assessments by considering cognitive impairment as part of the underwriting decision.



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BrainScreen Underwriting Tool

- Cognitive impairment is one of the most under-diagnosed medical conditions
- Half of those with dementia live in the community, estimated that two thirds have not been formally diagnosed
- Based on 2007 data from CLHIA, the average term of individual life insurance policies issued in Canada was 11 years



BrainScreen Underwriting Tool

- Cognitive health has long been known to impact longevity
- Cognitive impairment is a predictor of mortality
- In scientific studies, after 5 years, half of those with cognitive impairment had died.
- Cumulative mortality for individuals with cognitive impairment over a 10 year period approaches 100% for all age groups



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BrainScreen Overview

- **BrainScreen is designed to be an early warning system**
 - most people do not realize they may have a mental impairment
 - System designed to bring professional healthcare attention to individuals who fail assessment



BrainScreen Overview

- **BrainScreen is applicable for ages 10yrs and up**
 - BrainScreen is designed to detect more general cognitive impairments that would affect individual's overall cognitive health
 - This includes concussions, memory problems, and learning and attention difficulties.
- **BrainScreen can potentially detect a variety of disorders which can happen at any age group**



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BrainScreen Technical

- BrainScreen relies on scientific psychological assessment tools that have been proven reliable
 - All tests have a high pedigree of peer reviewed scientific evidence to back their use
- Tests are valid and highly reliable
- Tests focus on fundamental cognitive processes
 - Makes it hard for someone to cheat on BrainScreen



Assessment Composition

- Cognitive Tests Used in BrainScreen
 - Learning and Memory Recall
 - Testing short term memory
 - Learning and Delayed Memory Recall
 - Testing long term memory
 - Digit Span
 - Testing working memory



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Assessment Composition

- Reverse Digit Span
 - Testing working memory and executive functions
- Reading Time
 - Spatial orientation, decision making, visual cue processing
- Digit-Symbol Matching
 - Visual cue processing, decision making, fine motor skills, short term memory, speed of information processing

A little bit of overlap on tests to ensure each aspect of cognitive performance is thoroughly tested



BrainScreen Scoring

- An individual's responses are scored against others
 - Normed sample used as comparison
 - Sample broken down by age groups so that people of same age groups are compared to each other
 - Compare on two specific measures
 - Accuracy: Is response right or wrong?
 - Reaction Time: How long (in milliseconds) did the person take to respond?
- This method of measurement and scoring is standard practice in field of psychology and neuropsychology
 - Especially for cognitive tests presented electronically



BrainScreen Score

- **Red Alert:**
 - Total accuracy below 99% of sample, or
 - Average reaction time slower than 99% of sample
- **Yellow Alert:**
 - Total accuracy below 97% of sample, or
 - Average reaction time slower than 97% of sample
- **Green:**
 - Total accuracy 97% or above of sample, or
 - Average reaction time faster than 97% of sample



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