RESTRAIL

REduction of Suicides and Trespasses on RAILway property

Collaborative project

Evaluation of measures, recommendations and guidelines for further implementation

Pilot test #9

Gatekeeper Programme – PRORAIL

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RESTRAIL Consortium

No	Beneficiary organisation name	Beneficiary short name	Country
List of Beneficiaries			
1	Union Internationale des chemins de fer	**UIC**	**FR**
2	Teknologian Tutkimuskeskus VTT	VTT	FI
3	Trafikverket - TRV	TrV	SE
4	Institut français des sciences et technologies des transports, de l'aménagement et des réseaux	IFSTTAR	FR
5	MTRS3 Solutions and Services LTD	MTR	IL
6	Fundación CIDAUT, Fundación para la investigación y Desarrollo en Transporte y Energia	CIDAUT	ES
7	Helmholtz Zentrum München Deutsches Forschungszentrum für Gesundheit und Umwelt (GmbH)	HMGU	DE
8	Karlstad University	KAU	SE
9	Fundación de los Ferrocarriles Españoles	FFE	ES
10	Turkish State Railway Administration	TCDD	TK
11	Deutsche Bahn AG	DB	DE
12	Instytut Kolejnictwa	IK	PL
13	ProRail B.V	PR	NL
14	Nice Systems Ltd	NICE	IL
15	Ansaldo STS	ASTS	IT
16	University of Nottingham	UNOTT	UK
17	INFRABEL	INFRABEL	BE

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Acronym	Meaning
ADIF	ADministrador de Infraestructuras Ferroviarias
ERA	European Rail Agency
BTP	British Transport Police
CAEX	CAPital Expenditure
CBT	Computer Based Training
CCTV	Close-Circuit TeleVision
CN	Canadian National
DOW	Description Of Work
FFCCTV	Forward Facing Closed-Circuit TeleVision
GDL	German Drivers Leasing
HMTreasury	Her Majesty's Treasury
IM	Infrastructure Manager
IP	Important Point
IT	Information Technology
NPV	Net Present Value
OPEX	OPeration Expenditures
OTDR	On Train Data Recorder
PIER	Program in Interdisciplinary Education Research
2RProtect	Rail and Road Protect
RAILPOL	European Network of RAILway POLice Forces
RSSB	Rail Safety and Standards Board
RU	Railway Undertaking
SMIS	Safety Management Information System
SPSS	Statistical Package for the Social Sciences
STS	SysTemS
SWOV	Institute for Road Safety Research
TCRP	Transit Cooperative Research Programme
VAS	Visual Analogue Scale
VPC	Values of Preventing a Casualty
VT	Value of Time
CBA	Cost Benefit Analysis
CEA	Cost Effectiveness Analysis

1.1 Gatekeeper Programme – PRORAIL

1.1.1 Overview of the piloted measure

ProRail and NS (Largest Railway Undertaking in the Netherlands) have developed a one-day gatekeeper course for people working in the railway environment. This course was developed during the year 2013 after the example of the Samaritans/Network Rail course "Managing Suicidal Contacts" in the UK and adjusted to the Dutch context. The course takes 6 hours (from 9.30 to 15.30 o'clock). This kind of course-group consists of 9 to 12 participants.

The course consists of a work book with examples, exercises and information. Following a PowerPoint presentation, the trainers guide them through the facts concerning suicidal behaviour. They are guided through recognising suicidal behaviour and they exercise with approaching suspicious people and starting a conversation with them. The participants learn how to:

- make contact,
- move to a safe place,
- listen,
- refer (to crisis hotline 113 Online) and,
- conclude the contact.

Effect mechanism

The hypothesis is that after taking the course, railway personnel will feel better equipped to recognise, act on, and deal with vulnerable or suicidal people, thus, these workers are able to prevent the occurrence of this type of incidents.

1.1.2 Methodology to evaluate the piloted measures

The evaluation of the course was conducted in two ways:

1. An in-depth interview study
2. Effect analysis: statistical before-after analysis with a control group

In-depth interview study

In total, 10 interviews were held with 11 employees of NS, the largest railway undertaking for passengers in the Netherlands. Two employees took the interview together, because they also made the intervention together. Interviews were held in January and February 2014. The location of the interview was chosen by the interviewees. The study aimed to find out what problems employees encounter when confronted with a potentially suicidal person. This way the contents of the course can be optimized.

Effect analysis

After the development of the course ten groups of maximum 12 persons were set up. Employees were invited to take the course. In total 100 employees attended the course.

A questionnaire was developed with three sections:

1. feeling of competence,
2. knowledge of suicide and ways to deal with it
3. actual interventions

Each section contained several questions. To avoid that employees would remember the answer they gave to a certain question in an earlier stage (and simply give the same answer), for each question three variations were created. The software would randomly choose one out of the three variations. This way each questionnaire was different.

Each of the 100 employees received the invitation the fill out a version of the questionnaire before and three months after attending the course. In the second questionnaire the employees were asked to give the name of a colleague for the control group.

The control group was added to the effect analysis to check whether the fact that employees voluntarily attended the course would lead to different scores from randomly chosen employees.

The results of the questionnaires were collected using Qualtrics ®[1] and analysed by SPSS ®[2].

1.1.3 Reported costs for measure

The reported costs for this measure are collected in **Table 1.1-1**.

Table 1.1-1: Costs for the Gatekeeper programme in the Netherlands

Cost component	Nature	Value
Design		2 400 €
design of three concepts	440 €	
Development of chosen design	550 €	
Design of two cards to be inserted	110 €	
corrections and pre-press work	330 €	
test work book for pilot sessions and two types of cards	475 €	
cover, plastic inserts for cards	495 €	
Printing		
work book, 2 types of cards to insert, 113Online pen		325 €
Photography for work book		2 300 €
Training facilities and hiring of trainers		26 000 €
Effect analysis course		2 300 €
In-depth interviews		4 500 €
interview script and discussion with NS and ProRail	25 hours	
In-depth interviews 10 persons	15 hours	
Writing interview report	30 hours	
Management report	20 hours	
Total		37 825 €

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[1] http://www.qualtrics.com/

[2] http://www-01.ibm.com/software/analytics/spss/

1.1.4 Evaluation results

4.9.4.1. In-depth interview study

This study aimed to find out what problems employees encounter when confronted with a potentially suicidal person. The characteristics of the interviewees can see in **Table 1.1-2**.

Table 1.1-2: Characteristics of the interviewees

Job		Sex		Age		Years on job	
Train driver	1	Male	7	Below 40	6	Below 7	6
Train guard	7	Female	4	Above 40	5	Above 7	5
SSS[3]	3						

The main results regarding the contents of the course is what employees say they missed during their confrontation with a potentially suicidal person. The contents indicated were:

1. One person wants to follow a course to be better prepared for this kind of situation
2. More persons: How to start a conversation? What are your first questions? What do you say and what not?
3. Hear from other colleagues who already had an experience
4. How to handle the emotions of a potential victim? How will a person open up and allow real contact?
5. How to influence people's thoughts?

The interviewees were also asked to give tips for colleagues. The main tips provided were:

1. Take care of your own safety
2. Try to behave as a counselor
3. Stay calm
4. Keep on talking to colleagues, family and friends after an incident
5. Ask for other people's experience (that gives you the feeling that you are not alone).

All ten remarks are dealt with in the program of the course, except for "6. Take care of your own safety". Based upon these 10 interviews we conclude that the right topics are addressed in the course. Some attention on "own safety" could be added to the course.

One remark that was added by multiple interviewees was that the psychological impact of the intervention appeared later. This makes it harder for employees to ask for help (within the company or from family and friends).

4.9.4.1. Effect analysis

The number of filled out questionnaires were distributed as shown in the **Table 1.1-3**.

Table 1.1-3: Number of questionnaires filled out

Group	Number	%
Control	16	13
Before	58	46
After	51	41
Total	125	100

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[3] Service, Safety and Security employee

It can be seen that the control remained quite small, which should be taken into account while interpreting the resulting data. The respondents reported the personal details collected in **Table 1.1-4**.

Table 1.1-4: Personal data referred to participants of this study

Job		Sex		Age		Years on job	
Train driver	6 (5%)	Male	76 (61%)	Below 30	9 (7%)	Below 1	8 (6%)
Train guard	29 (23%)	Female	49 (39%)	30-40	20 (16%)	1-5	23 (18%)
SSS[4]	32 (26%)			40-50	39 (31%)	5-20	43 (34%)
Alarm centre	5 (4%)			Above 50	57 (46%)	Above 20	57 (41%)
Management	26 (21%)						
Others	27 (22%)						

Bering in mind the personal details of the respondents, a few characteristics are to be highlighted. There are a relatively high percentage of employees in the job-categories "Management" and "Others". These categories of jobs are not frontline staff and will therefore not be in stations and along the tracks very often. About half of the respondents are above 50 years old and have many years of experience on their job.

Evaluation- Part 1 of the questionnaire: Feeling of competence

Each question in this part had 7 possible answers. The answers were rated 1 (the lowest) to 7 (the highest feeling of competence). The course provided created an increase of 4.2 to 4.7 in the feeling of competence (**Table 1.1-5**). This difference was significant ($P<0.005$).

Table 1.1-5: Mean score of Feeling of competence

Group	Number	Mean score	Standard deviation	Min	Max
Control	16	4.05	0.70	2.40	5.40
Before	58	4.18	1.09	0.00	6.20
After	51	4.69	0.72	2.60	6.80
Total	125	4.37	0.95	0.00	6.80

Taking into account the age, significant differences are observed in all age groups (**Figure 1.1-1**). The results for the control group are similar to those of before the course. The group 40 to 50 starts the course with a higher feeling of competence than the other age groups. The increase in the feeling of competence is the same compared to the other age groups. The high increase in feeling of competence for those younger than 30 years is remarkable but may be caused by the low number of respondents (**Table 1.1-1**).
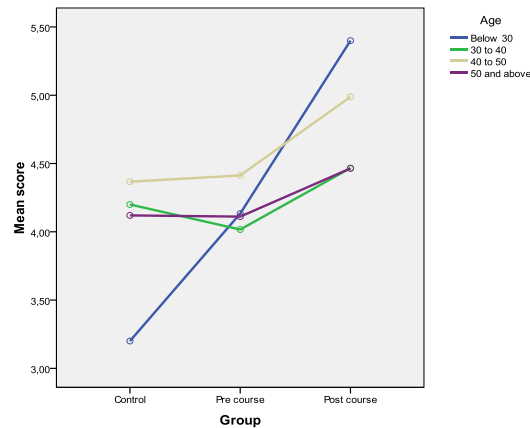
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[4] Service, Safety and Security employee

Figure 1.1-1: Scores taking into account the age

In the **Figure 1.1-2**, the same is done for years on the job. The increase in the feeling of competence is larger for the lower number of years on the job. Having more than 20 years of experience seems to indicate that the course does not add to the feeling of competence. This is confirmed by the scores in the control group: their feeling of competence is higher than the other age-groups. Less than 1 year experience gives deviant results. The small size of this group (contains only 8 respondents) might lead to this deviant result.
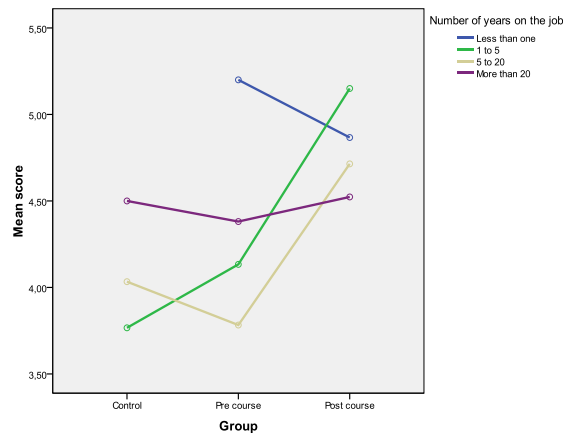
Figure 1.1-2: Scores taking into account number of years on the job

Focusing on the gender, the scores are also significantly different according to **Figure 1.1-3**. In this figure, it can be noticed that the male group scores higher in all test groups. But the increase in the feeling of competence is more or less the same for males and females.
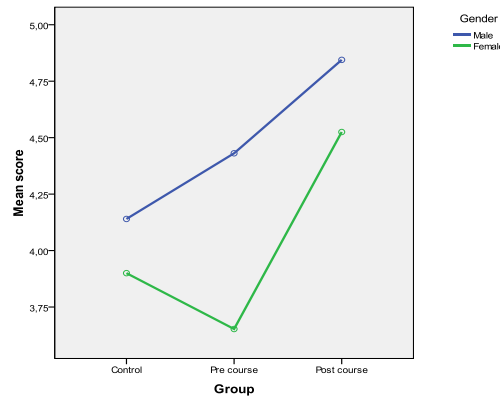
Figure 1.1-3: Scores taking into account the gender

Evaluation- Part 2 of the questionnaire: Knowledge

In this case knowledge is defined as knowing qualitative and quantitative aspects of the incidence of suicide on the railway compared to all suicides as well as knowing what behaviours are better or worse in dealing with a potentially suicidal person. Each question in this part had 4 possible answers. The answers were rated 1 (the best) to 7 (the worst). Better knowledge gives a lower score.

Table 1.1-6: Mean score of knowledge

Group	Number	Mean score	Standard deviation	Min	Max
Control	16	1.76	0.40	1.22	2.56
Before	58	1.73	0.56	1.00	3.75
After	51	1.40	0.30	1.00	2.67
Total	125	1.60	0.48	1.00	3.75

The course created a decrease of 1.7 to 1.4 in the scores, which indicates an increase in knowledge. This difference was significant (P<0.000) (**Table 1.1-6**).

Concerning "knowledge", all age groups show increased knowledge having taken the course. The respondent younger than 30 years seems to know more about the subject before they take the course, than the other age groups. On the other hand, they show a lower increase in knowledge than the other age groups. The scores of the control group are puzzling. The age groups above 50 and 30 to 40 seem to have a significantly better knowledge than their colleagues from the pre course group, while for the age groups Below 30 and 40 to 50 it is the other way around (**Figure 1.1-4**).
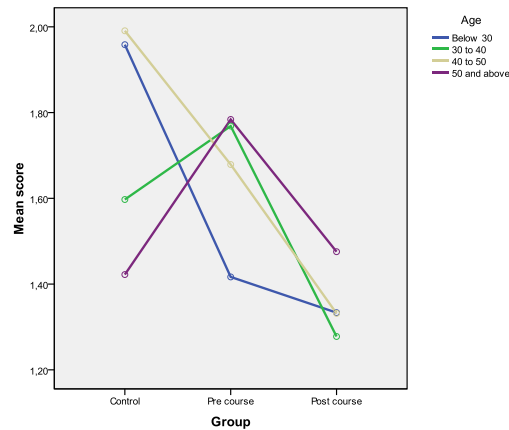
Figure 1.1-4: Scores taking into account the age

The number of "years on the job" gives a more consistent picture than the distribution of age. All age groups gain in the level of knowledge by taking the course. Many years on the job (more than 20 years) does not mean more knowledge, on the contrary: more than 20 years on the job means significantly less knowledge on the subject! But, taking the course fills the gap in knowledge (**Figure 1.1-5**).
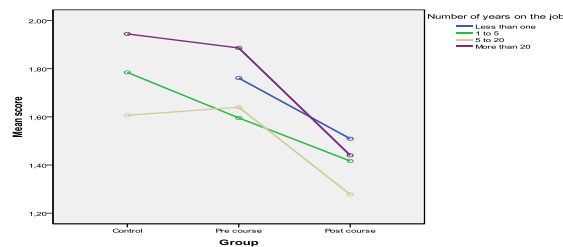

Figure 1.1-5: Scores taking into number of years on the job

Concerning the gender, we see that men and women gain comparably in knowledge by taking the course. Female respondents have a slightly but significantly better knowledge than the males. This is especially interesting because better knowledge does not mean feeling more competent (see Part 1). The female group feels in general less competent than the male group (**Figure 1.1-6**).
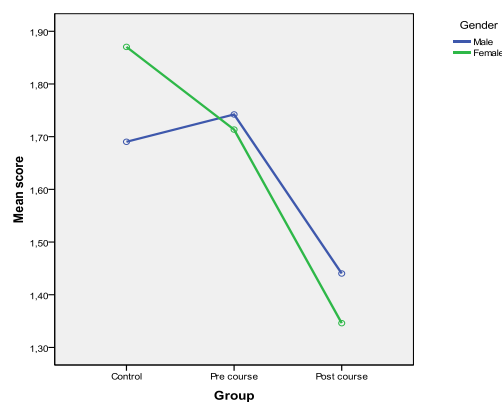

Figure 1.1-6: Scores taking into the gender

Evaluation- Part 3 of the questionnaire: actual interventions

In this part of the questionnaire, the respondents have been asked to report on real situations with potentially suicidal persons. The period between the course and the post course questionnaire was three months. This period is too short for the respondents to report on new interventions, because the vast majority of respondents see potentially suicidal persons once a year or less. This means that no significant differences are to be expected between the control, pre course and post course groups. About a 44% of the respondents reported to have talked to a potentially suicidal person. In interpreting the Table 1.1-7 we should consider that 44% of our respondents have jobs in management and other, mostly in the office. So it is to be expected that far more than 44% of our frontline staff will see potentially suicidal persons in stations and along the tracks.

Table 1.1-7: Number of reported sightings and conversations with potentially suicidal people

Question			
How often do you see a potentially suicidal person?		**Did you ever talk to a potentially suicidal person?**	
Daily	1	6-10 x	4
Monthly	13	3-5 x	17
Yearly	57	2x	16
		1x	33
Never	54	Never	55
Total	125	Total	125

In the **Table 1.1-8** the row "missing" is introduced, because a respondent, who answered "never" to the question before, was not asked the next questions. In this table we see that 11 respondents report that a person they thought might be suicidal was not. The other 59 respondents (86%) confirm that this person they talked to was in fact suicidal. In this sense we can draw the conclusion that our "gut feeling" is right in the vast majority of cases!

Only 11 off 70 respondents (16%) felt competent talking to a potentially suicidal person, while 20 "felt insecure about what to say" (29%) or worse. This stresses the need for the course.

Table 1.1-8: Number of conversations with potentially suicidal people per respondent and their feeling of competence

Question			
How often was the person you talked to indeed suicidal?		**How did you feel talking to this person?**	
6 and more	4	It was hard to do, but it felt good	34
3-5 x	9	I felt awkward	5
2 x	17	I felt competent	11
1 x	29	I felt insecure about what to say	20
0 x	11		
Missing	55	Missing	55
Total	125	Total	125

Our respondents were asked how the interventions they reported ended. 70 respondents answered the question, where they could choose more than one answer. This leads to a total of 90 answers (**Table 1.1-9**).

Table 1.1-9: Reported endings of conversations with suicidal people

How did the conversation end?	
The person subsided and went home	6
The person was handed over to emergency services	50
The person was handed over to family	15
The person left, I don't know what happened afterwards	10
The person committed suicide	5
I brought the person into contact with 113-online	0
Other	4
Total	90

The last group of questions concerned how the respondents felt after an intervention with a potentially suicidal person in relation to their social environment. The respondents were asked to score which of the suggested sentences apply to their situation. They could score 1 (does not apply at all) till 7 (applies completely). The scores from the groups showed no significant differences. This was already expected from the short period between the course and the Post course questionnaire compared to the number of years on the job. All mean scores are below 3, so the sentences do not really apply to the feeling of the respondents. The way the sentences are constructed (multiple feelings in one sentence) might be the reason for this. Still some doubt remains on the effectiveness of the after care for employees (**Table 1.1-10**).

Table 1.1-10: Feeling after an intervention in relation to the social environment of the respondents

Sentence	Mean score
I did it, but had problems sleeping afterwards	1.6
It touched me, but talking to colleagues helped	2.5
Family and friends listened to my experiences	2.6
I was touched and felt lonely with that afterwards	1.3
The after care in the company was good	2.0
It was hard, but I experienced satisfaction afterwards	2.7
I was glad with the result	2.6

Conclusions

1. The result from the in-depth interview study and the effect analysis show that the developed course contains topics that employees report as needing.
2. Due to the course the feeling of competence to handle a conversation with a potentially suicidal person increase significantly for men and women, for all ages and for all years on the job (except more than 20 years on the job)

3. Due to the course the knowledge about suicide on the railway and about preferred behaviour in contact with potentially suicidal people increase significantly for men and women, all age groups and all years on the job.
4. After care is important for employees having experienced contact with potentially suicidal persons.

1.1.5 Applicability of results to different circumstances

The contents of the course strongly depend on the local culture. In The Netherlands suicide is largely considered as understandable. So the topic itself is discussable. The whole idea of the course is based on openness. So in countries where (thinking about) suicide is not accepted, this kind of course will probably not work. In countries where the chance of noticing a possibly suicidal person is very low, the investment (1 day training) might be too high for the result obtained. One could on the other hand select employees working in regions where the most suicides take place on the basis of a regional analysis of the locations of suicides. In this way the number of employees taking the course can be optimized.

1.1.6 Discussion

The fact that younger employees learn more than older employees could lead to the conclusion that the course could be given to younger employees only. This conclusion is not right, because each course group should contain younger and older employees for the younger employees to learn from older colleagues. For older colleagues the course can be a way to talk about what they experienced, thus helping the process of digestion.

The knowledge about suicide on the railways and about preferred ways of intervention increases by taking the course. Also the feeling of competence to deal with that kind of situations increases. This result has actually TWO (possible) advantages:

1. When many employees take the course more quick alerts to train traffic control can be expected, more good interventions take place and more suicidal persons are referred to professional care, we might see a decrease in the amount of suicides on the railway
2. The course helps employees to cope with difficult situations and employees are therefore they are less likely to develop frustration after an incident. That might decrease the amount of sick leave.

It is advised to repeat the in-depth-interview study with employees who took the course and afterwards had a confrontation with a suicidal person. This makes it possible to see what the effect of taking the course is in real life situations.

In this study one after measurement was conducted three months after the course. It is advisable to repeat the after-measurement at a later point in time.

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