Potential Countermeasures to Mitigate Suicides on the Railroad Rights-of-Way

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Advancing transportation innovation for the public good
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Overview

- Potential order of events preceding a suicide on right-of-way

- Can intervene at many points

- Discussion of countermeasures that have been proposed
  - Not all are recommended
  - May depend on specific carrier needs or environmental factors
  - Forthcoming paper discusses feasibility in greater detail
Potential Points of Intervention

I. Reduction or Prevention of Suicidal Ideation in the Railroad Environment

II. Reduction of Perceived Viability of the Railroad Right-of-Way as a Means for Suicide

III. Prevention of Access to the Right-of-Way

IV. Increased Ability to Avoid a Train-Person Collision

V. Reduction in Lethality of Train-Person Collision

Diagram:

1. Considering Suicide (Suicidal Ideation)
   - If Yes: Railroad Right-of-Way Seen as Viable Means for Suicide
   - If No: No suicidal ideation - no immediate threat for suicide by any means

2. Railroad Right-of-Way Seen as Viable Means for Suicide
   - If Yes: Decision to attempt suicidal act on railroad right-of-way
   - If No: Right-of-way not viable means for suicide – no immediate threat for suicide on railway

3. Decision to attempt suicidal act on railroad right-of-way
   - If Yes: Trespass on right-of-way with self-harm intent
     - If No: Access to the tracks prevented or trespassing deterred
   - If Yes: Collision between trespasser and train
     - If No: Collision between train and trespasser avoided
   - If Yes: Outcome of collision is fatal
     - If No: Collision between train and trespasser is non-fatal

4. Completed suicide on right-of-way
Points of Intervention - Countermeasures

- Blue Lights
- Gatekeeper Training
- Public Awareness Campaigns (Suicide Focused)
- Signage (Crisis Center)
- Training of Mental Health Providers

- Media Guidelines/Media Training
- Public Awareness Campaigns (Rail Focused)

- Means Restriction/Fencing
- Platform Edge Doors (PEDs)

- Anti-Suicide Pits
- Long Range Acoustic Device (LRAD)
- Speed Restrictions
- Track Surveillance

- Train Modification
I. Reduction or Prevention of Suicidal Ideation in the Railroad Environment

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- Gatekeeper Training
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- Training of Mental Health Providers
I. Reduction or Prevention of Suicidal Ideation in the Railroad Environment

- Blue Lights
  - Implemented in Japan and now piloted in UK
- Gatekeeper Training
- Public Awareness Campaigns (Suicide Focused)
- Signage (Crisis Center)
- Training of Mental Health Providers

Mechanism by which this would reduce suicide is not well understood.

Little evidence of effectiveness – more testing needed.
I. Reduction or Prevention of Suicidal Ideation in the Railroad Environment

- Blue Lights
- Gatekeeper Training
- Public Awareness Campaigns (Suicide)
- Signage (Crisis Center)
- Training of Mental Health Providers

- Implemented in UK and various other locations including Australia.
- Most easily implemented in stations.
I. Reduction or Prevention of Suicidal Ideation in the Railroad Environment

- Blue Lights
- Gatekeeper Training
- Public Awareness Campaigns (Suicide Focused)
- Signage (Crisis Center)
- Training of Mental Health Providers

Implemented in locations around the world, but little known of impact when implemented in rail stations or along right-of-way.

Most easily implemented in stations.
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Unclear how exactly the railroad can assist.

Not yet demonstrated that incidents in the US occur close to MHP facilities.
II. Reduction of Perceived Viability of the Right-of-Way as a Means for Suicide

- Media Guidelines/Media Training
- Public Awareness Campaigns (Railroad Focused)
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- Media Guidelines/Media Training
- Public Awareness Campaigns (Railroad Focused)

Guidelines exist in many countries, including the US, but are often not followed.

How best to design guidelines for railroad fatalities is still being explored.
II. Reduction of Perceived Viability of the Right-of-Way as a Means for Suicide

- Media Guidelines/Media Training

- Public Awareness Campaigns (Railroad Focused)

Such campaigns are used widely around the world and in the US. True impact is not well understood.

Potential for unintended increase in suicide if not phrased carefully (e.g., inadvertent advertising of a means of suicide)
III. Prevention of Access to the Right-of-Way

- Means Restriction/Fencing
- Platform Edge Doors (PEDs)
III. Prevention of Access to the Right-of-Way

- Means Restriction/Fencing

- Platform Edge Doors (PEDs)

  Used throughout the railroad community around the world.

  Exact impact is not well documented.

  Both maintenance and installation costs should be considered.
III. Prevention of Access to the Right-of-Way

- **Means Restriction/Fencing**

- **Platform Edge Doors (PEDs)**

  Used in some stations around the world, e.g., Hong Kong.

  Very expensive and heavy.

  Implausible outside of station environments.
IV. Increased Ability of Avoid a Train-Person Collision

- Anti-Suicide Pits
- Long Range Acoustic Device (LRAD)
- Speed Restrictions
- Track Surveillance
IV. Increased Ability of Avoid a Train-Person Collision

- Anti-Suicide Pits
  - Only implemented in a few stations, such as some in the UK.

- Long Range Acoustic Device (LRAD)
  - Expensive to retro-fit stations.
  - Implausible outside of station environments.

- Speed Restrictions
- Track Surveillance
  - Only implemented in a few stations, such as some in the UK.
  - Expensive to retro-fit stations.
  - Implausible outside of station environments.
  - Little evidence of effectiveness.
IV. Increased Ability of Avoid a Train-Person Collision

- Anti-Suicide Pits

- Long Range Acoustic Device (LRAD)
  
  Not yet tested in the rail environment.

- Speed Restrictions
  
  No evidence of effectiveness.

- Track Surveillance
  
  Potential human rights concerns if too loud.
  
  May be disorienting and cause unintended effects.
IV. Increased Ability of Avoid a Train-Person Collision

- **Anti-Suicide Pits**
  - Often used by railroads in times/areas of concern.

- **Long Range Acoustic Device (LRAD)**
  - Time delays.
  - Braking distance is dependent on many factors, not just speed.

- **Speed Restrictions**
  - Slow trains may still be deadly.

- **Track Surveillance**
  - Identifying areas of concern may be challenging.
Increased Ability of Avoid a Train-Person Collision

- **Anti-Suicide Pits**: Currently being tested.

- **Long Range Acoustic Device (LRAD)**: Monitoring may be technological, human, or a combination thereof. Cannot work without clear plan of action or enforcement.

- **Speed Restrictions**: 

- **Track Surveillance**: 
V. Reduction in Lethality of a Train-Person Collision

- Train Modification

1. Considering Suicide (Suicidal Ideation)
   - N: No suicidal ideation - no immediate threat for suicide by any means
   - Y: Railroad Right-of-Way Seen as Viable Means for Suicide

2. Railroad Right-of-Way Seen as Viable Means for Suicide
   - Y: Decision to attempt suicidal act on railroad right-of-way
   - N: Right-of-way not viable means for suicide – no immediate threat for suicide on railway

3. Decision to attempt suicidal act on railroad right-of-way
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4. Collision between trespasser and train
   - Y: Outcome of collision is fatal
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5. Completed suicide on right-of-way
V. Reduction in Lethality of a Train-Person Collision

- Train Modification

Never tested in the rail environment.

No evidence of effectiveness.

Physics of a train-person collision indicate fatalities may not be reduced.
Conclusions

- Many countermeasures have been proposed – few evaluated
- Evaluations are challenging given small sample sizes
- Implementing multiple kinds of countermeasures may be most effective
- Coordination with communities and other resources is vital