

THE ECONOMIC COSTS OF WORKPLACE INJURIES TO MANITOBA WORKERS AND THEIR CARERS

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Purpose

This research is an attempt to estimate the non-economic and indirect economic costs associated with workplace accidents.

We believe the research will add the following important innovations to the existing literature:

- *By including a “significant other” (the carer), we capture a more complete picture of family and personal costs.*
- *Qualitative research in the form of dyads more completely explores the origins and consequences of workplace accidents.*
- *Questions posed to injured workers and their carers attempt to quantify the non-economic costs of accidents.*

Economic costs are not accounting costs

This study focusses on the non-financial economic costs of workplace injuries as experienced by workers and their carers.

As an economic study it add two perspectives to the significant literature on the costs of workplace injuries:

1. It attempts to measure indirect non-financial costs of workplace injuries in equivalent monetary terms.
2. It introduces the *carer*, who typically incurs direct and indirect costs associated with supporting the injured worker.

The costs tracked in this research are not readily available in WCB financial or administrative files

Carers and caregivers

A carer provides emotional, financial, and physical assistance to an injured worker without charge, by virtue of a friendship or familial relationship.

Caregivers are individuals who care for injured, sick, or disabled persons. The term “caregiver” encompasses both unpaid carers and paid professionals.

Overview of method

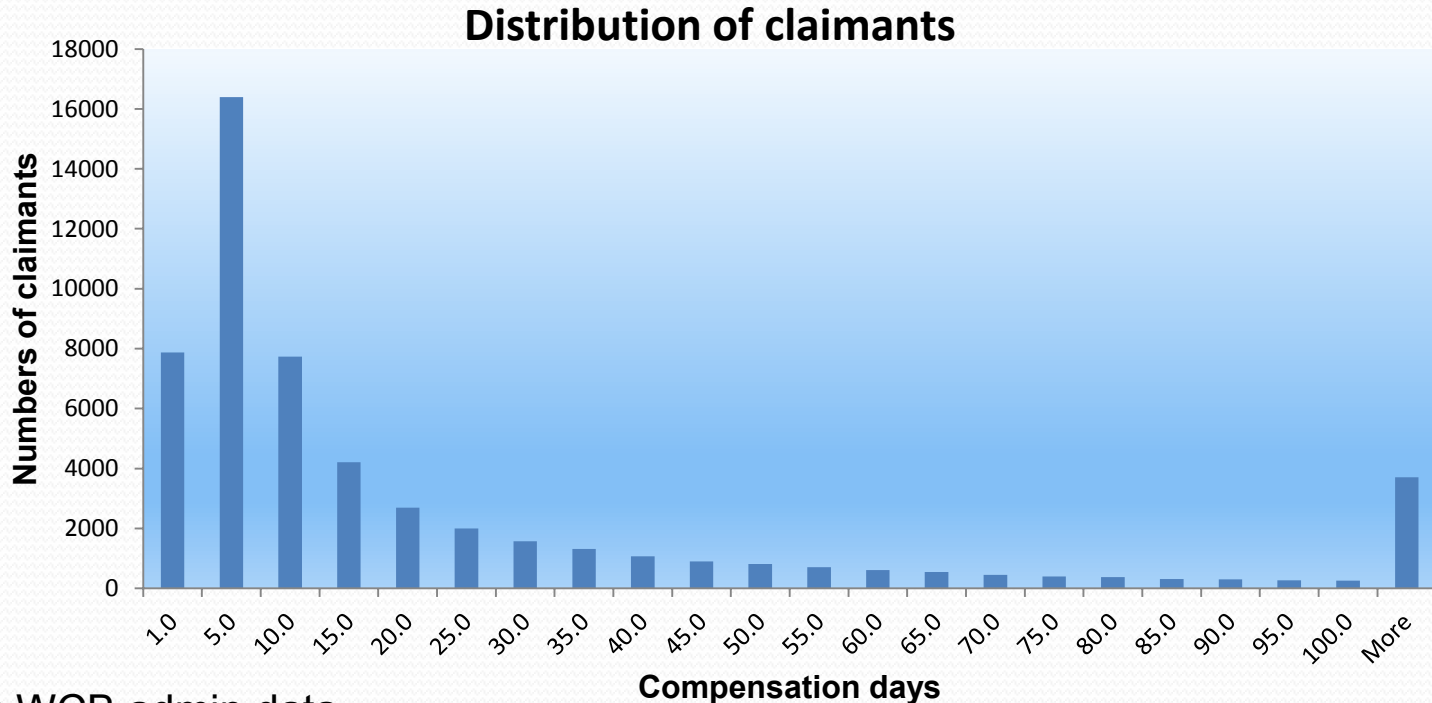
- WCB data formed the basis for selecting respondents for a telephone survey of workers who had experienced an accident that resulted in a time loss claim.
 - During the telephone interviews, workers referred PRA to carers (if they existed) for a separate interview about the impact of the injury.
 - A technique known as discrete choice modelling measured the monetary equivalent of the non-financial costs of the accident.
- PRA combined survey and administrative data for the analysis of economic costs.
- We also enrolled 20 workers and their named carers to participate in detailed in-person interviews (dyads) that explored the causes and consequences of the accident.

How we protected worker/carer confidentiality

- WCB provided an extract of all time loss workplace accidents between April 10, 2010–June 30, 2014 or 54,361 cases (no names or contact information).
- PRA selected a sample and supplied WCB with case numbers.
- WCB provided PRA with a sample frame list comprising names, addresses, phone numbers, and unique respondent IDs.
- During the telephone interviews, workers referred PRA to carers (if they existed) for separate interviews.
- Upon completion of the telephone interviews, WCB joined the survey data with the administrative files, stripping names, addresses, and phone numbers from the file.
- PRA has a file that unifies survey and administrative information, but does not contain personal identifiers.

Findings - Overall

- Most workers with time loss claims are off work for fewer than 15 days.
- The WCB support system works well for the vast majority of workers, who apparently suffer no lasting effects.



Source: WCB admin data

Who are the injured workers?

Attributes of the WCB claimant sample frame (n=54,361)				
	Age	Weekly wage (average)	Total benefits days	Total benefits paid by WCB
Mean	40	\$785.00	30.7	\$4,748.00
Median	41	\$721.00	7	\$1,328.00
Minimum	16	\$0.00	1	\$5.00
Maximum	83	\$10,498.00	1,531	\$833,878.00

Source: WCB admin data

Total benefit days (compensation days)		
Fewer than 2 days off	8,954	16.4%
2 – 5 days off	13,094	24.0%
6 – 10 days off	9,025	16.5%
11 – 40 days off	13,686	25.1%
41+ days off	9,801	18.0%
Total	54,560	100.0%
Mean		29.4 days
Median		7 days
Minimum		1 day
Maximum		1,532 days

Source: WCB admin data

Understanding the nature and consequence of the workplace accident

We used dyadic interviews of seriously injured workers and their carers to deepen our understanding of the injury and its consequence

Dyads offer insight into causes and consequences of workplace accidents

- A dyad offers the opportunity to explore a shared event from the perspective of two individuals who have a long-standing relationship based on trust and familiarity.
- The primary respondent (injury victim) named the secondary respondent (the carer), and so a degree of trust and familiarity may be assumed.
- For those workers who suffer an injury requiring a period of recovery and/or leaving a permanent disability, recollection of the event, and especially recollection of the aftermath, may be selective.
- A trusted confidant can often temper the primary respondent's recollection of this event, and they will also often add details that may have been forgotten, or add important nuance to the narrative.
- Dyads offer a unique window into the nature of the accident, injury, and its aftermath.
- This technique creates context for the full impact of the workplace injury.

“Causes” of the workplace accident	
Category	Explanation Example context
Poor technique	Workers perform standard tasks with wrong technique
Misjudgement	Workers fail to assess nature of task correctly
Miscommunication	Workers fail to communicate
Job unfamiliarity	Workers performing new tasks
Accident	Circumstances that could not reasonably be foreseen
Repetitive strain	Injury occurs over time due to nature of tasks

This classification emerged from an analysis of the 20 cases presented by the workers/carers interviewed in the dyads

Challenges in tracing the origins of a workplace accident

- Accidents reflect a combination of worker unfamiliarity, poor communication, and inadequate training.
- The testimony of the dyads reflect the perspective of the injured worker and not the employer.

Observation: *These brief vignettes on the etiology of the accident underscore how little is known about the nature and context of the accidents that trigger the injuries and the outcomes that prove so costly for workers, their families, and society.*

Opportunities exist for WCB to improve its understanding of what triggers each accident in the first place.

Workplace accidents have complex and individual outcomes

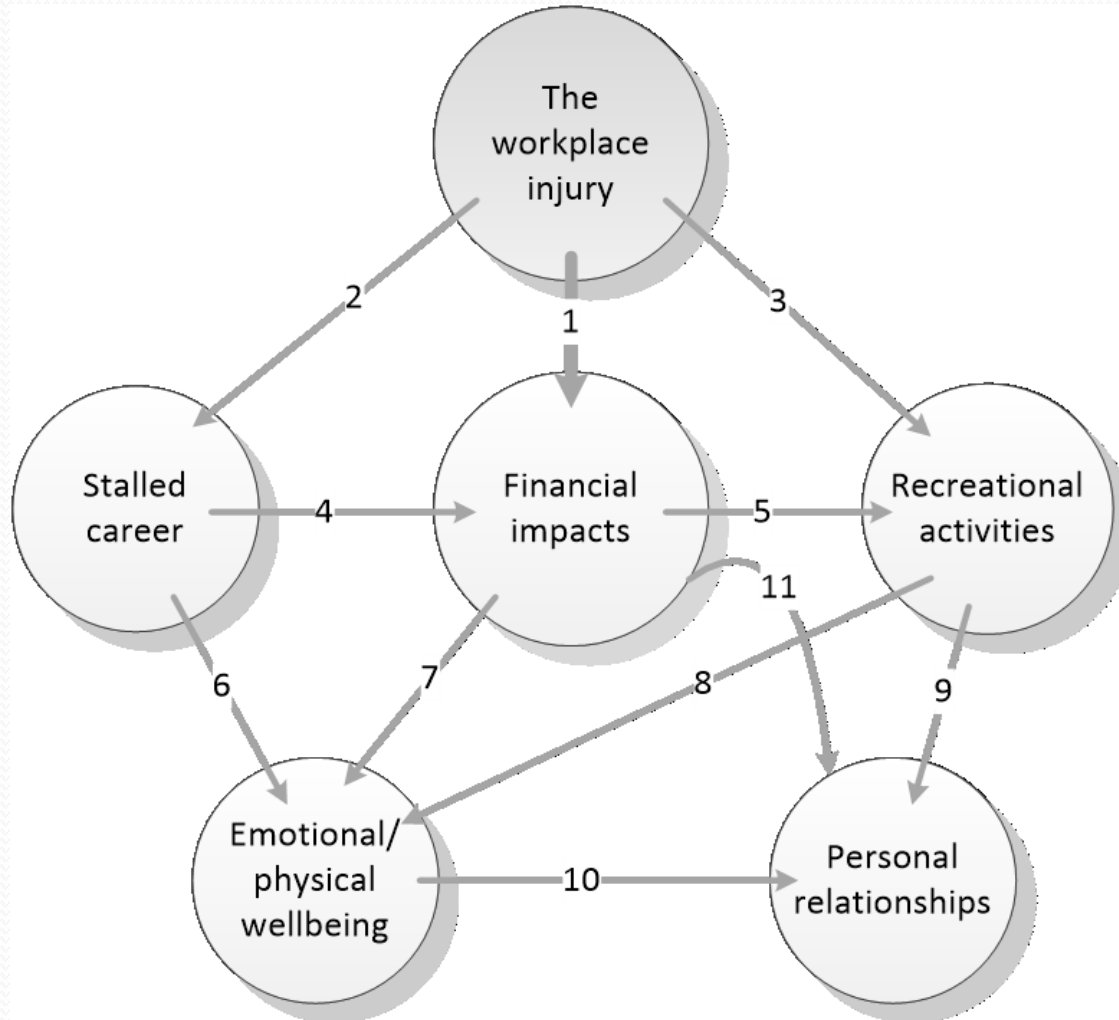
- The dyads are in-depth interviews with workers and carers resulting in a comprehensive picture of the nature of the accident, the recovery process, and, in many cases, the enduring aftermath.
- By interviewing the worker and carer together we obtain an integrated and complete account of the accident and its aftermath.
- The individual stories of injury and recovery reveal multi-dimensional experiences of injured workers and their carers.
- Each story reveals that the typical workplace injury expresses itself through several psychological, social, and economic effects or themes.

The cases reflected in the dyads pertain to a small minority who experienced serious injury with substantial time loss – most WCB cases are comparatively minor, with only a few lost work days.

Consequences of the accident

- Work interruption was the most important theme, both because it is the wellspring of a period of adversity and because it clearly contributes to each of the other dimensions.
- Financial and economic impacts are the most obvious consequences of the injury, but for many workers, the attenuation of economic wellbeing contributes to some or all of the remaining effects.
- Social isolation emerges due to career interruption and because physical, mental, and emotional outcomes limit social and recreational activities.
- Workers spoke of stalling in their personal and professional growth.
 - This may relate to the interruption in work,
 - but it might have more to do with the fact that they can no longer work at all,
 - or that their new occupations do not offer the same opportunities.
- Finally, all workers and their carers spoke of the impacts that their injuries and their consequences have had on their emotional wellbeing.
 - Depression is a very common outcome, often requiring counselling and, in some cases, medication.

Outcomes of a workplace accident



Injury etiology and sequelae

- The aftermath of more serious injuries persists, resulting in a range of losses — financial as well as psychological/social.
- Many seriously injured workers experience loss well after WCB has concluded a formal relationship.
- Carers are critical in the recovery process and present an important unpaid and “uncosted” resource in the recovery process.
- Immediate wage loss is universal, but serious or permanent injuries set the affected worker on a lower economic trajectory, compared to their uninjured counterparts.
- The most important finding is that only a very general correlation exists between the “seriousness” of the injury and the reaction of the worker.
 - Unobservable and unmeasurable factors may significantly influence a worker’s subjective assessment of the injury and its continued aftermath.
 - Traditionally, workers’ compensation focussed solely on wage loss replacement and support rehabilitation based on “objective” medical assessment.
 - The challenge of restoring workers to their previous levels of function may be much more complex and costly than is commonly understood.

The survey of workers and carers

We interviewed 2310 workers and 510 carers by phone to measure a wide range of outcomes and consequences arising from their accidents.

Who did we talk to

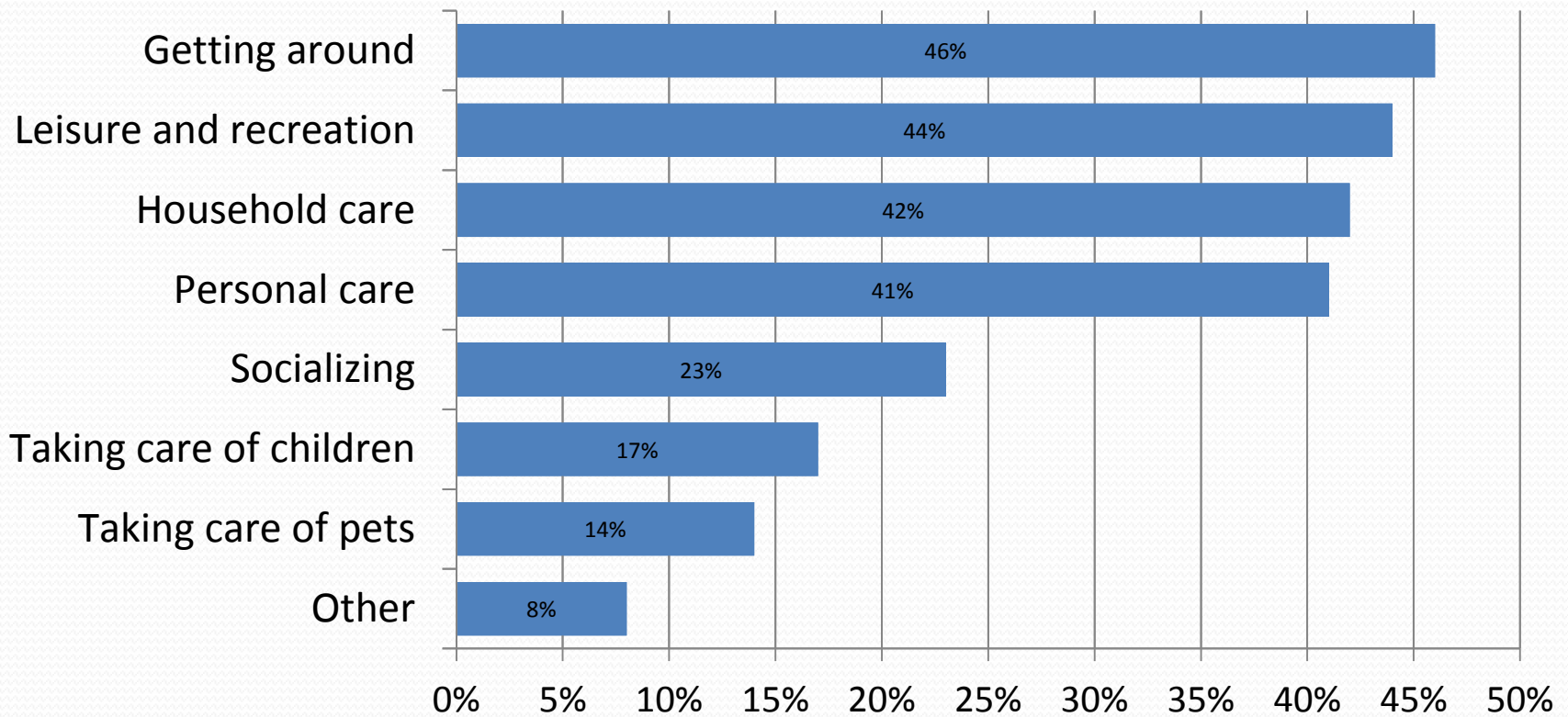
Occupation of primary respondents		
	n	%
Labour	516	22%
Health and wellness	373	16%
Sales and services	343	15%
Drivers and equipment operators	318	14%
Construction and trades	217	9%
Technicians	198	9%
Civic services	115	5%
Education and law	80	4%
Management	72	3%
Childcare	1	<1%
Natural sciences	5	<1%
Other	18	1%
No information	54	2%
Total	2,310	100%

Source: WCB administrative data matched to the survey sample.

Length of injury (days of compensation and rehabilitation benefits)		
	Primary	
	n	%
0–7 days	1,084	47%
8–14 days	314	14%
15–30 days	308	13%
31–182 days	503	22%
183–365 days	59	3%
366+ days	42	2%
Total	2,310	100%

Physical difficulties after injury: primary respondents

(n=2,310)



Source: Survey of workers

Reported emotional/psychological state of the workers (perceptions of primary respondents)

Response	Frequency	Percent (yes)
Upsetting thoughts/memories of the injury	654	28.3%
Upsetting dreams about the injury	277	12.0%
Difficulty talking about the injury with others	234	10.1%
Difficulty falling asleep or staying asleep	875	37.9%
Unusual irritability or anger	565	24.5%
Unwanted weight gain or weight loss	524	22.7%
Upsetting feelings that your role in your family has changed	343	14.8%
A strained relationship with [partner or name of secondary respondent]	234	10.1%

Note: Totals sum to more than 100% because respondents could offer more than one response.

Support for everyday tasks		
Response	Frequency	Percent
Household care, including things like cooking, cleaning, and housework	350	69%
Lifting heavy objects around the house or reaching for higher objects	387	76%
Performing maintenance on the home, such as painting, carpentry, and general repairs	213	42%
Performing yard maintenance, such as mowing the lawn, gardening, and shovelling snow	322	63%
Driving to social events	257	50%
Driving to get groceries, or carrying more groceries	365	72%
Taking care of children	148	29%
Taking care of pets	199	39%
Other non-work-related tasks that we have not discussed	27	5%
Note: Respondents could provide more than one answer; totals may sum to more than 100%.		

Source: Survey of workers

Current Employment Status (at time of interview)

Current employment status		
<i>Are you currently off work because of your injury?</i>		
Response	Frequency	Percent
No	2,028	88%
Yes — due to injury	96	4%
Yes — retired	86	4%
Yes — returned to school	7	-
Yes — other reason	93	4%
Total	2,310	100%

Time lost due to injury

Time lost due to injury <i>How much time, in total, were you off work because of your injury (days)</i>		
Response	Frequency	Percent
None	14	1%
1 – 10 days	1,181	51%
11 – 20 days	308	13%
21+ days	807	35%
Total	2,310	100%

Income change as a result of the injury

Income since the injury	
<i>P23. Since your injury, has the amount that you earned at your job increased, decreased, or stayed about the same?</i>	
	Percent (n=2,028)
Increased	49%
About the same	37%
Decreased	13%
No response	1%

Most workers recover from their injuries physically, psychologically, and economically.

Expenses related to injury

Other expenses related to the injury

P30: What out-of-pocket costs have you or your household faced because of your injury that were not covered by WCB?

Cost	Number	Percent	Mean expense	Maximum expense
Medical	488	21%	\$128	\$19,800
Legal	4	-	\$193	\$700
Transportation	492	21%	\$73	\$16,000
House modifications	31	1%	-	\$3,000
Vehicle modifications	6	-	\$6,620	\$28,000
Additional utilities	50	2%	-	\$15,000
Hiring medical carers	8	-	\$874	\$5,000
Property maintenance	104	5%	-	\$10,000
Special equipment	193	8%	-	\$2,000
No response	970	42%	-	-

Unlike other worker's compensation schemes in other countries, injured workers are not required to pay for medical treatment costs directly or indirectly (through insurance).

Measuring the intangible costs of the accident

- Workers who experienced fewer than three weeks of time loss and whose wages have recovered to reflect a normal career trajectory have experienced transitory intangible costs.
- We measured intangible costs using a contingent valuation technique.

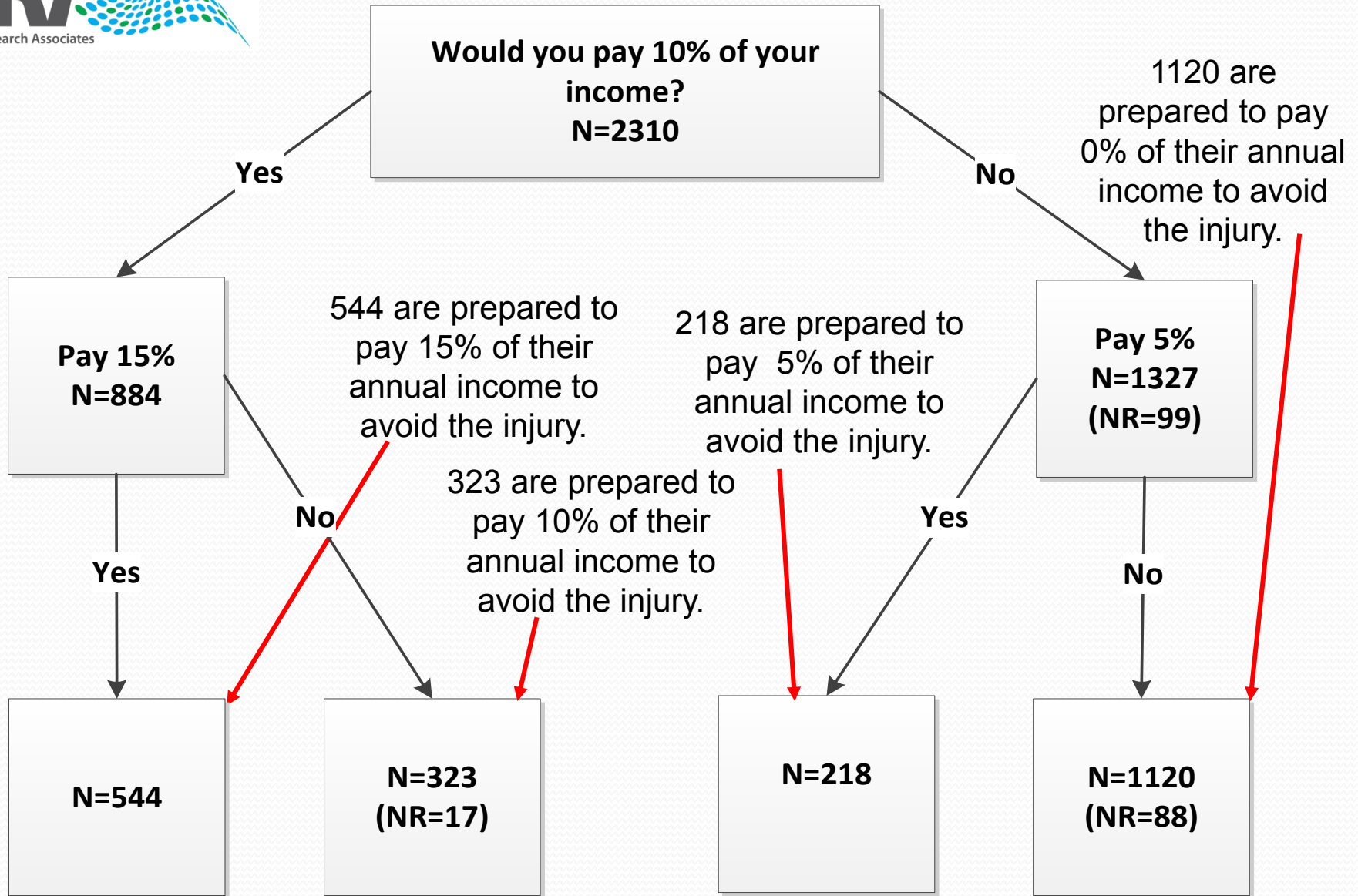
Primary respondent (injured worker):

Knowing what you now know about the injury and the recovery process that you had to go through, I would like you to think back to the time when you were first injured. Imagine that, immediately afterward, someone offered you a quick and painless treatment that would let you recover immediately and avoid all of the necessary recovery time actually required for your injury. With this treatment, you would be able to avoid all the changes that occurred in your life as a result of the injury.

Willingness to pay (WTP) (primary respondents)

If the treatment cost X% of your annual household income for the next 10 years, would you have been willing to pay for it?

Percentage of income (X)	Number “yes”	Percentage (out of 2,310)
0% (No and NR)	1,225	53.0%
10%	323	13.9%
5%	218	9.4%
15%	544	23.5%



WTP — primary respondents

WTP (annually)	Frequency	Percent
\$0	1,225	53.0%
\$20	35	1.5%
\$40	151	6.5%
\$60	176	7.6%
\$80	168	7.3%
\$100	150	6.5%
\$120	136	5.9%
\$140	88	3.8%
\$160	54	2.3%
\$180	38	1.6%
\$200	27	1.2%
\$220	20	0.9%
\$240	13	0.6%
\$260	12	0.5%
\$280	3	0.1%
\$300	4	0.2%
\$320	3	0.1%
\$340	1	0.0%
\$360	2	0.1%
\$380	1	0.0%
>\$380	3	0.1%
Total	2,310	

Most lost few days and had no lasting effects

With increased severity, the willingness to pay to avoid the injury increases

We are in effect pricing an insurance policy to avoid all the intangible costs of a workplace accident

The intangible economic costs of workplace accidents

- For all 2,312 primary respondents, the sum of WTP for an annual payment for this “insurance premium” is \$101,251.
- Assuming this is a random selection of 2,312 from the administrative database (n=54,481) — the total would be approximately \$2,430,000 annually or \$24,300,000 (non-discounted) over 10 years for all injured workers during the time span for the research sample (April 2010 – June 2014).
- This forms the estimate of the non-financial (intangible), economic costs of workplace injuries over the study period.

Implications of this research

- Most workers recover from their injuries. A large number suffer some lasting effects and a few workers experience lasting lifelong trauma from the accident and its aftermath.
- The WCB process works for a large majority of injured workers.
- For those with more serious injuries (the 18% with more than 40 days off), intangible, direct, unobservable, and unmeasurable factors significantly influence a worker's subjective assessment of the injury and its continued aftermath.
- The dyad stories reveal complex, persistent, and enduring losses for those experiencing serious injuries; these injuries extend the concept of rehabilitation into entirely new domains. The challenge of restoring such severely injured workers even part-way to their previous levels of function may be more complex than was previously understood.
- Carers and the families of injured workers experience a range of harms and losses.
- WCB has little information about the context of the accident and does not record the non-financial costs of accidents experienced by workers and carers.

Policy Opportunity 1

- Carers are an integral element in the recovery process and each injury is comprised of both the worker and the carers. As the injury severity increases, the support from carers becomes more important.
- WCB should consider bringing the carer(s) formally into the support circle for serious injuries. Carers are instrumental in the injured worker's recovery, and formally acknowledging their inclusion in the recovery process may hasten the worker's return to work.

Policy Opportunity 2

- Benefit-cost estimates of worker's compensation programming should include estimates of the economic valuation of pain, career interruption, and so on, to assess the value for money of injury prevention.
- Workers may encounter different outcomes, in different sequences, and with different intensities, despite the same apparent physical manifestation. Applying medically assessed and administratively derived rules to award financial support may appear equitable, but this research has shown each injury is unique. Research to assess the feasibility of tailoring support to meet individual needs should be undertaken.
- Regular follow-up with workers who have work-time loss in excess of 20 days (one month of work) would increase information on direct and indirect costs, treatment experiences, and career recovery.

Policy Opportunity 3

- A workplace accident triggers injury, yet the administrative information maintained by the WCB often contains little detail about the context of the injury.
- Follow-up with employers after each serious accident is important. In addition to verifying changes to the workplace, procedures would allow WCB to track employer costs of accidents, adding an important and currently missing component of accidents' economic costs.

Policy Opportunity 4

- The information on the worker lapses once the worker no longer receives compensation.
- Opportunities exist for maintaining extended information on the injured worker:
 - The estimates of the economic costs of accidents omit short-term and long-term medical care costs, which produce a major underestimate of the economic costs of accidents.
 - Joining the administrative information on workplace injuries with Manitoba Health data would provide extensive information in longer-term outcomes, as expressed by the follow-up medical treatments workers need.
 - Periodic surveys of injured workers and the employers offer important insight into factors influencing recovery.