

# **Suicide Clustering and Contagion: Early Identification and Responding**

**Ella Arensman, PhD, MSc**  
**Director of Research, National Suicide Research Foundation**  
**Adjunct Professor, Dept. of Epidemiology and Public Health,**  
**University College Cork**

**17<sup>th</sup> January 2013**

# Overview

- Background
- Types of suicide clusters
- Suicide Support and Information System (SSIS)
- Suicide cluster identified by the SSIS
- Responding to emerging clusters
- Recommendations

# "Suicide clusters: the undiscovered country"

(Niall Boyce, Lancet, 378:1452, 2011)

# Suicide 'epidemic' in Army: July was worst month, Pentagon says

Even as the Afghanistan war winds down, suicides among troops are on the rise. Among all branches, the number is up 22 percent from a year ago, and July was the Army's worst month..... By Anna Mulrine, Staff writer / August 17, 2012

## Town being torn apart by suicide 'epidemic'

By David Lewis Posted Fri Feb 17, 2012

The remote Indigenous community of Doomadgee in north-west Queensland is in crisis after a spate of suicides.

## A Spate of Teenage Suicides Alarms Russians

MOSCOW, February 16, 2012 (RIA Novosti)

The recent spate of suicides by teens and young children continued in Russia on Thursday as four more youngsters took their lives.....

## Bridgend suicides: a town tainted by death

Bridgend was a town that the rest of the world had largely ignored - until a spate of suicides among teenagers and young adults suddenly gave it worldwide notoriety when these deaths came to light last month.

## Spate of Farmers' Suicide in Bengal: Disaster Looming Large

It has been eight months since the Trinamool Congress-led government has assumed office in West Bengal. And, in the last three and a half months alone over 22 farmers in the state have committed suicide due to debt-related problems.....

# Background

- Lack of consistency in terminology and definitions
- Limited research into the epidemiology of suicide clustering and contagion
- Limited research into specific suicide related and contextual factors that reinforce the social learning process (incl. new media) underlying suicide clustering and contagion
- Lack of evidence based/best practice response plans that can be activated when emerging suicide clusters are identified (often ad-hoc solutions without sustainability)

# Types of suicide clusters

## *Point Clusters*

### ***Point (time-space) clusters***

- A temporary increase in the frequency of suicides in time and space within a small community or institution, relative to both the baseline suicide rate before and after the point cluster and the suicide rate in neighbouring areas (*Mesoudi, 2009; Gould et al, 1990*)
- Contagion and clustering of suicide 2 to 4 times more common in younger age groups. However, Larkin & Beautrais (2012) also identified suicide clusters across older age groups
- Number of suicides involved in clusters – Range: 3 – 14 suicide cases / Mean: 7
- Time span of clusters – Range: 2 weeks - 24 months / Mean: 6.3 months

# Point Clusters ctd.

- Common settings: small rural communities, aboriginal communities, schools, prisons, hospital inpatient units, armed services.
- Point clusters are frequently explained in terms of contagion, with suicidal behaviour spreading through a local network via social learning (with or without media impact)
- Specific characteristics of individuals involved in suicide clusters based on comparison between cluster suicides and non-cluster singleton suicides:
  - Age difference: Cluster suicides significantly younger (Median age: 29) than singleton suicides (Median age: 37)
  - Cluster suicides more often involved in suicide pacts than singleton suicides (9.3% vs. 0.9%,  $p < .05$ ).



# Types of suicide clusters

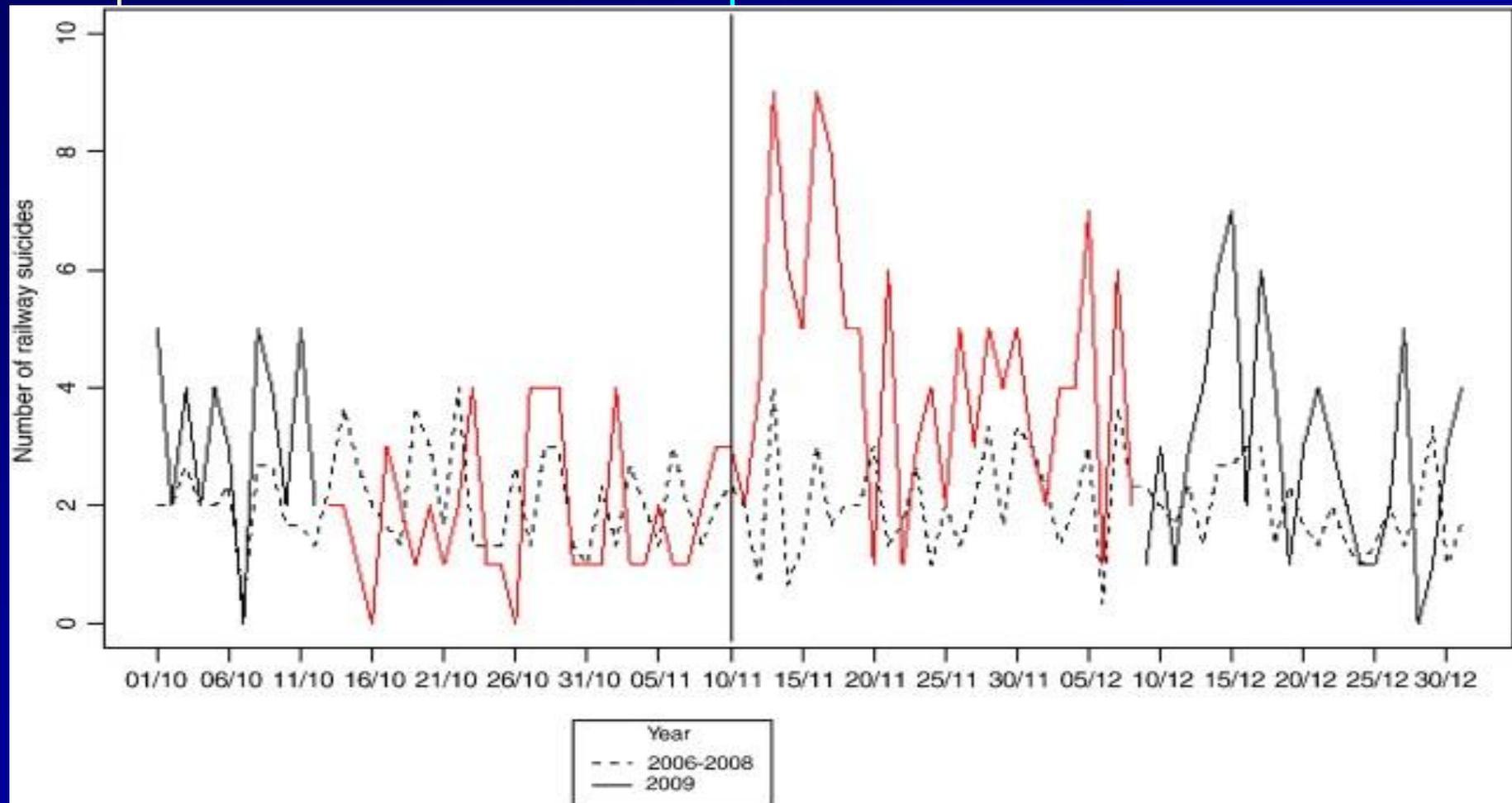
## *Mass clusters*

### ***Mass clusters***

- A temporary increase in the total frequency of suicides within an entire population relative to the period immediately before and after the cluster, with no spatial clustering (*Mesoudi, 2009*)
- Most studies show an increase in national suicide rates immediately after the suicides of entertainment/sports celebrities.
- Stronger impact associated with a celebrity who has afforded some degree of prestige in society.
- People are more likely to imitate the suicides of celebrities who match them in gender and nationality.

# *Example of a mass cluster: The railway suicide death of a famous German footballer and its impact on the subsequent frequency of railway suicides in Germany*

Suicide by Robert Enke



# Impact of media reporting on suicide contagion and clustering

**SPIEGEL ONLINE**

“Selbstmord von Robert Enke am Bahnübergang”

“Nationaltorwart Enke beging Selbstmord”



Online Focus-German website



**MailOnline**

German goalkeeper kills self by stepping in front of train, police say

November 12, 2009 1:53 pm EST

Germany stunned as national goalkeeper Robert Enke commits suicide

By SPORTSMAIL REPORTER

Last updated at 12:15 PM on 11th November 2009

[Comments \(20\)](#) [Add to My Stories](#) [Share](#)

[Like](#)

# Types of suicide clusters

## *Echo Clusters*

### ***Echo clusters***

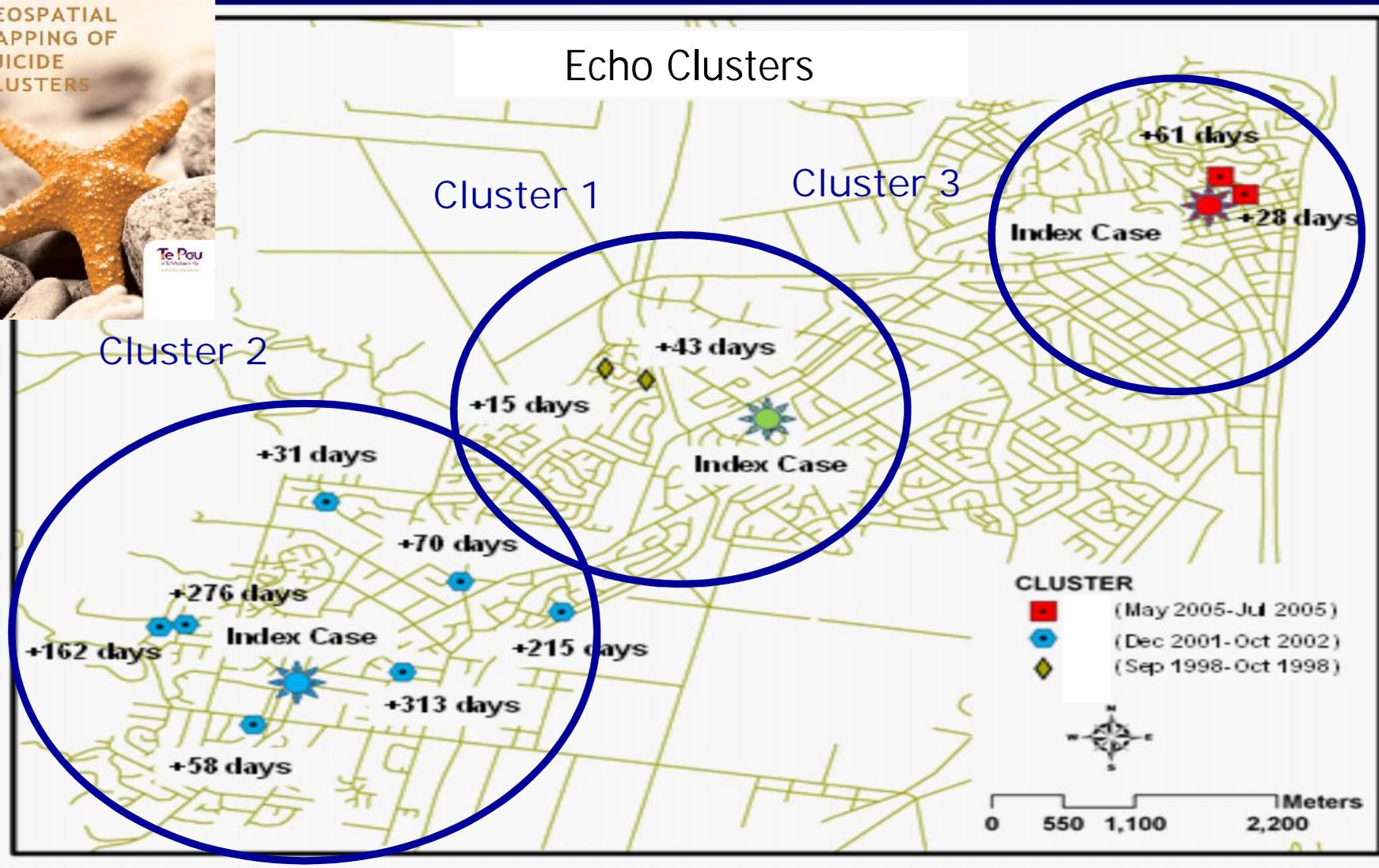
- The occurrence of subsequent, but temporally distinct clusters of suicide, which take place in the same location after an initial suicide cluster (*Hansens, 2008*)
- Research into echo clusters conducted in New Zealand (*Larkin & Beautrais, 2012*) and Northern Territory, Australia (*Hansens, 2010*).
  - New Zealand 1990-2007: 9 sites identified in which echo clusters occurred (*Larkin & Beautrais, 2012*)
  - Time between clusters: Mean number of years: 7.6, range: 1.2 – 16.9 years; Number of suicide cases involved: range: 3 – 8 (*Larkin & Beautrais, 2012*)

# Example of Echo Clusters: Three suicide clusters, each occurring within a distinct time period in a small area in New Zealand

GEOSPATIAL  
MAPPING OF  
SUICIDE  
CLUSTERS



## Echo Clusters



# Contagion versus clustering

## *Contagion:*

- Contagion is the process by which the suicidal behavior or a suicide influences an increase in the suicidal behaviors of others (*US Dept. of Health & Human Services, 2008*)
- A single adolescent suicide increases the risk of additional suicides within a community and may serve as a catalyst for the development of a cluster (*Johansson et al, 2006; Gould et al, 1990;.)*
- Suicide clusters can be considered as the end result of a contagious process in which vulnerable individuals connect to influence one another (*Johansson et al, 2006; Berman & Jobes, 1994; Gould et al, 1990*)

# Need to develop mechanisms to identify emerging suicide clusters at an early stage

- Indications of increase in contagion and clustering of suicide, in particular through modern technology and new media, e.g. social networking sites (glorifying of suicide deaths)
- Information on suicide mortality is published by the Central Statistics Office (CSO) 2 -3 years after the death has occurred
- Information from the CSO is often limited to demographics and methods involved in cause of death

# Suicide Support and Information System (SSIS) - Sept. 2008 onwards

## *Objectives:*

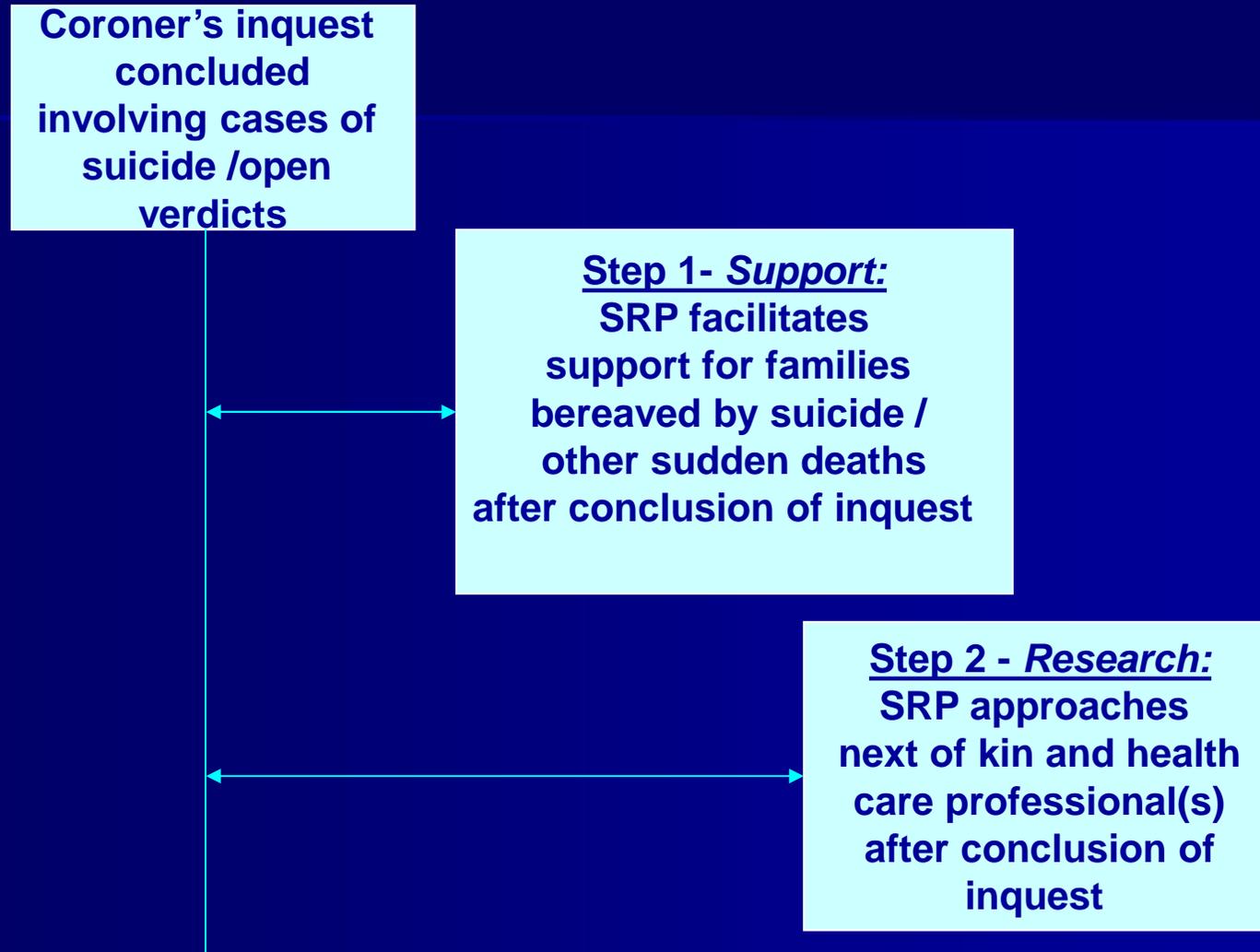
- 1) Improve access to support for the bereaved
- 2) Identify and improve the response to clusters of suicide
- 3) Better define the incidence and pattern of suicide in Ireland
- 4) Identify and better understand causes of suicide
- 5) Reliably identify those individuals who present to the Emergency Department due to deliberate self-harm and who subsequently die by suicide



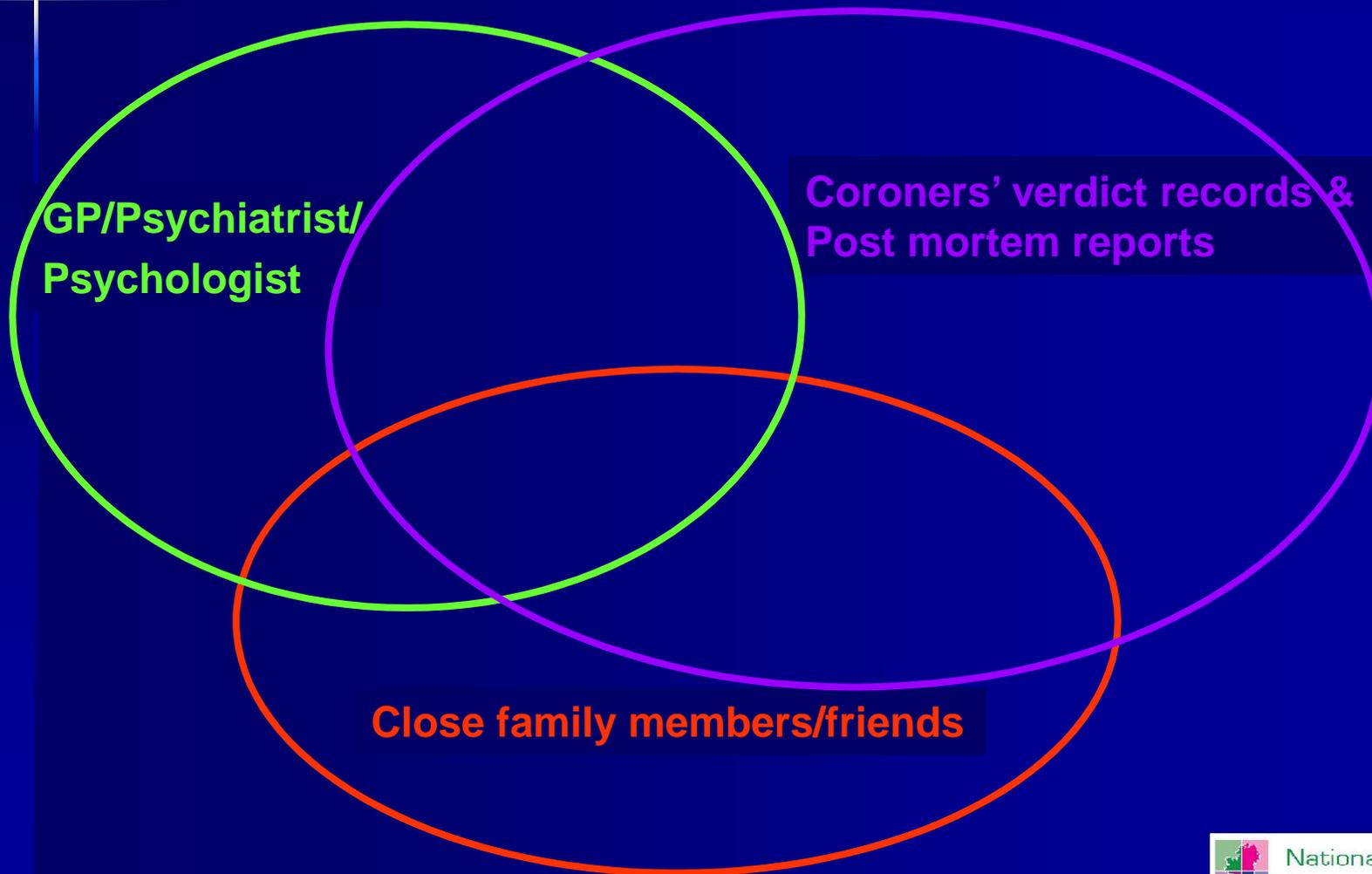
Arensman et al,  
2012

*The objectives are in line with Reach Out, the Irish National Strategy for Action on Suicide Prevention, 2005-2014*

# Suicide Support and Information System (SSIS): Methodology - A stepped approach



# Innovative aspects of the SSIS method: Obtaining a more complete picture of suicide cases and open verdicts by accessing all relevant sources of information



# SSIS Methodology

## Information obtained on wide range of data items

- Completion of checklist coroner service for each case of suicide and open verdict – *Data items:* Socio-demographic, outcomes post-mortem incl. toxicology, mental and physical health, major life events and precipitating factors.
- Semi-structured interview with family informant or friend – *Data items:* Situation around time of death, family and personal history, mental and physical health, treatment history, social network.
- Semi-structured questionnaire to be obtained from health care professional who had been in contact with the deceased prior to death – *Data items:* Cause of death, mental and physical health, treatment history, use of medication, final contact with services prior to death.

# Response rates SSIS pilot-study

## Sept 2008 – May 2012

- Total number of consecutive cases on file: N=268
- 4.8% of the family members indicated that they did not wish to be approached further after having received the first letter
- Completion of checklist Coroner Service: 100%
- Interviews with family informants – Response rate: 66%
- Completion of questionnaire by health care professionals: 78%

# Space-Time Characteristics of a Suicide Cluster

## mapping the cluster using Health Atlas Ireland

- The Suicide Support and Information System identified 22 cases of suicide by young men in a small area in Cork between 19th Sept 2008 – 13th October 2011
- The age of the young men involved in the suicide cluster ranged from 14 to 36 years (mean age: 23 years)
- Number of days/weeks between suicide episodes: Range: 0 days – 27 weeks, average: 7.6 weeks
- In all cases the method used was hanging

# How was the cluster conveyed?

- None of the 22 cluster cases were reported in the media
- Based on evidence from coroner checklists and family informant interviews, 13 of the 22 cluster cases (59%) were personally acquainted with at least 1 other case in the cluster

## Matched comparison between suicide cluster cases and suicide cases not involved in a cluster

- 22 Suicide cluster cases were matched with singleton cases (individual non-cluster cases) based on gender, age and suicide method
- Comparison based primarily on data obtained from completed Coroner's checklists and family informant interviews (to ensure consistency of information from different sources)
- Common themes were obtained from the transcribed family informant interviews

## Differences between suicide cluster cases and singleton suicides (N=22 in each group)

	Suicide Cluster Cases n (%)	Singleton Suicides n (%)	Sig.
<b><i>Substances taken at time of death:</i></b>			
-Street drugs / prescription drugs	17 (77.2)	4 (18.1)	p <.001
-Alcohol	16 (72.2)	10 (47.3)	p <.01
-Communication of suicidal intent	5 (22.7)	11 (50.0)	p <.01
-Experience of suicide by close friend	11 (50.0)	4 (18.1)	p <.01
- Frequent alcohol/drug abuse since early adolescence	12 (54.5)	5 (22.7)	p <.01



## Similarities between suicide cluster cases and singleton suicides (n=22 in each group)

	Suicide Cluster Cases n (%)	Singleton Suicides n (%)	Sig.
-Experience of suicide by family member	11 (53.0)	9 (40.0)	p <.41
-Left suicide note / e-mail/text message	9 (40.9)	10 (45.4)	p <.66
-Unemployed	9 (40.9)	11 (50.0)	p <.43
-Mental health problems in family	10 (45.4)	7 (31.8)	p <.31
-Sexual abuse experiences	6 (27.2)	4 (18.1)	p <.59
-Contact with the police in 4 months prior to death	7 (31.8)	5 (22,7)	p <.39
-Symptoms of depression in the 3 months prior to death	M=4.76 (SD 4.59)	M=4.98 (SD 3.77)	p <.93

# Common themes related to the suicide cluster cases based on qualitative information obtained from family informant interviews

- Drug and alcohol abuse
- Undiagnosed, untreated mental health problems
- Difficulties at school, early drop-out, unemployment
- Lack of parental involvement, over-attachment to peers
- Violence and homicide
- Recurring suicides and effects of long term bereavement
- Lack of coherent services and lack of specialised counsellors
- Glorification of a young person who has died by suicide

# Responding to (emerging) suicide clusters

- There is a gap in formal evidence-based guidelines detailing appropriate postvention response strategies to suicide clusters  
*Cox et al, 2012)*
- The low-frequency nature of suicide clusters makes it difficult to systematically evaluate response strategies *(Cox et al, 2012; Gould et al, 1990)*
- Countries which have developed postvention response strategies addressing suicide clusters: US, UK, Australia, New Zealand, Ireland (evaluations are not yet available)

# Core elements of a response plan to be implemented in situations of emerging suicide clusters

- Clarity on leadership/co-ordination of response team (e.g. chaired by local manager in the health services)
- Response team and core response plan should be available as part of a routine procedure, which can be activated when required (priority when dealing with Echo Clusters)
- Multidisciplinary response team - Should comprise qualified representatives of all relevant agencies, e.g. suicide prevention agencies, mental health services, primary care, suicide bereavement support services, social work, mental health promotion, clergy, police, media, (representation of school management, youth services etc. when appropriate).

## Core elements of response plan ctd.

- Composition of the response team should match the needs of the individuals and agencies affected by the suicide cluster
- Interagency protocols (if not yet available) should be put in place in order to address referral procedures, confidentiality and information sharing
- Involvement of specialised staff in suicide prevention and mental health professionals trained in dealing with severe traumatic incidents, post traumatic stress and complicated grief

## Core elements of response plan ctd.

- Professional (s) with specialist expertise in suicide prevention:
  - Providing advice to response team on best practice in responding to an emerging suicide cluster and suicide prevention
  - Acting as a support for statutory and community groups when responding to a cluster
  - Delivery of relevant education and skills based training programmes when required
  - Works with health service communications department to indicate the potential media impact evidence and best practice, and ensure implementation of the media guidelines.

## Core elements of response plan ctd.

- In areas with large and ongoing suicide clustering effects, high levels of socio-economic deprivation and fragmentation, the implementation of suicide prevention programmes should be combined with interventions that address these social problems as part of a multi-agency approach
- Response plan needs to address different phases:
  - Immediate aftermath: 0-24 hours
  - Reactive period: up to 1 week
  - Outreach period: weeks up to years (incl. anniversaries)

# Recommendations

- Achieve consensus about definition/operational criteria of clusters and contagion in suicidal behaviour and GIS/statistical approaches
- Future research should address specific suicide related and contextual factors that reinforce the social learning process (incl. new media) underlying suicide clustering and contagion
- Research into suicide clustering and contagion should also take into account non-fatal suicidal behaviour
- Prioritise implementation and evaluation of best practice response plans that can be activated when emerging suicide clusters are identified (too often ad-hoc solutions)

# Acknowledgements

*Dr Carmel McAuliffe: Co-ordination and data collection*

*Mr Eoin O'Shea: Data collection*

*Dr Paul Corcoran, Ms Eileen Williamson, Prof. Ivan Perry Project management*

*Coroners: Mr Frank O'Connell, Dr Michael Kennedy &  
Dr Myra Cullinane*

*External Advisor: Professor Nav Kapur, National Confidential Inquiry into Suicide  
and Homicide, University of Manchester*

*Sara Kelly, Jacklyn McCarthy: Assistance with data collection, data entry and  
transcribing interviews*

*Ms Sarah Meaney, Ms Irene O'Farrell: Assistance Health Atlas Ireland*

*Ms Annemarie Crean: Assistance in transcribing interviews*

*Ms Caroline Daly: Assistance with graphics and design*

*The first phase of the SSIS was funded by the National Office  
for Suicide Prevention*

# Contact details

Ella Arensman, PhD, MSc  
Director of Research, National Suicide Research Foundation  
Adjunct Professor, Department of Epidemiology and Public  
Health,  
University College Cork  
Ireland  
E-mail: [earensman@ucc.ie](mailto:earensman@ucc.ie)  
[www.nsrp.ie](http://www.nsrp.ie)

FIRST REPORT OF THE SUICIDE  
SUPPORT AND INTERMEDIARY SYSTEM

Dr Ella Arensman  
PhD, MSc  
1000 University College Cork  
Cork, Ireland  
Phone: +353 21 490 1111