

# Research and counter measures to reduce suicide on railway rights of way and their impact on railway workers

A series of Canadian studies  
financed by Transport Canada

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Transport  
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# Context

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- ▶ Contract awarded in 2008 by Transport Canada
- ▶ Ongoing studies of Montreal metro suicides
  - ▶ Interview study of attempters at hospitals to understand who and why
  - ▶ Restrospective study of suicide deaths from coroners' investigations
  - ▶ Study of preventive interventions
  - ▶ Analysis of video tapes of suicides and experimental study to identify attempters beforehand based upon behavioural data
- ▶ Project began in 2009 as a suicide prevention project
- ▶ Modification to include all fatalities 2010
- ▶ Modification to include study of the impact of fatalities 2009
- ▶ Steering Committe involving all major stakeholders (Railways: CN, CP, VIA, Go-Transit; Railway AC, Teamsters Union, Transport Canada)
  - ▶ Plus participation of U.S. Federal Railway Association and and Volpe Center



# Plan of the presentation : Overview of the project

Period	Phase	Objectives	Results
2009-2010	1	Detailed analysis of all railway suicides over 10 years in Canada	Comprehensive database of railway fatalities ( 1999-2008) Analysis of railway suicides and comparison with accidents (report Phase 1) Production of a Google map layer (2011)
2009-2010	2	Analysis of the impact of suicides on train crew members	Interview study and qualitative analysis of the impact of railway fatalities Recommendations for support to employees (report Phase 2)
2010-2011	3a	Literature review on railway suicide preventive measures	Review of preventive strategies around the world and their effectiveness (report Phase 3a)
2010-2011	3b	Literature review of measures to reduce the impact of fatalities on train crew members	Review and evaluation of strategies and treatments implemented throughout the world to reduce the impact of fatalities and critical incidents on crew members (Report Phase 3b)
2011	4	Development of proposals for intervention for the Canadian railway network	Identification of 3 potentially effective strategies to reduce railway suicide and 2 strategies to reduce the impact of fatalities on crew members (report Phase 4)
2012-2014	5	Knowledge application strategy	Develop and implement a comprehensive knowledge application strategy to promote the new information gathered with stakeholders and help the industry and its partners implement suicide prevention strategies. Seek funding for pilot



Detailed analysis of all railway  
suicides over 10 years in Canada



Phase 1

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## ▶ Objectives

- ▶ Describe the situation of railway suicides in Canada
- ▶ Identify potential specificities that can be targeted by prevention

## ▶ Data source

- ▶ TSB – 878 cases from 1999 to 2008 – 120 technical variables
- ▶ Railway companies (with a railway police)
  - ▶ CN – 262 cases from 1999 to 2009 – 25 variables
  - ▶ CP – 348 cases from 1999 to 2009 – 25 variables
- ▶ Coroners and Medical Examiners

## ▶ Sample

Manner of death for all cases		
	N	%
Accident	460	40.6
Suicide	428	37.7
Undetermined	81	7.1
Missing information	160	14.1
Sample	1129	99.5
Murder	4	0.4
Natural	1	0.1
Grand total	1134	100.00

# Brief conclusions on the characteristics of railway suicides and accidents in Canada

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## Suicides (428)

- ▶ +70% men
- ▶ 46% have used substances in the hours preceding their suicide
- ▶ 22% were under psychaitric care
- ▶ More frequent on tracks and rare in stations
- ▶ Passenger trains
- ▶ Good visibility
  - ▶ But more often when gloomy overcast weather
- ▶ People lived less than 1km away or more than 40km away

## Accidents (460)

- ▶ +70 % men
- ▶ 73% have used substances in the hours before their accident
- ▶ More frequent at crossings and in rural settings
- ▶ Freight trains
- ▶ Good visibility
  - ▶ But more frequent when snowy or icy
- ▶ More frequent at night and before 5AM
  - ▶ Fatigue
- ▶ People lived less than 1km away or more than 40km away

# Conclusions on accident victims

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- ▶ Since older adults (>60) and children are more likely to be accident victims, they could be specific target populations for prevention activities.
- ▶ In the case of accidents, a portrait of impairment in victims is common:
  - ▶ impaired judgement or
  - ▶ inability to get out of the way
    - ▶ children
    - ▶ older persons
    - ▶ alcohol and substance abuse
    - ▶ risk taking
    - ▶ late at night or early morning with possible fatigue
    - ▶ recent conflicts or problems that may preoccupy victims
- ▶ This suggests that more **intense** warnings to compensate for impairments may be warranted. (Why doesn't someone pay attention to this important finding?)



# Conclusions on suicide victims

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- ▶ There are no suicide hotspots on the Canadian railway network
- ▶ As found in England, a significant number of suicides were near psychiatric facilities and 35% of suicide clusters were within 2 miles of a psychiatric facility.
- ▶ This suggests the possibility of **targeting psychiatric institutions near accessible railway tracks with prevention activities.**



Literature review on railway suicide preventive measures and Development of proposals for interventions to prevent suicide on the Canadian railway network

Phases 3a and 4

# Prevention of railway suicide

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- ▶ Review : Several strategies have been implemented in different countries
  - ▶ With no proof of effectiveness
    - ▶ Charging families for clean-up
    - ▶ Public education on safety
    - ▶ Changing desirability of train as a method of suicide
  - ▶ With minimal proof of effectiveness
    - ▶ Blue Lighting
    - ▶ Television surveillance
    - ▶ Gatekeepers in stations
    - ▶ Signs
    - ▶ Media education
  - ▶ Promising (several studies have shown an effect)
    - ▶ Limiting access to tracks
    - ▶ Phones and signs (effective with bridges and parking areas)
    - ▶ Suicide pits (raised rails) in stations
    - ▶ Preventive education in mental health facilities near tracks (not directly tested on rail suicides, but can prevent suicides in general)

A railway suicide prevention strategy should be local and combine several activities

# Proposals for pilot testing of railway suicide prevention adapted to the canadian context

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- ▶ 1. Telephones & signs (expensive, need additional funds)
  - ▶ 1b. Signs only (much less expensive and potential partners, less probable impact)
- ▶ 2. Training for mental health institutions (less expensive, but need addition funds)

# 1. Telephones and Signs

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## ▶ Objectives

- ▶ Offer access to help to people approaching tracks with suicidal intent

## ▶ Material

- ▶ Metallic signs advertising resources and pointing to telephones
- ▶ Option 1 : Use 270 existing booths located less than 500m from tracks + implement 150 dedicated booths
- ▶ Option 2 : Implement 420 dedicated telephone booths
- ▶ Install 2 signs per booth
- ▶ Territory covered : 630Km of tracks



## ▶ Implementation

- ▶ Establish collaboration with industrial partners (signs, phones) and municipalities
- ▶ Install phonebooths and signs
- ▶ Develop a collaboration with crisis centers who will take the calls

## ▶ Evaluation

- ▶ Implementation and maintenance of equipment (telephones and signage)
- ▶ Effects (on the use of helplines and other support services and on railway suicides)

## ▶ Projection of costs over 4 years

- ▶ Mixed telephones (existing + dedicated)
  - ▶ 1 800 000\$
- ▶ Dedicated telephones only
  - ▶ 3 100 000\$
- ▶ Evaluation of the project (implantation + effect)
  - ▶ 400 000\$

# Overall assessment of feasibility (telephones and signs)

	Advantages	difficulties
Technical feasibility	Public telephone and signage <b>technologies are well established</b> throughout all concerned provinces	The <b>maintenance</b> of telephones equipment might be a challenge <b>Vandalism</b> on telephones and signs may be an issue that would reduce access to help. It may also be a problem for the telephone service provider who might be reluctant to be associated with a suicide prevention project if a suicidal person died after trying to use a damaged telephone to call for help Public telephones are currently being <b>withdrawn</b> everywhere. Therefore, the use of existing telephones to implement a direct line may prove ineffective
Financial feasibility	Public telephone companies seem <b>willing to help</b> share costs of installing dedicated telephones through their community involvement programmes	The <b>costs</b> are very high and maintenance costs very difficult to anticipate It is financially not possible to install telephones in more remote rural areas.
Potential to prevent railway suicides	<b>Direct and easy access to help</b> has proved to be a good means to prevent suicide attempts, when distressed persons in proximity to a means to kill themselves. By placing telephones in strategic places along the tracks, it is possible to increase help seeking behaviour and reduce the number of attempts	It is <b>not possible to install telephones at every access point</b> to tracks, therefore, the effect will necessarily be limited, especially outside of urban areas.
Potential effects in other areas	The signs and telephones may <b>increase overall public access to a helpline</b> , not just potential rail suicide victims. This may increase help seeking by distressed people in general and reduce global rates of suicides and suicide attempts by other means than train	

## 1b. Signs Only (pointing to existing telephones when they exist)

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- ▶ Much less expensive
- ▶ Can cut even more on costs by using existing poles, plastic signs, etc.
- ▶ Potential for other financing
- ▶ Lower potential for having a significant and measurable impact on railway suicides
- ▶ Public telephones are being withdrawn everywhere.

## 2. Training programme for mental health services

### ▶ Objectives:

- ▶ Improve the ability of professionals to identify at risk patients
- ▶ Improve the ability of professionals to evaluate suicide risk
- ▶ Increase the awareness of professionals about the proximity to tracks and its possible impacts on their patients

### ▶ Material

- ▶ Training manual
- ▶ Posters and leaflets for services
- ▶ Annual training refresher courses

### ▶ 140 mental health organisations

# Implementation

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## ▶ Implementation

- ▶ Establish collaboration with local suicide prevention centres and services
- ▶ Develop training content and format
- ▶ Contact mental health services
- ▶ Offer and deliver training
- ▶ Insure follow-ups post training

## ▶ Evaluation

- ▶ Implementation of training sessions and appreciation
- ▶ Use of the provided tools and techniques
- ▶ Identification of at risk persons after training
- ▶ Impact in preventing rail suicides by their clients
- ▶ Effect on the number of railway suicides

## ▶ Projection of costs over 4 years

- ▶ Development and delivery of training
  - ▶ 200 000\$
- ▶ Evaluation of training (implementation and effects)
  - ▶ 450 000\$

# Overall assessment of feasibility (training programme)

	Advantages	Difficulties
Technical feasibility	This project does not involve <b>any specific technical equipment</b> or ability that the research team does not already possess	It will be <b>difficult to monitor</b> the number of cases of railway suicide risk that will be identified by trained staff. Monitoring in such contexts is notoriously difficult.
Financial feasibility	The project has a <b>relatively low cost</b> . Parts of the training could potentially be financed by local mental health governing bodies such as CSSS in Québec.	An unexpected cost may be associated with the <b>relatively high turnover</b> rate that mental health and community services face. More training sessions than expected may have to be conducted.
Potential to prevent railway suicides	<b>Identifying at risk patients</b> is a well recognised way to improve suicide prevention. The present project also aims at <b>training professionals</b> from psycho-social and community services, increasing the chances of reaching suicidal people who do not seek medical help.	Since not all suicide victims consult a mental health professional prior to their death, a prevention strategy that targets mental health services <b>will not identify of all potentially suicidal people</b> .
Potential effects in other areas	Training professionals, and offering refresher sessions <b>helps renew and maintain their attention to the problem of evaluating suicide risk in patients</b> . This increased awareness will apply to all patients, and should benefit all suicidal persons, whether or not railway suicide is of concern.	

# Assessing the impact of fatalities on railway crew members

Phase 2

# Objectives

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- ▶ Understand the various impacts of being involved in a railway fatality for crew members
- ▶ Identify risk and protective factors to improve on support and care practices



# Method

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- Semi structured interviews
- Qualitative content analysis based on variables identified in the literature and derived from interviews
  - Thematic analysis
- 40 interviews with train crews (January to June 2010)
- 3 interviews with railway police officers (June – July 2010)

Participants :		
Province	Number	%
New Brunswick	1	2.5
Saskatchewan	1	2.5
British Columbia	2	5.0
Alberta	4	10.0
Manitoba	9	22.5
Québec	9	22.5
Ontario	14	35.0

# Reactions to Fatalities Based Upon Interviews with Canadian Rail Engineers and Conductors

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- ▶ **PTSD (Post Traumatic Stress Disorder)**
  - ▶ 17% of participants
  - ▶ Consistent with other findings
  
- ▶ **Subthreshold symptoms**
  - ▶ Most important problem
  - ▶ Difficult to measure with current instruments
  - ▶ Not in the DSM-IV
  - ▶ But seems to be involved in maintaining long term difficulties
  
- ▶ **« Long term low key trauma »**
  - ▶ Interesting way of categorising the impact of railway fatalities
  - ▶ Needs more research and proper definition in this context



# Impact of different factors on the nature and intensity of reaction after a fatality

## Factors **increasing impact**

- Being alone at the scene to deal with the situation
- Being treated as a suspect by police
- Accumulation of incidents
  
- Difficult work relations
- Having to work on the same route again
- Type of incident (suicide or accident)
- Impact of masculine stereotypes
- Close calls and non fatal incidents
- Environmental characteristics
- Seeing the victim
- Death that could have been prevented

## Factors **reducing impact**

- Family support
- Assurance by the employer of not being guilty
- Receiving immediate help
  
- Information and training
- Humor
- Knowing about the person's circumstances
- Making sense of what happened

▶ **Important because these factors before, during and after events can be modified**

▶ Main recommendations by train crew to reduce the short and long term consequences of being involved in a fatality

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- ▶ *Establish clear and adapted protocols for incident management and treatment and make a special effort to strictly respect those protocols.*
- ▶ *Improve access to and conditions offered by Worker compensation board.*
- ▶ *Improve access to proactive independent psychological help.*
- ▶ *Provide more flexible options for return to work.*
- ▶ *Train workers before they are involved in a fatal incident.*



Litterature review and prevention and  
intervention strategies to reduce the impact  
of fatalities

Phases 3b and 4

# Literature Review of Measures to Reduce the Impact of Fatalities on Crew Members

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## ▶ Review and Analysis of:

- ▶ Guidelines and regulations
- ▶ Railway companies policies (CIRP)
- ▶ Research studies
- ▶ Needs analysis and surveys with employees

## ▶ Results

- ▶ Few evaluations of support practices and company protocols
- ▶ Programmes and protocols are mainly based upon subjective recommendations and common sense
- ▶ Studies have shown that some forms of therapy can be very useful to crew members after a traumatic event (CTB, EMDR, Group therapy)

## ▶ Conclusion

- ▶ Therapeutic help is becoming well validated but there is a need to evaluate the effect of pre-incident, on- site and post-incident interventions by supervisors , peers and EFAP professionals
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- ▶ Preventive measures and incident management interventions could be effective in reducing the negative impact after a fatality
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- ▶ However, no evaluations of these strategies has been conducted so far

- ▶ Strategies of interest :

- ▶ Pre-incident training for crew and supervisors (trauma and reactions, CIRP)
  - ▶ Comprehensive Critical Incident Response implemented and well known at all levels of the organisation (director, safety, local supervisors, peers, EFAP, employees)
    - ▶ Clear roles and expectations
    - ▶ Compulsory 3 days off
    - ▶ External evaluation of fitness to work
    - ▶ Proactive offer to help and support from employer and EFAP
    - ▶ Incident management on site to help reestablish a sense of control for the crew (someone is clearly in charge to their advantage in a situation of absolute helplessness and vulnerability)
    - ▶ Comprehensive support to supervisors
    - ▶ Involvement of the employee and outside evaluator in the return to work process
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# Knowledge transfer strategies

Phase 5

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▶ Website

▶ [www.railwaysuicideprevention.com](http://www.railwaysuicideprevention.com)

▶ Adapt information to various targeted groups of stakeholders

▶ Direct discussions of results with stakeholders

- ▶ Conferences: IRSC London 2012, IASP Oslo 2013,
- ▶ Industry meetings – Teamsters of Canada Rail Conference, VIA
- ▶ Stakeholders contacts : Association of Employee Assistance Programme providers, Transportation Safety Board, Workers Compensation Board
- ▶ Workshop – IRSC Vancouver 2013 **YOU ARE ALL INVITED!**

▶ Implementation of our recommendations for employee support by VIA Rail (and others?)

▶ Proposed evaluation of trauma prevention and support practices in Canadian railways to empirically determine best practices (pending funding)

▶ Dissemination of promising strategies for railway suicide prevention projects

- ▶ Funding is difficult to find in the current context
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Annexe 1 – Proposal for an integrated support and  
intervention strategy to reduce the impact of  
incidents on crew

Timeline of events	Mitigating impact strategies
<b>Prior to incident</b>	<ul style="list-style-type: none"> <li>- Information and training (train crews, supervisors) on what happens during and after incidents (possible reactions, cumulative effects, protocols and support offered , identification of support network)</li> <li>- Identification and training of outsourced specialised resources for future referrals</li> <li>- Increase sense of self efficacy and control by staff in their daily work - empowerment.</li> <li>- Design and implement strict and detailed incident management protocols that take into account the reduction of risk factors and the promotion of protective factors, the time off and all options pertaining with consequences and benefits (pay, missed trips, return protocol)</li> <li>- Implementation of a comprehensive peer support program (including regular training up dates and follow-ups and a careful recruitment of peers) if possible supported by the union (or strong involvement of the union)</li> </ul>
Time of incident	<ul style="list-style-type: none"> <li>- Supportive, uninterrupted and compassionate radio contact</li> <li>- Brief evaluation of the capacity of crew to proceed with the emergency check (body and first aid)</li> </ul>
<b>Short term</b>	<p>On site of incident post impact</p> <p>Strictly implemented incident management protocol including :</p> <ul style="list-style-type: none"> <li>- Immediate relief of the crew and speedy evacuation</li> <li>- No participation of crew in incident management</li> <li>- Compassionate handling by supervisor</li> <li>- Limiting access to the crew from others at the scene</li> <li>- Evaluation of crew member's condition to anticipate the level of intervention needed</li> <li>- Drive the crew home</li> </ul>



Timeline of events	Mitigating impact strategies
<b>Short term</b> Within Week 1	<ul style="list-style-type: none"> <li>- Follow-up on the options available but no immediate decisions can be made within 24 hours</li> <li>- No pressure to come back to work within 72 hours</li> <li>- Time off 72 hours (to be flexible if needed), supervised and accompanied by regular compassionate contacts from employer and peers program</li> <li>- Evaluation of train crew's condition by an independent professional</li> <li>- One briefing session (individual or group) and planning for further assistance by the same professional if needed after evaluation. The health professional should be proactive in contacting and meeting the crew.</li> <li>- Peer support offered as soon as possible and for a long period of time (several weeks if needed)</li> <li>- Activation of support network</li> <li>- In partnership with the employee, supervisor, external professional and company medical officer , planning return to work strategy including a supervised first trip if necessary, flexible options if possible and a post-return evaluation of the crew's condition (after a week of work)</li> </ul>
<b>Mid term</b> Within 3 Months	<ul style="list-style-type: none"> <li>- Evaluation of train crew's condition by the same professional</li> <li>- Delayed time off available if needed</li> <li>- Long term professional intervention based on CBT or EMDR provided by outsourced professionals paid by the employer</li> </ul>
<b>Long term</b>	<ul style="list-style-type: none"> <li>- Follow-up</li> <li>- Evaluation of train crew's condition</li> </ul>