



# **Review of suicide clusters and evidence-based prevention strategies for school-aged children**

**A report under section 34H  
*Community Services (Complaints, Reviews and Monitoring) Act 1993.***

**25 June 2019**

Prepared for the NSW Child Death Review Team by the Australian Institute for Suicide Research and Prevention, Griffith University (2018)

## Acknowledgements

This report was prepared by Kairi Kõlves and Yu Wen Koo from the Australian Institute for Suicide Research and Prevention in Brisbane, on behalf of the New South Wales Child Death Review Team.

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**Australian Institute for  
Suicide Research and Prevention**



25 June 2019

The Hon John Ajaka MLC  
President  
Legislative Council  
Parliament House  
SYDNEY NSW 2000

The Hon Jonathan O’Dea MP  
Speaker  
Legislative Assembly  
Parliament House  
SYDNEY NSW 2000

Dear Mr President and Mr Speaker,

As Convener of the NSW Child Death Review Team (CDRT), I am pleased to present a report for tabling in Parliament pursuant to section 34H of the *Community Services (Complaints, Reviews and Monitoring Act 1993* (the Act).

*Review of suicide clusters and evidence-based prevention strategies for school-aged children* is the result of research commissioned by the CDRT under s 34 (1)(d) of the Act. The report was prepared by the Australian Institute for Suicide Research and Prevention.

I draw your attention to the provisions of section 34I of the Act in relation to the tabling of this report and request that you make the report public forthwith.

Yours sincerely



Michael Barnes  
**Convener, NSW Child Death Review Team**  
**NSW Ombudsman**

# Foreword

Tragically, suicide is one of the leading causes of premature death among young people. In NSW, suicide by children and young people aged 10-17 years, accounts for over one-third of injury-related deaths. For older teenagers aged 15-17 years, the rate is higher – suicide accounts for one-quarter of all deaths, and nearly half of injury-related deaths.

There is a complex inter-relationship of risk and protective factors associated with the suicide of young people. Among many factors, young people are at higher risk of being involved in a suicide cluster – meaning a group of suicides that occur closer together in time and space than would normally be expected, or predicted.

Suicide clusters are relatively rare, but they attract considerable public attention. The apparently linked losses of young lives devastate both families and their communities.

The CDRT reviewed the individual circumstances of a number of linked suicide deaths in regional NSW in 2015 and 2016. We determined that there was a need to understand more about risk factors that might relate specifically to cluster suicides, such as the role of social media, and what more might be done in prevention, and response.

The CDRT commissioned the Australian Institute for Suicide Research and Prevention to review existing research, and to examine existing strategies in NSW that aim to prevent youth suicide, and that are in place to reduce risk and promote healing after a suicide death.

This report sets out what is known about suicide clusters among school-aged children, and examines current policy frameworks. The report finds that the prevention and postvention strategies in place in NSW for schoolchildren are in line with what is considered current best practice, and that NSW seems to be taking the right steps in this area. In terms of preventing suicide clusters, however, more research is needed.

I would like to acknowledge and thank the authors – Kairi Kolves and Yu Wen Koo – for their work on this project.



Michael Barnes

**Convenor, NSW Child Death Review Team  
NSW Ombudsman**

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# Executive summary

A suicide cluster refers to a 'group of suicides or suicide attempts, or both, that occur closer together in time and space than would normally be expected on the basis of statistical prediction or community expectation' (O'Carroll et al, 1988). Although suicide clusters are relatively rare, they receive a lot of attention.

This report focuses on suicide clusters in school-aged children. Based on a literature and policy review, the report aims to:

- describe the phenomenon of suicide clusters in school-aged children
- examine risk factors relating to cluster suicides
- describe evidence-based prevention and postvention<sup>1</sup> strategies, and review existing youth suicide prevention strategies in NSW.

The first part of the report (sections 2 and 3) involves an overview of suicide clusters – including a systematic literature review of suicide clusters in school-aged children, with a description of the studies.

The second part (section 4) includes a summary of available evidence. This includes an overview of literature about the impact of internet and social media on suicidal behaviour, postvention strategies to reduce suicide, and current NSW prevention programs and resources.

The final part (section 5) concludes that there are comprehensive activities and guidelines available in NSW. However, it is imperative that these guidelines are implemented within a framework that allows their effectiveness and feasibility to be evaluated.

The literature review identified that:

- Adolescents and young people are at higher risk of suicide clusters than adults.
- Suicide clusters in school-aged children and young people have a number of shared characteristics. These include direct or indirect links to other cluster members, communication about other cases by word of mouth and social media, mental health and substance – including alcohol – use problems, relationship problems, frequent use of the internet, and living in a very deprived area.
- The underlying mechanisms of suicide clusters are still debated – with the concepts of contagion, modelling, and imitation or assortative relating noted as potential reasons behind suicide clusters.

Although limited research has addressed the topic of preventing suicide clusters and specific postvention activities, a set of postvention guidelines has been developed by Cox et al (2016) for schools to use after the suicide of a student. These guidelines outline 20 separate actions – such as

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<sup>1</sup> Postvention refers to activities which reduce risk and promote healing of bereaved individuals (family, friends, professionals and peers) after a suicide death <https://www.sprc.org/news/postvention-prevention>.

developing an emergency response plan, liaising with the deceased student's family, informing other students and their parents of the suicide, identifying and supporting high-risk students, dealing with the media, and doing a critical incident review.

A review of postvention activities in NSW showed that comprehensive activities and guidelines for postvention and prevention have been developed for school-aged children by the NSW Government in collaboration with research and community organisations. A good example is the 'Responding to Student Suicide – Support Guidelines for schools' developed in collaboration with the NSW Ministry of Health, NSW Department of Education and headspace (NSW Government, 2015). These guidelines supplement existing initiatives that support the mental health and wellbeing of school students in NSW by enabling a comprehensive and timely response and facilitating holistic support for the entire school when a student dies by suicide.

The review highlights the benefits of ongoing collaboration among relevant organisations and researchers, and notes that current postvention activities and guidelines for school-aged children in NSW are following current best practice in the field. The review also notes, however, that more research is needed to better understand the underlying factors of cluster formation and effective ways to prevent them occurring in the future.

# 1. Introduction

Although children's ability to engage in suicidal behaviour has been questioned due to an undeveloped cognitive understanding of death, the limited existing research has shown that the majority of children by the age of 8 years have developed a concept of death and suicide (Mishara, 1999). However, despite evidence indicating that children do understand death and suicide, some countries still do not report statistics on suicides by children under 15 years of age. The Australian Bureau of Statistics (ABS) started to report separate suicide numbers in age groups younger than 15 years from 2013, after a recommendation by the Senate inquiry into suicide in 2010 (Commonwealth of Australia, 2010). Although suicide in young children is a relatively rare event, it is a leading cause of death in children and young people under the age of 20 years worldwide (Hawton et al, 2012; Kolves & De Leo, 2014; 2016). Between 2012 and 2016, 435 school-aged children (5-17 years) died by suicide in Australia – with a suicide rate of 2.7 per 100,000 for boys and 2.0 for girls (ABS, 2017). Aboriginal and Torres Strait Islander children were at a five times higher risk of dying by suicide compared to non-Indigenous children (9.8 vs 1.9 per 100,000).

A complicating factor in understanding the determinants of child suicide is the accuracy of suicide statistics. Inferring self-infliction and intent to die can be difficult, particularly with children. The current level of reported suicides among children is an issue of serious concern to the Australian community. It has been proposed that suicides in children and young people are more likely to be underestimated compared to adults (Hawton et al, 2012; Posey & Neuilly, 2017). This may be due to a range of factors – including social stigma and shame around suicide, coronial reluctance to determine a verdict of suicide in a child, the misconception that children are precluded from engaging in suicidal acts due to cognitive immaturity and an inability to conceive of the permanency of death, or the child's lack of capacity to deliberately end his or her own life (Hawton et al, 2012; Tait et al, 2015).

Research into child and adolescent suicide has been growing. Chronic problems in the family – such as poor relationships, family conflicts, parental separation/divorce, maltreatment (physical, sexual, emotional abuse), and familial psychopathology and suicidal behaviour – have all been linked to suicide in children (Soole et al, 2014).

In preadolescent children, familial factors have been suggested to play a central role in suicide – given their higher dependency on caregivers (Pfeffer, 2000; Soole et al, 2014). Diagnosed disorders such as Attention Deficit Hyperactive Disorder (ADHD) and Autism Spectrum disorders have been found to be more common among younger children (10-14 years), compared with older adolescents (15 years and over) who died by suicide (Soole et al, 2014).

Older adolescents show a greater prevalence of diagnosed mood disorders and substance abuse problems (Soole et al, 2014). A dominance of romantic relationships problems and other peer problems has also been shown in adolescents (Soole et al, 2014).

Box 1 lists the risk factors for children and adolescents identified in different studies (Castellvi et al, 2017; Cha et al, 2018; Evans & Hurrell, 2016; Hawton et al, 2012; Sarafini et al, 2015; Soole et al, 2015; Westfield et al, 2010). Although it is widely acknowledged that suicide is a multifactorial phenomenon including psychological, biological and social factors, the majority of studies about child

and adolescent suicides tend to be limited to individual and relationship level factors (Bronfenbrenner & Ceci, 1994; Krug et al, 2002). Limited consideration has been given to wider factors in the environment at a community and society level.

### **Box 1: Child and adolescent suicide risk factors**

#### **Individual factors**

- psychiatric disorders (including affective disorders, disruptive disorders/conduct disorders, alcohol and drug abuse/misuse)
- adverse events (eg witnessing or experiencing violence, physical or sexual abuse, loss through death or separation, disciplinary crisis)
- preoccupation with death
- previous self-harm or suicidal behaviour

#### **Family factors**

- parental divorce, poor family cohesion
- poor parent-child communication
- parent-child conflicts
- family history of mental health problems
- family history of suicidal behaviour
- presence of a step-parent
- frequent changes in living and educational arrangements

#### **School and peer related factors**

- peer problems (bullying, negative peer pressure, conflicts)
- suicidal behaviour among peers
- perceived or actual poor academic performance
- dropping out from school

#### **Community and societal factors**

- access to means
- exposure to media
- internet and social media
- availability of health care
- high level of deprivation in the community
- rurality

## 2. Suicide clusters

### 2.1. Definitions and types

Suicide clusters have a number of different definitions (Johansson et al, 2006; Larkin & Beautrais, 2012; Niedzwiedz et al, 2014). A widely accepted definition is a 'group of suicides or suicide attempts, or both, that occur closer together in time and space than would normally be expected on the basis of statistical prediction or community expectation' (O'Carroll et al, 1988). The majority of studies exclude attempts at suicide (Johansson et al, 2006). Although there seems to be some indication that suicide clusters should involve at least three suicide cases, there appears to be less agreement about their closeness in time and space.

There are two main types of clusters that have been identified in the literature – point clusters and mass clusters. Point clusters are close in time and space, are often in small communities, and involve an increase in suicides above a baseline rate observed in the community and surrounding area. Mass clusters involve a temporary increase in suicides across a whole population that are close in time – for example, an increase in suicides after suicides of high profile celebrities or political figures highlighted through media attention (Chen et al, 2010).

A third type of cluster – referred to as 'echo' clusters – are less studied and have been identified in Indigenous communities in Australia (Hanssens, 2011; Hanssens & Hanssens, 2007). Echo clusters involve different clusters of suicides and attempted suicides in a community over a longer period of time.

### 2.2. Prevalence and risk factors

Suicide clusters are relatively rare. An Australian study identified 15 suicide clusters between 2004 and 2008, approximately 2.4% of all suicides (Cheung et al, 2013). Between 1990 and 2007, 15 suicide clusters were detected in New Zealand – accounting for 1.3% of all suicides during the study period (Larkin & Beautrais, 2012). Although both studies identified clusters they used different parameters and may not be comparable.

A number of risk factors for cluster suicides have been reported (Haw et al, 2013; Robinson et al, 2016a). The majority of studies have identified that adolescents and young people are at a higher risk of suicide clusters because suicides are more likely to occur in clusters in people under 25 years old compared to older age groups (Gould et al, 1990; Haw et al, 2013; Robinson et al, 2016b). Cluster specific factors include recent direct or indirect exposure to a suicide – for example, a direct link to someone who died or social dissemination by word of mouth or different types of media. In addition, studies have suggested that individuals in cluster suicides have a high prevalence of common suicide risk factors such as psychiatric disorders, personal and family history of suicidal behaviour, social isolation and unemployment – and might therefore be more vulnerable (Haw et al, 2013; Milner et al, 2017; Robinson et al, 2016a). In Australia, Aboriginal and Torres Strait Islanders and people living in geographically remote and socially deprived settings have been identified as at higher risk of suicide clusters. These factors may also have a cumulative effect (Cheung et al, 2013; Cheung et al, 2014).

## 2.3. Underlying mechanisms

The underlying mechanisms of suicide clusters are still debated. A systematic review by Haw et al (2013) summarised the psychological mechanisms suggested in recent literature. The main method proposed is contagion by direct contact or via social dissemination. A number of interrelated contagion mechanisms have been described:

- **Imitation** – this is most potent when an individual is able to identify with the person who died by suicide, if they share similar sociodemographic or psychological characteristics, if suicide is considered as an acceptable solution by the imitator or glorified through the media. Imitation may also involve the use of the same suicide method. This mechanism has often been referred to as the Werther effect (Phillips, 1974). It comes from Goethe’s 1774 novel *The Sorrows of Young Werther*, in which a young man shoots himself when unable to cope with the pain of unreturned love. The book prompted a wave of suicides throughout Europe.
- **Priming** – this refers to the unconscious process of a thought triggering related, pre-programmed thoughts. Reporting or hearing about a suicide case may activate pre-existing thoughts of suicide and lead to suicide.
- **Social learning theory** – this refers to learning through modelling and reinforcement and observing similarities to oneself. It has also been used to explain suicide clusters in vulnerable people, especially if they see positive reinforcement eg glorification by others or by the media. (Bandura, 1977)
- **Complicated bereavement** – this has been proposed as a potential mechanism because suicide can cause complex bereavement reactions including feelings of abandonment, guilt and responsibility (Johansson et al, 2006).

The main alternatives to contagion mechanisms are the concepts of assortative relating and assortative susceptibility (Haw et al, 2013). Assortative relating – when individuals with similar characteristics and problems, including suicidal behaviour, are more likely to form relationships – has been suggested as a mechanism behind point clusters (Joiner, 1999). Assortative susceptibility – suggests that vulnerable people belong to similar social strata, share similar sociodemographic characteristics, and live in close proximity to one another (Chotai, 2005). Therefore, an event in the community, such as a suicide, may increase the likelihood of a suicide cluster. There is however a lack of empirical evidence on the underlying mechanisms of suicide clusters.

# 3. Systematic literature review of suicide clusters in school-aged children

## 3.1. Information sources and search

A literature search was conducted for English language papers on CINAHL, Medline, Proquest, Cochrane Library, and Scopus between 2000 and 2017. Search terms were ('suicide') and ('cluster' or 'copycat' or 'contagion' or 'imitation' or 'postvention') and ('child' or 'adolesce\*' or 'youth'). The eligibility criteria for inclusion were:

- studies including school-aged children and young people<sup>2</sup>
- empirical or narrative analysis of suicide clusters.

In addition to published studies, a search of all government websites, Trove and Google was conducted through the internet to identify any current postvention and prevention activities targeting school-aged children in NSW. The NSW Department of Education and NSW Health were also contacted to obtain current resources and evidence-based programs within NSW. See Appendix A for the list of documents provided.

## 3.2. Study selection

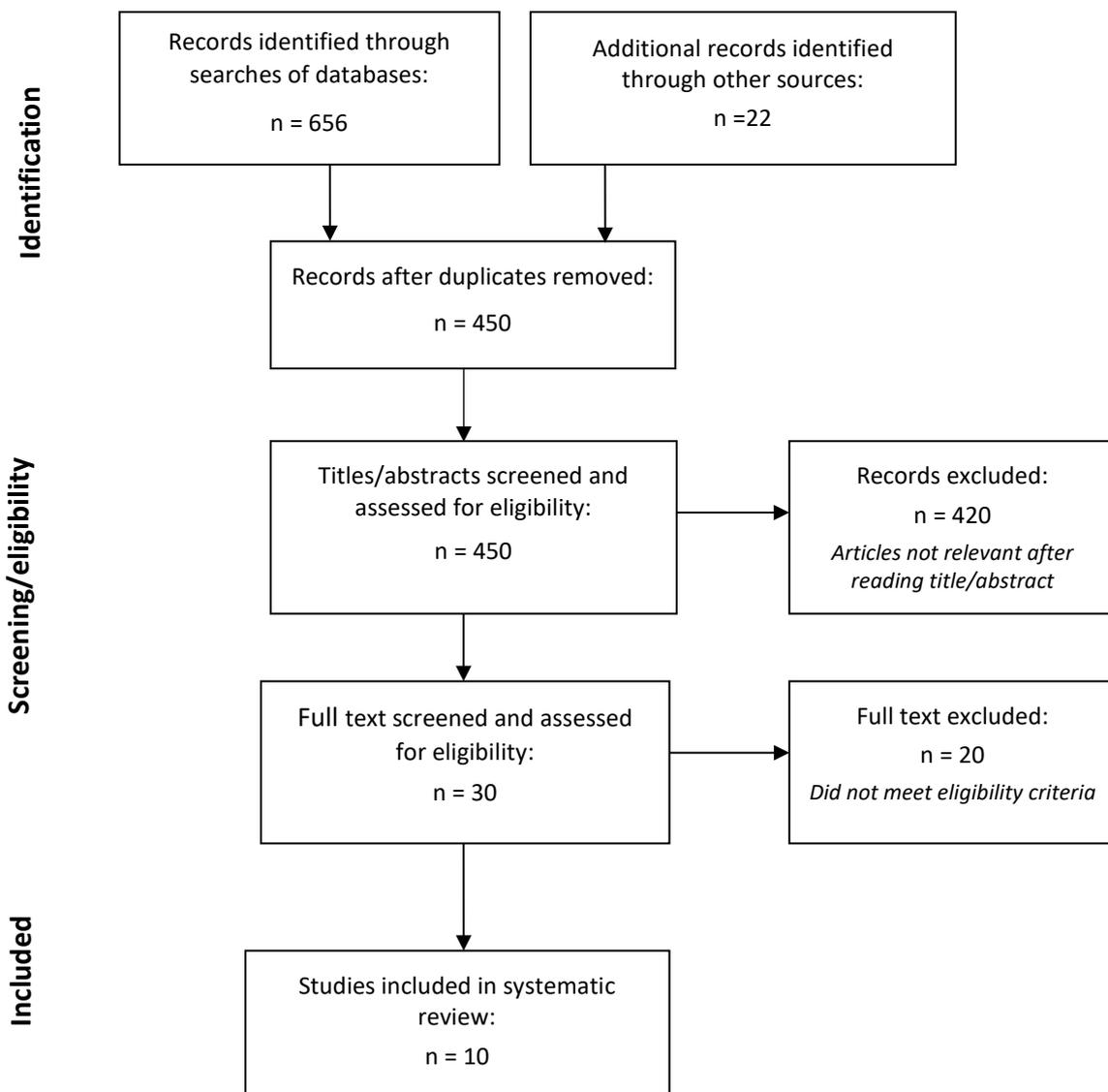
A total of 656 records were identified from the databases – see Figure 1. Additional searches of literature in Google and Trove (<https://trove.nla.gov.au/>) identified 22 sources. After removing duplicates, 450 sources remained. After screening titles and abstracts, 30 potentially relevant papers were detected and read to consider their relevance to the review. Finally, 10 papers reached the eligibility criteria for inclusion in the current review.

Appendix B summarises the information extracted from the papers that were selected for the review.

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<sup>2</sup> As so few studies focus specifically on children under 18 years, criteria included studies of children and young people.

Figure 1. Summary of the study selection procedure



### 3.3. Study characteristics

The systematic review of literature about suicide clusters in school-aged children under 18 years of age since 2000 identified two main types of studies:

- analyses of statistical clusters in a specific region or country
- narrative descriptions of specific suicide clusters.

Similar observations were noted in the literature review of suicide clusters by Larkin and Beautrais (2012).

Analyses of statistical clusters have used different types of statistical methods (scan statistics) to identify clusters. Different time (e.g. 1 month, 3 months, 6 months etc.) and spatial distances were considered. A few studies used SaTScan – software specifically developed for spatial, temporal and

spatial-temporal analysis (Jones et al, 2013; Robinson et al, 2016b). Three studies focusing on identifying suicide clusters in a specific country were identified, but none of them looked specifically at school-aged children.

An Australian study focused on spatial suicide clusters in the under 25-year age group in comparison to those aged 25 years and over in 2010-12 (Robinson et al, 2016b). They found that suicide clusters were likely in young people, with cluster suicides making up 5.6% of all suicides in those under 25 years compared to 2.3% in the older age group. People living in remote areas and Indigenous people were more at risk for youth cluster suicides.

An analysis of spatial-temporal suicide clusters in 15-34 year olds in Wales in 2000-09 identified a cluster which consisted of less than 1% of all suicides in that period (Jones et al, 2013). Another study of spatial clusters in the age group 15-44 in Scotland in three different time periods identified a cluster in the same very deprived area (Exter & Boyle, 2007). A study of a south-western American Indian tribe used scan statistics to identify temporal clusters of suicides and suicide attempts between 1990 and 1993 in their community. A cluster of seven suicides and serious suicide attempts in young people aged between 13-28 years was detected.

Although these studies provide information about increases in suicides in time and/or space, they do not give the reasons for individual involvement in the suicide cluster. Some researchers have also suggested that analysis of time and/or space clusters may underestimate prevalence due to issues such as limited statistical power in smaller areas (Hazell, 1993; Robertson et al, 2012; Wissow et al, 2001).

Robertson et al (2012) also analysed data for suicides occurring among 15-18 year-olds in a city with less than 150,000 inhabitants in New Zealand over a 12-year period (1998-2009) to test whether the suicides were random or whether some of them were part of a cluster. A scan test identified a cluster of six suicides over a 6-month period during 2006. Two additional suicide deaths with links to several of the deaths were also included to give a total of eight cases. The study found that although the young people were from several different schools and communities within the city, most were linked by social networking websites, by text messaging, and by physical proximity. The rapid spread of information and rumour throughout the community – facilitated by these technologies – led to increased awareness of the suicide cluster, inaccurate information about numbers and methods, and heightened anxiety. The study notes that social media has fewer controls and accountabilities than mainstream media, and that while electronic communications provide valued links between young people, they may also become a source of suicide contagion following a suicide.

Four more studies that gave narrative descriptions of clusters were identified. Johansson et al (2006) identified two clusters of three teenagers each in two different communities in Sweden between 1981 and 2000. They found that the teenagers (aged between 13 to 19 years) knew one another and there were striking similarities between the cases – such as the use of the same suicide method. This led the authors to conclude that contagion contributes to teenage suicides. They also hypothesised about the potential effect of complicated bereavement.

Two studies from the USA described suicide clusters in smaller communities. Hacker et al (2008) presented a cluster of 11 suicides and 10 overdoses in the age group 16-24 in Somerville, Massachusetts (77,478 inhabitants) from 2000-05, where communication of information via social media and the creation of memorial pages was identified. The main focus was on the postvention activities taken. Another study focused on a cluster of 11 suicides in young people aged 12-21 in

Kent and Sussex counties in Delaware in 2012 (Fowler et al, 2013). They all attended the same school, and mental health and substance use problems and vulnerability to recent negative life events was present.

An Australian study from South Australia observed a significant increase in hanging in school-aged children under 18 years when comparing suicides in 1995-99 with 2005-09 (Austin et al, 2011). The authors identified a cluster of four people in the second time period, with several individuals going to the same school and communicating through social media.

Gould et al (2014) used a more rigorous methodology to systematically examine newspaper coverage of suicide and initiation of suicide clusters in young people aged 13-20 years in the USA from 1988 to 1996. Scan testing of national mortality data identified 53 time-space suicide clusters involving teenagers. These clusters – with four exceptions – were compared to non-cluster suicide groups. They found that knowledge of an index suicide (the first suicide of the cluster) disseminated via the local newspapers can increase the risk of subsequent suicides. More prominent, explicit and detailed reporting – front page, with an accompanying picture – on any suicide in the wake of an initial adolescent suicide was associated with the occurrence of a subsequent adolescent suicide. Albeit rare, they found that the mean number of stories with accompanying pictures that displayed sadness was significantly greater after cluster suicides compared to after a non-cluster suicide. There were also significantly more news stories about suicides and celebrity suicides published after cluster suicides than after non-cluster suicides. Significantly more details about a suicide were also provided in stories published after the index cluster suicides than after non-cluster suicides – ie including the name of the suicidal individual, name of school, time or place of death, suicide procedure, number of sentences describing the method, suicide notes, and unfavourable characteristics of the suicidal individual.

## 4. Summary of evidence

The main characteristics of suicide clusters in school-aged children and young people based on the reviewed studies are:

- a direct indirect link to the other cluster members, including factors such as: or
  - attendance at the same school
  - media exposure – reporting of the index suicide on the front page, accompanying picture, celebrity status of the person who died
  - social media – creation of memorial pages
- communication about other cases by word of mouth and social media
- indigenous origin
- mental health and substance (including alcohol) use problems
- relationship problems
- frequent use of the internet
- living in a remote or suburban area
- living in a very deprived area
- use of the same suicide method.

Some authors also hypothesised that it is important whether ‘a community perceives that it is experiencing a suicide cluster’ as that may itself increase the further risk of imitation and contagion (Johansson et al, 2006; Robertson et al, 2012).

The majority of papers referred to the hypothetical assumptions about the mechanisms behind the clustering – such as contagion, modelling, imitation or assortative relating (see section 2.3). Since clusters are more likely to occur within bounded social contexts (eg the same school), it is logical to suspect that peer-role modelling or shared environmental risk factors may contribute independently to adolescent suicide clusters (Haw et al., 2013). Children and young people might also be more susceptible to suicide modelling because of their cognitive immaturity (Insel & Gould, 2008). The impact of media reports on local suicide rates or on the emergence of a suicide cluster may therefore be confounded with the effect of peer role modelling of suicide in school-aged children. Repeated, detailed and explicit reporting on suicide could normalise suicide for vulnerable children and young people and make them more susceptible to modelling (Gould et al, 2014).

### 4.1. Impact of the internet and social media on suicidal behaviour

Social networking by Australian teenagers aged 14-17 years increased from 39% in 2011 to 54% in 2015. Within this group, 83% are going online more than three times a day (Australian Communications and Media Authority, 2016). The traditional definition of a social network as a group of peers, colleagues or personal connections of an individual (Christakis & Fowler, 2009) has

widened and now refers to online communication occurring through social networking sites such as Facebook, Instagram and Twitter. This form of media allows exposure on a wider scale – it is less regulated, more volatile, and with less opportunity to control the accuracy of sensitive information shared – with users being both consumers and creators of online content (Boyd & Ellison, 2007).

Changes in available online material between 2007 and 2014 showed that information about suicide was easily accessible through news sites, factual information-based sites, and within dedicated or pro-suicide sites. An increase in user-generated suicide content (eg personal websites, interactive discussion forums, chat rooms) provided opportunities for users to exchange information on a global scale (Biddle et al, 2016). Mok et al (2016) found that suicidal ideation and likelihood of future suicide significantly predicted suicide-related Internet use. Smithson et al (2011) reported that online forums where young people who self-harmed communicated with their peers, may encourage normalisation of self-harming behaviour.

A literature review by Marchant et al (2017) found that certain types of internet use had different influences and risks for suicidal behaviour in young people. The use of social media was predominantly to communicate distress, particularly to peers. Meanwhile high internet use (more than two to five hours per day) and internet addiction appeared to have largely negative influences – namely associations with suicide ideation or searching for suicide information. Another systematic review by Mok et al (2015) found that suicide-related internet search trends may provide an indicator of suicide risk in a population. For example, online searches conducted in the USA for ‘commit suicide’, ‘suicide prevention’ and ‘how to suicide’ were significantly positively related to rates of suicide in the corresponding year (Chen, 2013; Gunn & Lester, 2013). In Australia, search trends of ‘how to commit suicide’, ‘ways to kill yourself’, ‘suicide pact’, and ‘suicide hanging’ have been found to increase following high-profile reports (Page et al, 2011). Although studies investigating search trends do not provide causal links, they may provide a potential indicator of suicide contagion (Mok et al, 2015).

The internet and social media may contribute to the ease of suicide clusters developing as well as increase their incidence because the geographical area becomes less relevant. The contagion of suicidal behaviour can occur via the internet, particularly in young people (Larkin & Beautrais, 2012; Robertson et al, 2012; Robinson et al, 2016a). This may complicate the process of identifying vulnerable individuals at risk and taking steps to minimise sources of contagion.

Robinson et al (2016a) highlighted five reasons for the role of the internet in the potential increase of suicide clusters in young people. Those reasons are:

- Wider social networks make it more likely for someone to have exposure to a larger number of suicides.
- There is less control over the accuracy and delivery of the information about suicide cases.
- There are web pages to memorialise people who died by suicide, which tend to be excessively glorifying – shown to increase imitative behaviour in mainstream media.
- Vulnerable young people may congregate on the websites.
- Information about suicide methods, particularly unusual methods, can be shared.

A qualitative study by Heffel et al (2015) explored the aftermath of a suicide cluster by interviewing ten high school students. They found that online communications were central and well embedded in the students' experiences. Online communication was perceived to have both a positive and

negative impact. For example, there were benefits of online interactions in the aftermath of a suicide – they provided a place of support, uniting the student body in their grief by providing a place for them to express condolences and learn details about the funeral. However, some students reported that negative comments or violations of online social etiquette spilled over from online contexts to face-to-face interactions at school. Participants described how the initial reaction of shock at learning of a student's death often led them to check Facebook to confirm the death and subsequently share information using the internet, and then seek further details in person. The creation of online memorial sites was considered by some as positive – showing that the person was loved – while others considered it as 'an open wound'. It was also highlighted that constant online reminders and some negative comments hindered recovery from the loss.

Concerns about the effects of online networking on suicide clusters have also been raised by practitioners. Briggs et al (2017) explored the experiences of practitioners with adolescent suicidal groups or clusters. Practitioners observed that suicidal behaviour was generated through social links between young people in different settings, including mental health services (inpatient and outpatient), schools and online. Some practitioners gave examples of young people meeting through service providers and felt that sharing their experiences may cause copycat behaviour. Mental health services may therefore sometimes act as a platform on which suicidal ideas 'crystallise and grow'. Although schools refer young people who may be negatively influencing each other for further help, the more disturbing issue was the impact of online connections. Online connections are harder to predict as they increase possibilities for disinhibited disclosures of self-harm and suicidal thoughts, separate from the everyday social context. This online realm provided distinct risks – and practitioners expressed different views about managing this new medium as it generated considerable uncertainty as to whether peer relationships were a concern or a protective factor. For example, while young people may have induced others to self-harm and encouraged suicidal behaviour, they also supported and protected each other. Experiences of practitioners indicate that multiple mechanisms appear to contribute to the transmission of suicidal behaviour within peer groups. From the prevention perspective, it is important to include actual and online peer relations in the suicide risk assessment.

Although some studies in the current review indicated the potential impact of social media in suicide clusters (Austin et al, 2011; Hacker et al, 2008; Robertson et al, 2012), the real impact on suicide clusters needs to be still examined. Both positive and negative effects of internet use have been identified (Daine et al, 2013; Marchant et al, 2017; Mok et al, 2015). Young people who self-harm or are suicidal often use the internet to seek support and coping strategies. However, the negative influences include normalising self-harm, potentially discouraging disclosure or seeking professional help (Daine et al, 2013), and forming suicidal groups (Briggs et al, 2017).

## **4.2. Postvention activities to reduce cluster suicides**

In the context of a suicide cluster, postvention activities include a response to the cluster suicide event, help for the bereaved, and activities to prevent future suicidal behaviour. They can be delivered at a community level or in a school setting (Andriessen, 2009).

There is very limited research literature that has addressed the topic of preventing suicide clusters and providing specific postvention activities. A systematic literature review by Cox et al (2012) reviewed evidence about the effectiveness of postvention strategies and found that there were very

few studies (n=5) that had formally documented response strategies to a suicide cluster in young people. They identified two studies using postvention strategies after a suicide cluster within a community setting (Askland et al, 2003; Hacker et al, 2008).

Three other studies used more specific strategies such as screening and counselling within a school setting either following a suicide cluster – or where individuals were identified as being at risk of imitative suicidal behaviour after the suicide of someone in their community or social network, or those with an existing psychiatric condition, or those who had made a recent suicide attempt (Brent et al, 1993; Hazell, 1991; Poijula et al, 2001).

These studies used the following six main postvention strategies (Cox et al, 2012).

#### **4.2.1. Developing a community response plan**

This is a collaborative approach that involves a response team consisting of community members – including teachers, parents, mental health experts, crisis workers, representatives of law enforcement and others. The response teams are expected to investigate the current situation and events that have affected the community, respond to the young individuals who show signs of distress as a result of a suicide, and subsequently implement postvention strategies – such as improving media relationships or talking to people bereaved by suicide. However, evidence of this approach is limited. For example, one study including a response plan was predominantly descriptive and did not include any long-term follow up (Askland et al, 2003). Another study included long-term follow up and found that only one death by suicide was recorded, which was unrelated to the previous cases of suicide contagion (Hacker et al, 2008).

#### **4.2.2. Holding educational/psychological debriefings**

This approach involves disseminating information about suicide, suicide prevention and coping strategies to students to raise awareness universally or to high-risk individuals. Only one study used this approach, and no evaluation was done on the effectiveness of these sessions (Askland et al, 2003).

#### **4.2.3. Providing individual and group counselling to affected peers**

Suicide bereavement may involve different reactions – including general grief reactions such as shock, sadness and confusion. People bereaved by suicide are also more likely to experience guilt, responsibility, shame, blame, isolation and trauma (Kolves & De Leo, 2014). Early counselling sessions might therefore be helpful for students to understand their feelings.

Crisis counselling sessions after the suicide of a peer focused on four themes:

- addressing guilt and responsibility after the death of a friend
- difficulties in interpreting the signs of suicidal behaviour
- recognising reactions to grief
- directing adolescents toward appropriate services for help should they feel suicidal themselves (Hazell, 1991).

The counselling sessions have been delivered by local mental health services and community-based trauma teams to both students and parents in school settings (Hacker et al, 2008). However, the effectiveness of counselling has not been evaluated in postvention studies.

#### 4.2.4. Screening high-risk individuals

Screening high-risk individuals is important as a response to a suicide cluster. Individuals may become high-risk after the suicide of someone in their community or social network, or may have attempted suicide recently. Schools play an important role in implementing screening programs for high-risk individuals. Poijula et al (2001) found that, after a suicide cluster, 33% of the school population was identified as at-risk – with 28% reporting current or recent suicide ideation and 17% of this population reporting a suicide attempt within the previous month. Parents and school staff (including teachers, school guidance counsellors and school nurses) may also play an important role in helping to identify distress in young people after a suicide or a suicide cluster.

#### 4.2.5. Encouraging responsible media reporting

Young people have been found to be vulnerable to contagion through media reporting, and inappropriate media reporting may contribute to the initiation and prolongation of suicide clusters (Gould et al, 2003; 2014). Responsible media reporting or reporting in a non-sensational manner of the suicide cluster is crucial as this is likely to receive wider media attention. Evidence suggests that irresponsible reporting of suicide in the media can potentially lead to imitation and induce or exacerbate clusters (Pirkis & Blood, 2001). In the study by Hacker et al (2008), members of the community trauma teams consulted the local newspaper editor to clarify Centre for Disease Control and Prevention (1988) recommendations on reporting suicide clusters. Currently, there are several guidelines for responsible media reporting. In 2014, Mindframe released a new resource guide for reporting suicide and mental illness for media professionals in Australia (Everymind, 2014). The World Health Organization (2017) also recently updated their resource book for media professionals. This resource also encourages media professionals to work with their local suicide prevention community to integrate their local reporting guidelines.

#### 4.2.6. Promoting healthy recovery within the community

Promoting healthy recovery in the aftermath of a suicide cluster is needed to prevent future suicides. This may involve prevention training for community stakeholders and gatekeepers to increase awareness of warning signs of suicide and provide them with the knowledge and strategies to aid early intervention, as well as ongoing surveillance of suicidal behaviour in the community and schools. Screening and ongoing surveillance of suicidal behaviour could contribute to the development of a community response plan and aid the recovery of a community – by identifying risk factors and behaviours that may have contributed to the suicide cluster (Hacker et al, 2008; Cox et al, 2012).

However, no study has yet evaluated the overall effectiveness of these strategies in preventing future clusters. In addition to reviewed papers by Cox et al (2012), only a limited number of studies share information about the nature of postvention activities in school settings after a suicide cluster.

#### 4.2.7. The CAPT team approach

Maples et al (2005) developed a school-based four-stage postvention model – the CAPT (Counsellors, Administrators, Parents and Teachers) team approach – to respond to a student suicide in the USA. The development of this team was based on a previous approach by Roberts et al (1998), who recommended that a team should be nominated to represent the community when dealing with a

youth suicide. This involves specifying members to respond to the suicide event and limits members to counsellors, administrators, parents and teachers who have been directly involved with a youth suicide. It also allows the possibility for friends and fellow students to participate when appropriate.

- In the first stage, the CAPT team was supportive, nonjudgmental, caring and actively listening to concerns expressed by students. The counsellor educated students on relaxation strategies based on therapeutic counselling and psychotherapy work by Brammer et al (1993).
- The second stage involved helping students develop cognitive behavioural strategies for coping when they experienced guilt and regret as a response to the suicide death.
- The third stage involved exploring the meaning of loss by educating the students about the differences in feelings of seriousness, sadness, sombreness and depression.
- In the final stage, students were expected to find successful resolutions to their existential search from the previous stage and gain motivation for new goals. The CAPT team helps students embrace these goals by identifying realistic strategies, developing timelines to help achieve them, and reassessing these goals over time (Maples et al, 2005).

A further literature search was conducted on postvention activities in Medline and Psycinfo databases using the search terms 'suicid\*' and ('postvention' or 'intervention') and ('cluster' or 'epidemic' or 'copycat' or 'contagion' or 'multiple') between 2010 and 2018. A total of 330 original papers were found after duplication deletion, but no new papers were identified in addition to those in the Cox et al 2012 review.

#### **4.2.8. Guidelines for schools**

In 2016, Cox et al used the Delphi method to create a set of guidelines for schools to use after the suicide of a student.

The Delphi method is a structured communication technique, which relies on a group of experts (panel members) in a specific area. It is useful for looking at research questions that are difficult to address directly through experimental methods (Jorm, 2015).

The experts have to make a series of ratings about various statements or actions. In the first round, this is done independently to draw on their own knowledge and expertise. After data from the first rating round is obtained, panel members receive feedback on statements or actions that have been endorsed by the whole group, and also those that did not reach a predetermined level of consensus. They are then asked to engage in a second round where they have the opportunity to change or maintain their original rating. These rounds continue until consensus has been reached. Overall, the process involves two steps – a literature search and questionnaire development and then the Delphi method.

The experts in the current study were identified from the literature search and through their professional networks. Panel members had to be English-speaking researchers or professionals in suicide postvention (Cox et al, 2016). As a result, they gained endorsement for including 20 actions in the postvention guidelines – based on an 80% agreement threshold (Cox et al, 2016, p. 5).

These 20 actions were:

- Developing an emergency response plan.
- Forming an emergency response team.
- Activating the emergency response team.
- Managing a suspected suicide that occurs on school grounds.
- Liaising with the deceased student's family.
- Informing staff of the suicide.
- Informing students of the suicide.
- Informing parents of the suicide.
- Informing the wider community of the suicide.
- Identifying and supporting high-risk students.
- Providing ongoing support for students.
- Providing ongoing support for staff.
- Dealing with the media.
- Using the internet and social media.
- Searching the deceased student's belongings.
- Holding a funeral and memorial.
- Continued monitoring of students and staff.
- Preparing documentation.
- Holding a critical incident review and an annual review of the emergency response plan.
- Identifying future prevention strategies.

These guidelines can help schools and communities to develop their postvention response plans and resources. However, it is also imperative that they are implemented within a framework that allows their effectiveness and feasibility to be evaluated.

Although the guidelines include internet and social media as a point of action, Heffel et al (2015) noted that several current recommendations for suicide postvention – ie crisis intervention strategies to reduce risk of suicide contagion, providing support, and disseminating factual information – fail to account for the influence of the internet and social media. The prevalent use of technology makes geographical details less relevant in the investigation and prevention of suicide clusters due to the potential spread of contagion over the internet (Heffel et al, 2015).

The internet and social media can play a positive role in educating the public about suicide and helping to reduce or minimise the impact of suicide clusters (Neidzwiedz et al, 2014). The broad reach and immediacy of social media and the internet could potentially help many vulnerable people. The internet and social media can be used to deliver direct support and provide contact details for agencies that can offer help and support. Suicide prevention organisations are increasingly using the internet's social networking functionality to capitalise on its benefits (Luxton et al, 2012).

However, there is currently no evidence of the effectiveness of using social media as a tool for suicide prevention or postvention activities. A systematic literature review by Robinson et al (2016c) examining evidence for the use of social media as a tool for suicide prevention identified 30 papers. Half of the studies examined how people used social media for suicide prevention-related purposes, six examined the potential of social media to reach or identify people at risk of suicide, five examined the experiences of people who had used social media sites for suicide prevention purposes, and four described the development of social media sites designed for suicide prevention. The advantages of using social media as a prevention tool include the reach, accessibility, and non-judgmental and anonymous nature of such platforms. The potential challenges – such as difficulties controlling user behaviour, accurately assessing risks, privacy and confidentiality, and the possibility of contagion – may inhibit its efficacy as a prevention tool. However, social media platforms may hold significant potential for suicide prevention and postvention in combination with more traditional forms of prevention or treatment strategies (Robinson et al, 2016c).

### **4.3. Postvention activities for school-aged children in NSW**

Headspace School Support is a nationwide suicide postvention program (<https://headspace.org.au/schools/>) that helps Australian school communities to prevent, respond to and recover from the death of a student by suicide. It is part of a series of headspace programs developed to promote mental health and support young people aged 12-25 dealing with difficult issues in their lives. Headspace also released the resource book 'Suicide Postvention Toolkit – a guide for secondary schools' in 2012. These guidelines aim to help secondary schools plan and manage their response to a completed, attempted or suspected suicide within their student community. A postvention checklist is provided as well as detailed guidelines for an immediate response after a suicide death, during the first 24 hours, the first week, the first month and in the longer term. Guidance on how to consider memorials, media and social media and how to support staff are also detailed, along with sample documents with scripts on how to manage communication with students and the community.

In collaboration with the NSW Ministry of Health, the NSW Department of Education and headspace published 'Responding to Student Suicide – Support Guidelines for schools' (NSW Government, 2015). These guidelines supplement existing initiatives that support the mental health and wellbeing of school students in NSW by enabling a comprehensive and timely response and facilitating holistic support for the entire school when a student dies by suicide. They were also created to manage and minimise the risk of suicide contagion carefully and strategically within the school and the wider community.

The guidelines include advice covering five sections – legal obligations, the immediate response, the response during the first 24-48 hours after the student's death, the next 48-72 hours, and a longer term plan.

- The immediate response advice focuses on contacting several key departments and emergency services, ensuring that all students, staff and visitors are not in danger, and validating the report of a student's death.
- The response during the 24-48 hours after the death focuses on actions that should be completed – such as developing support plans, initial briefings to staff, students, parents, and the wider community (eg other schools, people with connection to the family, community

services), media and social media reporting, and the importance of assessing and responding to individuals at risk.

- The next 48-72 hours emphasises the importance of providing ongoing support to the student's family, staff and assessing/responding to new risks, as well as funerals and memorial services for the student.
- The longer term advice aims to continue monitoring and assessing possible risks, and providing support to the school community – including staff, parents and students.

The advice provided is structured around appropriate, strategic and effective communication surrounding the event with students, family, staff and the community – with telephone scripts, sample letters, templates for support plans, and checklists. The guidelines were prepared in collaboration with headspace and researchers who conducted the Delphi study described earlier. It is therefore closely aligned with the actions identified in Cox et al (2016).

The local partnerships with government and non-government agencies, the NSW Department of Education, NSW Health, and headspace School Support have established a process to notify each other when advised of a student suicide (NSW Government & NSW School-Link, 2016; Department of Education, 2018). This process alerts specialist staff from each agency – for example, Child and Adolescent Mental Health Services (CAMHS) teams – about a potential increase in risk for vulnerable children and young people in the community and the possibility of increased demand for services. It also facilitates headspace School Support in reaching out to the principal to offer help in developing and implementing the postvention response.

In November 2017, the Department of Education released 'A Fact Sheet for Health and Education Staff: Exchanging information and working together to keep young people safe and well' (NSW Government, 2017). This fact sheet outlines key principles for how health services and school staff can work together to keep young people safe and well. It also outlines the legal basis for information exchange under Chapter 16A of the *Children and Young Persons (Care and Protection) Act 1998*, and emphasises the consequences for children and young people when agencies fail to collaborate and communicate effectively.

## **4.4. Current NSW prevention programs and resources**

Additional information about suicide prevention in school-aged children was also provided and has been included as it contributes to the postvention response. The NSW Department of Education is currently working in partnership with NSW Health, headspace, and the Black Dog Institute to implement a coordinated approach to youth suicide prevention (NSW Department of Education, 2018).

Since late 2015, the NSW Department of Education has provided professional learning seminars for school leaders on strategies to prevent and respond to youth suicide – that is, how to implement the guidelines. These were designed to equip school executive teams, school counselling staff and other key departmental staff with knowledge on self-harm, attempted suicide, suicide and suicide contagion. So far, 733 school leaders have attended these seminars. The Department of Education has also released several resources, including fact sheets, to assist with the response after a student suicide.

In 2016, in partnership with the University of Wollongong and NSW Health, an initiative called Project Air for Schools was launched (NSW Department of Education, 2018). This is a 4-hour registered professional learning package to increase the capacity of school staff to implement evidence informed responses to young people with complex mental health issues – including responding to suicidal behaviours and self-harm. So far, more than 100 school counselling staff have been trained to deliver the registered course across NSW.

Additional suicide prevention initiatives provided by the NSW Department of Education include a youth awareness program and gatekeeper training for school staff (NSW Government, 2017).

Youth Aware of Mental health (YAM) is an evidence-based mental health and suicide prevention program for young people aged 14-16 years developed in Europe (Wasserman et al, 2015). YAM is delivered by accredited instructors and uses role play and lectures to promote increased discussion and knowledge about mental health, as well as developing emotional intelligence and problem solving skills. The Department of Education is currently working with the Black Dog Institute to support the implementation of this program.

The department is also working with the Black Dog Institute to implement gatekeeper training. This initiative is called Question, Persuade, Refer (QPR) – an online, evidence-based gatekeeper training program available to school staff across NSW (Quinnett, 2007; Tompkins et al, 2010). Gatekeeper training is for professionals and para-professionals in the human services whose roles bring them into regular contact with people at risk of suicide, eg teachers, departmental staff in schools. It aims to increase participants' knowledge and understanding of suicidal behaviour and their capacity to respond effectively to those in need. The program has been shown to lead to positive outcomes in knowledge about suicide, intentions to intervene, and confidence in helping someone identified as being suicidal (Isaac et al, 2009).

The NSW Department of Education also engaged the Black Dog Institute to customise its existing accredited Advanced Training in Suicide Prevention workshop with a focus on youth. The customised training is called Youth in Distress: managing suicidality and self-harm workshop. The department offered this customised training to all counselling staff in 2018 and a total of 1,196 completed the training delivered by a clinical psychologist from the Black Dog Institute. A further two workshops have been scheduled for early 2019 for new counselling staff.

## 5. Conclusions

Our literature review identified 10 papers since 2000 focusing on suicide clusters in young people. Although it has been identified that young people below the age of 25 years are more likely to experience suicide contagion than older age groups, there is still limited knowledge about suicide clusters in school-aged children and young-people and their formation (Haw et al, 2013; Mueller & Abrutyn, 2015; Niedzwiedz et al, 2014; Pirkis & Robinson, 2014).

Suicide has a prolonged impact on those who are left behind, and this is compounded in the case of suicide clusters – which quickly receive widespread concern in the community and media attention. It has been suggested that clusters represent a group of suicides that might be particularly preventable, given that the occurrence of one adolescent suicide is known to be a population-based risk factor for additional suicides (Askland et al, 2003; Gould et al, 1990; Robertson et al, 2012).

In the context of a suicide cluster, postvention activities would involve a response to the cluster suicide event and activities to prevent future suicide clusters. Very limited literature and research has addressed the topic of preventing suicide clusters and specific postvention activities. Also, no study has evaluated the overall effectiveness of these strategies in preventing future clusters. In addition to reviewed papers by Cox et al (2012), only a limited number of studies share information about the nature of postvention after a suicide cluster in school settings. The use of the postvention guideline actions developed by Cox et al (2016) using the Delphi method with experts are recommended. These guidelines can help schools and communities to develop their postvention response plans and resources. However, it is also imperative that these guidelines are implemented within a framework that allows their effectiveness and feasibility to be evaluated.

The review of current postvention and prevention activities concluded that there are comprehensive activities and guidelines for postvention and prevention recently developed for school-aged children by the NSW Government, in collaboration with research and community organisations. A good example is ‘Responding to Student Suicide – Support Guidelines for schools’ developed in collaboration with the NSW Ministry of Health, NSW Department of Education and headspace (NSW Government, 2015). These guidelines supplement existing initiatives that support the mental health and wellbeing of school students in NSW by enabling a comprehensive and timely response and facilitating holistic support for the entire school when a student dies by suicide. They were prepared in collaboration with headspace and researchers who conducted the Delphi study, so they are closely aligned with the actions identified in the Cox et al (2016) Delphi study.

The local partnerships with government and non-government agencies, the NSW Department of Education, NSW Health, and headspace School Support have also established a process to notify each other when advised of a student suicide (NSW Government & NSW School-Link, 2016; Department of Education, 2018). This process alerts specialist staff from each agency about a potential increase in risk for vulnerable children and young people in the community and the possibility of increased demand for services. It also facilitates headspace School Support in reaching out to the principal to offer help in developing and implementing the postvention response.

## 6. References

- Abrutyn S, Mueller AS. (2014) Are suicidal behaviors contagious in adolescence? Using longitudinal data to examine suicide suggestion. *American Sociological Review*, 79(2), 211-227.
- American Foundation for Suicide Prevention and Suicide Prevention Resource Center. (2011) *After a suicide: A toolkit for schools*. Newton, MA: Education Development Center, Inc. Retrieved on 12 April 2018 from <http://www.sprc.org/sites/default/files/migrate/library/AfteraSuicideToolkitforSchools.pdf>
- Andriessen K. (2009) Can postvention be prevention? *Crisis*, 30(1), 43-47.
- Askland KD, Sonnenfeld N, Crosby A. (2003) A public health response to a cluster of suicidal behaviors: Clinical psychiatry, prevention, and community health. *Journal of Psychiatric Practice*, 9(3), 219-227.
- Austin AE, van den Heuvel C, Byard RW. (2011) Cluster Hanging Suicides in the Young in South Australia. *Journal of Forensic Sciences*, 56(6), 1528-1530.
- Australian Bureau of Statistics (2017) *Causes of death, Australia 2016*. Cat no. 3303.0.
- Australian Communications and Media Authority. (2016) *Aussie teens and kids online*. Retrieved on 12 April 2018 from <https://www.acma.gov.au/theACMA/engage-blogs/engage-blogs/Research-snapshots/Aussie-teens-and-kids-online>
- Bandura A. (1977) Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Biddle L, Derges J, Mars B, Heron J, Donovan JL, Potokar J, Piper M, Wyllie C, Gunnell D. (2016) Suicide and the Internet: Changes in the accessibility of suicide-related information between 2007 and 2014. *Journal of Affective Disorders*, 190, 370-375.
- Boyd DM, Ellison NB. (2007) Social network sites: definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210-230.
- Brammer LM, Abrego P, Shostrom E (1993). *Therapeutic counseling and psychotherapy* (6th Ed.). Upper Saddle River, NJ: Prentice Hall.
- Brent DA, Perper J, Moritz G, Friend A, Schweers J, Allman C, McQuiston L, Boylan MB, Roth C, Balach L. (1993) Adolescent witnesses to a peer suicide. *Journal of the American Academy of Child & Adolescent Psychiatry*, 32(6), 1184-1188.
- Briggs S, Slater T, Bowley J. (2017) Practitioners' experiences of adolescent suicidal behaviour in peer groups. *Journal of Psychiatric and Mental Health Nursing*, 24(5), 293-301.
- Bronfenbrenner U, Ceci SJ. (1994) Nature-nurture reconceptualized in developmental perspective: A bioecological model. *Psychological Review*, 101(4), 568-86.
- Castellví P, Lucas-Romero E, Miranda-Mendizábal A, Parés-Badell O, Almenara J, Alonso I, Blasco MJ, Cebrià A, Gabilondo A, Gili M, Lagares C. (2017) Longitudinal association between self-injurious thoughts and behaviors and suicidal behavior in adolescents and young adults: a systematic review with meta-analysis. *Journal of Affective Disorders*, 215, 37-48.
- Cerel J, Jordan JR, Duberstein PR. (2008) The impact of suicide on the family. *Crisis*, 29(1), 38-44.
- Cerel J, Roberts TA, Nilsen, WJ. (2005) Peer suicidal behavior and adolescent risk behavior. *The Journal of Nervous and Mental Disease*, 193(4), 237-243.

- Cha CB, Franz PJ, M Guzmán E, Glenn CR, Kleiman EM, Nock MK. (2018) Annual Research Review: Suicide among youth—epidemiology (potential), etiology, and treatment. *Journal of Child Psychology and Psychiatry*, 59(4), 460-482.
- Chan S, Denny S, Fleming T, Fortune S, Peiris-John R, Dyson B. (2017) Exposure to suicide behaviour and individual risk of self-harm: Findings from a nationally representative New Zealand high school survey. *Australian & New Zealand Journal of Psychiatry*, 52(4), 349-356.
- Chen YY, Tsai PC, Chen PH, Fan CC, Hung GC, Cheng AT. (2010) Effect of media reporting of the suicide of a singer in Taiwan: the case of Ivy Li. *Social Psychiatry and Psychiatric Epidemiology*, 45(3), 363-369.
- Cheng Q, Li H, Silenzio V, Caine ED. (2014) Suicide contagion: a systematic review of definitions and research utility. *PLoS One*, 9(9), e108724.
- Cheung YT, Spittal MJ, Williamson MK, Tung SJ, Pirkis J. (2013) Application of scan statistics to detect suicide clusters in Australia. *PLoS One*, 8(1), e54168.
- Cheung YT, Spittal MJ, Williamson MK, Tung SJ, Pirkis J. (2014) Predictors of suicides occurring within suicide clusters in Australia, 2004–2008. *Social Science & Medicine*, 118, 135-142.
- Chotai J. (2005) Suicide aggregation in relation to socio-demographic variables and the suicide method in a general population: Assortative susceptibility. *Nordic Journal of Psychiatry*, 59, 325–330.
- Christakis NA, Fowler JH. (2009) *Connected*. New York, NY: Brown and Company.
- Commonwealth of Australia. (2010) *The hidden toll: Suicide in Australia*. Canberra: Commonwealth of Australia.
- Cox GR, Bailey E, Jorm AF, Reavley NJ, Templer K, Parker A, Rickwood D, Bhar S, Robinson J. (2016) Development of suicide postvention guidelines for secondary schools: A Delphi study. *BMC Public Health*, 16(1), 180.
- Cox GR, Robinson J, Williamson M, Lockley A, Cheung YTD, Pirkis J. (2012) Suicide clusters in young people. *Crisis*, 33(4), 208-214.
- Etzersdorfer E, Sonneck G. (1998) Preventing suicide by influencing mass-media reporting. The Viennese experience 1980–1996. *Archives of Suicide Research*, 4(1), 67-74.
- Evans R, Hurrell C. (2016) The role of schools in children and young people’s self-harm and suicide: systematic review and meta-ethnography of qualitative research. *BMC Public Health*, 16(1), 401.
- Everymind. (2014) *Reporting suicide and mental illness: A Mindframe resource for media professionals*. Newcastle.
- Exeter DJ, Boyle PJ. (2007) Does young adult suicide cluster geographically in Scotland? *Journal of Epidemiology and Community Health*, 61(8), 731-736.
- Fowler KA, Crosby AE, Parks SE, Ivey AZ, Silverman PR. (2013) Epidemiological investigation of a youth suicide cluster: Delaware 2012. *Delaware Medical Journal*, 85(1), 15-19.
- Gould M, Jamieson P, Romer D. (2003) Media contagion and suicide among the young. *American Behavioral Scientist*, 46(9), 1269-1284.
- Gould M, Wallenstein S, Kleinman M. (1990) Time-space clustering of teenage suicide. *American Journal of Epidemiology*, 131(1), 71–78.

- Gould MS, Kleinman MH, Lake AM, Forman J, Midle JB. (2014) Newspaper coverage of suicide and initiation of suicide clusters in teenagers in the USA, 1988-96: A retrospective, population-based, case-control study. *Lancet Psychiatry*, 1(1), 34-43.
- Gould MS, Wallenstein S, Kleinman MH, O'Carroll P, Mercy J. (1990) Suicide clusters: an examination of age-specific effects. *American Journal of Public Health*, 80(2), 211-212.
- Gould MS. (2001) Suicide and the media. *Annals of the New York Academy of Sciences*, 932(1), 200-224.
- Government of NSW (2015) Responding to Student Suicide Support Guidelines for Schools.
- Government of NSW (2017) Fact sheet for Health and Education Staff: Exchanging information and working together to keep young people safe and well.
- Hacker K, Collins J, Gross-Young L, Almeida S, Burke, N. (2008) Coping with youth suicide and overdose: One community's efforts to investigate, intervene, and prevent suicide contagion. *Crisis*, 29(2), 86-95.
- Hamilton S, Metcalfe C, Gunnell D. (2011) Media reporting and suicide: A time-series study of suicide from Clifton Suspension Bridge, UK, 1974-2007. *Journal of Public Health*, 33(4), 511-517.
- Hanssens L. (2011) 'Echo Clusters'-Are they a Unique Phenomenon of Indigenous Attempted and Completed Suicide? *Aboriginal and Islander Health Worker Journal*, 34(1), 17-26.
- Hanssens L, Hanssens P. (2007) Research into the clustering effect of suicide within Indigenous communities, Northern Territory, Australia. *Aboriginal and Islander Health Worker Journal*, 31(3), 6-10.
- Haw C, Hawton K, Niedzwiedz C, Platt S. (2013) Suicide clusters: A review of risk factors and mechanisms. *Suicide and Life-Threatening Behavior*, 43(1), 97-108.
- Hawton K, Saunders KEA, O'Connor R. (2012) Self-harm and suicide in adolescents. *Lancet*, 379(9834), 2373-2382.
- Hazell P. (1991) Postvention after teenage suicide: An Australian experience. *Journal of Adolescence*, 14(4), 335-342.
- headspace. (2012) headspace School Support Suicide Postvention Toolkit – January 2012. Retrieved on 12 April 2018 from: <https://headspace.org.au/assets/download-cards/HSP058-Postvention-Toolkit-May-2012-FA2-LR.pdf>
- Heffel CJ, Riggs SA, Ruiz JM, Ruggles, M. (2015) The Aftermath of a Suicide Cluster in the Age of Online Social Networking: A Qualitative Analysis of Adolescent Grief Reactions. *Contemporary School Psychology*, 19(4), 286-299.
- Insel BJ, Gould MS. (2008) Impact of Modeling on Adolescent Suicidal Behavior. *Psychiatric Clinics of North America*, 31(2), 293-316.
- Isaac M, Elias B, Katz LY, Belik SL, Deane FP, Enns MW, Sareen J, Swampy Cree Suicide Prevention Team (12 members) 8. (2009) Gatekeeper training as a preventative intervention for suicide: a systematic review. *The Canadian Journal of Psychiatry*, 54(4), 260-268.
- Joe S, Romer D, Jamieson PE. (2007) Suicide Acceptability is Related to Suicide Planning in U.S. Adolescents and Young Adults. *Suicide & Life-Threatening Behavior*, 37(2), 165-178.
- Johansson L, Lindqvist P, Eriksson A. (2006) Teenage suicide cluster formation and contagion: Implications for primary care. *BMC Family Practice*, 7, 32.
- Joiner Jr TE. (1999) The clustering and contagion of suicide. *Current Directions in Psychological Science*, 8(3), 89-92.

- Jones P, Gunnell D, Platt S, Scourfield J, Lloyd K, Huxley P, John A, Kamran B, Wells C, Dennis M. (2013) Identifying Probable Suicide Clusters in Wales Using National Mortality Data. *PLoS ONE*, 8(8), e71713.
- Jordan JR, McIntosh JL. (2011) *Grief after suicide: Understanding the consequences and caring for the survivors*. New York, NY: Routledge.
- Jorm AF. (2015) Using the Delphi expert consensus method in mental health research. *Australian & New Zealand Journal of Psychiatry*, 49(10), 887-897.
- Kolves K, De Leo D. (2014) Suicide rates in children aged 10 to 14 years worldwide: Changes in the last two decades. *British Journal of Psychiatry*, 205(4), 283-85.
- Kolves K, De Leo D. (2016) Adolescent suicide rates in 1990-2009: Analysis of age group 15 to 19 years worldwide. *Journal of Adolescent Health*, 58(1), 69-77.
- Kölves, K, De Leo, D. (2014) Is Suicide Grief Different? Empirical Evidence. In: D. De Leo, A. Cimitan, K. Dyregrov, O. Grad & K. Andriessen (Eds) *Bereavement After Traumatic Death: Helping The Survivors* (pp. 161-173). Hogrefe: Göttingen.
- Krug EG, Mercy JA, Dahlberg LL, Zwi AB. (2002) The world report on violence and health. *Lancet*, 360(9339), 1083-1088.
- Larkin GL, Beautrais A. (2012) *Geospatial mapping of suicide clusters*. Auckland: Te Pou o Te Whakaaro Nui.
- Luxton DD, June JD, Fairall JM. (2012) Social media and suicide: a public health perspective. *American Journal of Public Health*, 102(Suppl. 2), S195–200.
- Machlin A, Pirkis J, Spittal MJ. (2013) Which Suicides Are Reported in the media - and what makes them 'Newsworthy'? *Crisis*, 34(5), 305-313.
- Maples MF, Packman J, Abney P, Daugherty RF, Casey JA, Pirtle L. (2005) Suicide by teenagers in middle school: A postvention team approach. *Journal of Counseling and Development*, 83(4), 397-405.
- Marchant A, Hawton K, Stewart A, Montgomery P, Singaravelu V, Lloyd K, Purdy N, Daine K, John A. (2017) A systematic review of the relationship between internet use, self-harm and suicidal behaviour in young people: The good, the bad and the unknown. *PLoS ONE*, 12(8), e0181722.
- Michel K, Wyss K, Frey C, Valach L. (2000) An exercise in improving suicide reporting in print media. *Crisis*, 21(2), 71-79.
- Milner A, San Too L, Spittal MJ. (2017). Cluster Suicides Among Unemployed Persons in Australia Over the Period 2001–2013. *Social Indicators Research*. 137(1), 1-13.
- Mishara BL. (1999) Conceptions of death and suicide in children ages 6-12 and their implications for suicide prevention. *Suicide and Life-Threatening Behavior*, 29(2), 105-118.
- Mok K, Jorm AF, Pirkis J. (2016) Who goes online for suicide-related reasons? *Crisis*, 37, 112-120.
- Mok K, Jorm AF, Pirkis J. (2015) Suicide-related Internet use: A review. *Australian & New Zealand Journal of Psychiatry*, 49(8), 697-705.
- Mueller AS, Abrutyn S, Stockton C. (2015) Can social ties be harmful? Examining the spread of suicide in early adulthood. *Sociological Perspectives*, 58(2), 204-222.
- Mueller AS, Abrutyn S. (2015) Suicidal disclosures among friends: using social network data to understand suicide contagion. *Journal of Health and Social Behavior*, 56(1), 131-148.

- Niederkröthaler T, Sonneck G. (2007) Assessing the impact of media guidelines for reporting on suicides in Austria: interrupted time series analysis. *Australian and New Zealand Journal of Psychiatry*, 41(5), 419–428.
- Niederkröthaler T, Till B, Kapusta ND, Voracek M, Dervic K, Sonneck G. (2009) Copycat effects after media reports on suicide: A population-based ecologic study. *Social Science and Medicine*, 69(7), 1085-1090.
- Niedzwiedz C, Haw C, Hawton K, Platt S. (2014) The definition and epidemiology of clusters of suicidal behavior: A systematic review. *Suicide and Life-Threatening Behavior*, 44(5), 569-581.
- NSW Department of Education. (2018) Response detailing department’s policies, guidelines and initiatives supporting suicide prevention and postvention.
- NSW Government. (2017) Fact Sheet – Youth Aware of Mental health (YAM)
- NSW Government, NSW School-Link. (2016) Guidelines - Response Pathway Post Student Suicide by SWSLHD Child Adolescent Mental Health Service.
- O’Carroll PW, Mercy JA, Steward JA and Centers for Disease Control (1988). CDC recommendations for a community plan for the prevention and containment of suicide clusters. *Morbidity & Mortality Weekly Report*, 37 (Suppl 6), 1–12.
- Page A, Chang SS, Gunnell D. (2011) Surveillance of Australian suicidal behaviour using the internet? *Australian and New Zealand Journal of Psychiatry*, 45(12), 1020–1022.
- Pfeffer CR. (2000) Suicidal behaviour in children: An emphasis on developmental influences. In: Hawton K, Van Heeringen K (eds) *The International Handbook of Suicide and Attempted Suicide*. John Wiley & Sons, pp. 237-48.
- Phillips D. (1974) The influence of suggestion on suicide: Substantive and theoretical implications of the Werther effect. *American Sociological Review*, 39, 340-354.
- Pirkis J, Blood RW. (2001) Suicide and the media: Part I. Reportage in nonfictional media. *Crisis*, 22(4), 146.
- Pirkis J, Burgess P, Blood RW, Francis C. (2007) The newsworthiness of suicide. *Suicide and Life-Threatening Behavior*, 37(3), 278–283.
- Pirkis J, Dare A, Blood RW, Rankin B, Williamson M, Burgess P, Jolley D. (2009) Changes in media reporting of suicide in Australia between 2000/01 and 2006/07. *Crisis*, 30(1), 25–33.
- Pirkis J, Robinson J. (2014) Improving our understanding of youth suicide clusters. *Lancet Psychiatry*, 1(1), 5-6.
- Pirkis JE, Burgess PM, Francis C, Blood RW, Jolley DJ. (2006) The relationship between media reporting of suicide and actual suicide in Australia. *Social Science & Medicine*, 62, 2874–2886.
- Poijula S, Wahlberg KE, Dyregrov A. (2001) Adolescent suicide and suicide contagion in three secondary schools. *International Journal of Emergency Mental Health*, 3(3), 163–168.
- Posey BM, Neuilly MA. (2017) A fatal review: Exploring how children’s deaths are reported in the United States. *Child Abuse & Neglect*, 72,433-445.
- Quinnett, P. (2006) QPR gatekeeper training for suicide prevention: The model, rationale, and theory. Retrieved on 12 April 2018 from: [www.qprinstitute.com](http://www.qprinstitute.com)
- Roberts R, Lepkowski W, Davidson K. (1998) Dealing with the aftermath of a student suicide: A T.E.A.M. approach. *NASSP Bulletin*, 82(597), 53–59.

- Robertson L, Skegg K, Poore M, Williams S, Taylor B. (2012) An adolescent suicide cluster and the possible role of electronic communication technology. *Crisis*, 33(4), 239-245.
- Robinson J, Cox G, Malone A, Williamson M, Baldwin G, Fletcher K, O'Brien M. (2013) A systematic review of school-based interventions aimed at preventing, treating, and responding to suicide-related behavior in young people. *Crisis*, 34(3), 164-182.
- Robinson J, McGorry P, Harris MG, Pirkis J, Burgess P, Hickie I, Headey A. (2006) Australia's national suicide prevention strategy: The next chapter. *Australian Health Review*, 30(3), 271-276.
- Robinson J, Pirkis, J, O'Connor, RC. (2016a) Suicide Clusters. In RC O'Connor & J Pirkis (Ed.), *The International Handbook of Suicide Prevention, Second Edition* (pp. 758-757). West Sussex, UK: John Wiley & Sons, Ltd.
- Robinson J, Too LS, Pirkis J, Spittal MJ. (2016b) Spatial suicide clusters in Australia between 2010 and 2012: A comparison of cluster and non-cluster among young people and adults. *BMC Psychiatry*, 16(1), 417.
- Robinson J, Cox G, Bailey E, Hetrick S, Rodrigues M, Fisher S, Herrman H. (2016c) Social media and suicide prevention: a systematic review. *Early Intervention in Psychiatry*, 10(2), 103-121.
- Romer D, Jamieson PE, Jamieson KH. (2006) Are news reports of suicide contagious? A stringent test in six U.S. cities. *Journal of Communication*, 56(2), 253-270.
- Sacks M, Eth S. (1981) Pathological identification as a cause of suicide on an inpatient unit. *Psychiatric Services*, 32(1), 36-40.
- Smithson J, Sharkey S, Hewis E, Jones RB, Emmens T, Ford T, Owens C. (2011) Membership and boundary maintenance on an online self-harm forum. *Qualitative Health Research*, 21(11), 1567-1575.
- Soole R, Kolves K, De Leo D (2014) Factors related to childhood suicides: Analysis of the Queensland Child Death Register. *Crisis*, 35(5), 292-300.
- Soole R, Kolves K, De Leo D. (2015) Suicide in children: A systematic review. *Archives of Suicide Research*, 19(3), 285-304.
- Stack S. (2000) Suicide: a 15-year review of the sociological literature part II: modernization and social integration perspectives. *Suicide and Life-Threatening Behavior*, 30(2), 163-176.
- Stack S. (2002) Media coverage as a risk factor in suicide. *Injury Prevention*, 8 (Suppl 4), iv30-iv32.
- Stack S. (2003) Media coverage as a risk factor in suicide. *Journal of Epidemiology & Community Health*, 57(4), 238-240.
- Tait G, Carpenter B, De Leo D, Tatz C. (2015) Problems with the coronial determination of 'suicide'. *Mortality*, 20(3), 233-47.
- Tompkins TL, Witt J, Abraibesh N. (2010) Does a gatekeeper suicide prevention program work in a school setting? Evaluating training outcome and moderators of effectiveness. *Suicide and Life-Threatening Behavior*, 40(5), 506-515.
- Wasserman D, Hoven CW, Wasserman C, Wall M, Eisenberg R, Hadlaczky G, Kelleher I, Sarchiapone M, Apter A, Balazs J, Bobes J. (2015) School-based suicide prevention programmes: the SEYLE cluster-randomised, controlled trial. *Lancet*, 385(9977), 1536-1544.
- Westefeld JS, Bell A, Bermingham C, Button C, Shaw K, Skow C, Stinson RD, Woods T. (2010) Suicide among preadolescents: A call to action. *Journal of Loss and Trauma*, 15(5), 381-407.

Wissow LS, Walkup J, Barlow A, Reid R, Kane S. (2001) Cluster and regional influences on suicide in a Southwestern American Indian tribe. *Social Science and Medicine*, 53(9), 1115-1124.

World Health Organization. (2017) *Preventing suicide: a resource for media professionals*, update 2017. Geneva: World Health Organization.

# Appendix A. Additional documents received for review

## NSW Ministry of Health

1. NSW Ministry of Health (2018) – MH-CYP and NSW Health activity in relation to the prevention of youth suicide document. Overview provided for the current request.
2. NSW Government (2015) – Responding to Student Suicide Support Guidelines for Schools. This document was developed in consultation with Primary Principals' Association, NSW Secondary Principals' Council, NSW Health and headspace School Support.
3. NSW Government (2017) – Fact sheet for Health and Education Staff: Exchanging information and working together to keep young people safe and well.
4. NSW Government, NSW School-Link (2016) Guidelines – Response Pathway Post Student Suicide by SWSLHD Child Adolescent Mental Health Service.

## NSW Department of Education

1. NSW Department of Education (2018) – Response detailing the department's policies, guidelines and initiatives supporting suicide prevention and postvention. Overview provided for the current request.
2. NSW Government (2015) – Responding to Student Suicide Support Guidelines for Schools (also sent by the NSW Ministry of Health).
3. NSW Government (2017) – Fact sheet for Health and Education Staff: Exchanging information and working together to keep young people safe and well (also sent by the NSW Ministry of Health).
4. NSW Government (2017) Fact Sheet – Youth Aware of Mental health (YAM).
5. NSW Department of Education (2011) Memorandum: Students applying to enrol in Years 7-12 outside of normal enrolment period (not directly related to suicide).

# Appendix B. Studies investigating child, adolescent and youth suicide clusters

Author (Year)	Data/Method/ Design	Age	Location	Time	No of clusters, prevalence	Risk factors/ groups/ methods	Explanations – potential mechanisms
Wisnow et al (2001)	Suicide data from the tribe's registry of suicide attempts and completions and death certificates; scan statistic (temporal)	13-28 yrs	South-western American Indian tribe	1990-93	A cluster of 7 suicides and serious attempts	<ul style="list-style-type: none"> <li>used the same method (hanging)</li> <li>alcohol use</li> <li>Native Americans</li> </ul>	No specific mechanisms discussed.
Johansson et al (2006)	Police reports, autopsy records, medical records for all suicides from the Department of Forensic Medicine in Umeå; in-depth analysis of all cases	13-19 yrs	Umeå, Sweden	1981-2000	2 point clusters of 3 suicides each (6.8% - 6 out of 88 cases)	<ul style="list-style-type: none"> <li>used the same method (first hanging, second jumping)</li> <li>similarities between the cases</li> </ul>	<p>Hypothetical mechanisms:</p> <ul style="list-style-type: none"> <li>suicide contagion</li> <li>exposure to suicide may induce or intensify mental illnesses in vulnerable teenagers, through the mechanisms of complicated bereavement.</li> </ul>

Author (Year)	Data/Method/ Design	Age	Location	Time	No of clusters, prevalence	Risk factors/ groups/ methods	Explanations – potential mechanisms
Exeter & Boyle (2007)	Suicide and undetermined causes from the General Register Office for Scotland; scan statistic (spatial)	15-44 yrs	Scotland	1980-82, 1990-92, 1999-2001	A cluster in each period in similar location and one additional cluster during the second period	<ul style="list-style-type: none"> <li>high deprivation area</li> <li>higher proportion of poisoning by liquids or solids</li> </ul>	<ul style="list-style-type: none"> <li>analysis does not enable a determination of whether imitative suicides were involved in the cluster</li> <li>clusters may be explained by the concentration of deprivation in the geographical area.</li> </ul>
Hacker et al (2008)	Suicide and overdose mortality data from Massachusetts Department of Public Health; narrative	16-24 yrs	Somerville MA, USA	2000-2005	A cluster of suicide and overdose cases (11 suicides and 10 overdoses)	<ul style="list-style-type: none"> <li>substance abuse</li> <li>communication of information via social media</li> <li>internet memorial pages</li> </ul>	<ul style="list-style-type: none"> <li>the main focus was on postvention activities to stop the contagion, following the Center of Disease Control and Prevention recommendations</li> </ul>
Austin et al (2011)	Case files from Forensic Science South Australia	≤17 yrs	Australia (SA)	1995-99, 2005-09	A cluster of 4 people during second time period	<ul style="list-style-type: none"> <li>attendance at the same school</li> <li>frequent use of internet and chat rooms</li> <li>all cases were hanging</li> </ul>	<ul style="list-style-type: none"> <li>potential of imitation affected by social media</li> </ul>

Author (Year)	Data/Method/ Design	Age	Location	Time	No of clusters, prevalence	Risk factors/ groups/ methods	Explanations – potential mechanisms
Robertson et al (2012)	Suicide data from the Police Inquest Officer records, Coroner's pathologist's records and the Child and Youth Mortality Review database; scan test (temporal) and review of files	15-18 yrs	New Zealand (a city of less than 150,000 inhabitants)	1998-2009	A cluster of 8 people (6 cases were statistically identified as a time-space cluster in 6 months and 2 were with the evidence of links)	<ul style="list-style-type: none"> <li>half (4) were Maori origin</li> <li>presence of mental health problems including alcohol and drug abuse</li> <li>relationship difficulties (potential triggers in some cases)</li> <li>links via social media site</li> <li>creation of multiple memory pages</li> <li>3 used firearms and 5 hanging</li> </ul>	<ul style="list-style-type: none"> <li>contagion, evidence of contribution of social media to the cluster</li> <li>social media site contributed to the rumours and exchange of inaccurate information</li> <li>potential contribution to the glorification of death in young people attending Maori traditional funeral (tangi) was a concern</li> </ul>
Fowler et al (2013)	Suicide and suicide attempt data from the Delaware Office of the Medical Examiner, law enforcement, emergency departments and inpatient records; interviews	12-21 yrs	Kent & Sussex counties in Delaware, USA	2012 (Jan 1-May 4)	A cluster of 11 cases	<p>Predominant:</p> <ul style="list-style-type: none"> <li>attendance at the same school</li> <li>mental health problems</li> <li>problems with parents</li> <li>legal problems</li> <li>boy/girlfriend or peer issues</li> <li>communicating about suicide</li> </ul>	<ul style="list-style-type: none"> <li>indication of similarities with other clusters – risk factors attributed to suicide clusters such as vulnerable young people and rural/ suburban environment</li> </ul>

<b>Author (Year)</b>	<b>Data/Method/ Design</b>	<b>Age</b>	<b>Location</b>	<b>Time</b>	<b>No of clusters, prevalence</b>	<b>Risk factors/ groups/ methods</b>	<b>Explanations – potential mechanisms</b>
Jones et al (2013)	Suicide, undetermined causes of death, (accidental deaths for secondary analyses) from the Office for National Statistics, Newport; SaTScan (temporo-spatial)	15-34 yrs	Wales	2000-2009	A cluster of 10 cases – 0.78%	<ul style="list-style-type: none"> <li>No significant differences by gender or method</li> </ul>	<p>Theoretical points from earlier studies/theories:</p> <ul style="list-style-type: none"> <li>vulnerable individuals with similar characteristics affected by suicides in peers (Joiner, 1999)</li> <li>contagion – imitation (social learning theory)</li> </ul>
Gould et al (2014)	Matched case-control study – suicide mortality data from the 48 US mainland state departments of health; scan statistic and multilevel modelling	13-20 yrs	USA	1988-1996	53 clusters (48 included in the case-control study) – 3-11 suicides in each	<ul style="list-style-type: none"> <li>a greater proportion and mean number of news stories about the index case or other suicidal individuals in local newspapers</li> <li>reporting on the front page and/or with a picture</li> <li>details of suicides (including procedures, suicide note)</li> <li>an accompanying sad picture and the celebrity status of the person who died were independently predictors</li> </ul>	<ul style="list-style-type: none"> <li>repeated, detailed and explicit reporting on suicide could normalise suicide for vulnerable teenagers and prompt consideration of the modelled act</li> <li>priming – activation of a thought may activate related, preprogrammed thoughts in suicidal teens</li> <li>findings support differential identification – models similar to the reader (ie another teen) or admired by them (eg celebrities) are most impactful</li> <li>there is still a need to identify factors contributing to the clusters where there is no excess of suicide reporting.</li> </ul>



