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- K. Stuart, Joint Centre for Disaster Research, Massey University/GNS Science,
PO Box 756, Wellington
- L. Patterson, School of People, Planning and Environment, Massey University,
PO Box 756, Wellington
- R. Peace, School of People, Planning and Environment, Massey University, PO
Box 756, Wellington
- D. M. Johnston, Joint Centre for Disaster Research, Massey University/GNS
Science, PO Box 30368, Lower Hutt

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ABSTRACT

A range of natural disasters have affected New Zealand schools necessitating closures of varying duration. The research project that is the basis of this report involved a preliminary exploration into the experiences of schools affected by closure during two hazard events: the 2009 Auckland H1N1 influenza outbreak and the 2006 Canterbury snow storm. In-depth interviews with representatives from 11 schools were conducted using a semi-structured interview schedule. Topics of inquiry included how closure was managed, levels of satisfaction with that process, changes made as a result of the experience and community consequences of the event.

The Auckland schools whose representatives were interviewed in relation to the H1N1 virus outbreak all experienced temporary closure of a minimum of four days on advice from the Ministry of Education and Regional Health authorities during the winter of 2009. The Canterbury schools whose representatives were interviewed in relation to the 2006 snow storm closures were closed from between one and five days.

School representatives from both these regions were by and large satisfied with the policies that were in place for the management of temporary school closure. They said that the unknown nature of the course of such events meant that policies could only ever be guides to action and that a degree of flexibility would always be required from management staff when considering what action to take.

In reporting on their experiences, respondents constructed understandings of their communities and of the event that suggested differences between the experiences of school closure due to an adverse weather event and school closure due to a public health threat. While school representatives from the Canterbury region reported feeling supported by the wider community through what was a ‘difficult time’, representatives from the Auckland region reported experiences of social exclusion.

This research project identifies a number of possible directions for future research. Respondents suggest that they know little about how temporary school closure affects others in their community, with particular concern shown for non-English speaking new immigrant families. This is one avenue that further research could explore. Others avenues could include understanding the importance of socio-economic and cultural differences to experiences of school closure as well as investigating whether experiences of inclusion and exclusion are different depending on the reason for closure.

KEYWORDS

Community resilience, school closure, pandemic, severe weather, children, preparedness.

1.0 INTRODUCTION

Schools are more than a workplace or an educational institution. Schools may also be a locus for activities of the wider community and can play an integral part in the management of preparedness and response in disaster and public health events. With local, national and international disasters increasingly in the news, it seems timely to investigate the community consequences of temporary school closure due to hazard events. New Zealand is exposed to a wide range of potentially devastating impacts from a variety of natural hazards and many events have resulted in school closures for varying lengths of time (New Zealand Government 2007). Indeed, New Zealand schools are required by the Ministry of Education to have official policies and procedures in place that explicate how a school will respond to emergency evacuations such as may be required due to fire or a range of natural disasters (Johnston, Tarrant, Tipler, Coomer, Pedersen & Garside, 2010, p. 1).

In this report, we discuss the results of a preliminary study exploring the consequences of temporary school closure for two New Zealand communities. Research has been undertaken looking at the social significance of permanent school closure in New Zealand communities (Kearns, Lewis, McCreanor & Witten, 2009; Witten, McCreanor & Kearns, 2007; Witten, McCreanor, Kearns & Ramasubramanian, 2001) but what is of interest here is temporary school closure as a result of a hazard event. The efficacy and the advisability of school closure during an influenza pandemic has been the topic of debate (Cauchemez, Ferguson, Wachtel, Tegnell, Saour, Duncan & Nicoll, 2009; Lofgren, Rogers, Senese & Fefferman, 2008) and is still one possible consequence of an influenza outbreak, yet little is known about the consequences for the community in situations of temporary school closure¹. This research report constitutes an exploratory inquiry into the consequences of temporary school closure for communities.

Representatives from a total of 11 schools took part in one-to-one, in-depth interviews of between 30 and 60 minutes. These representatives were principals, deputy principals or members of management teams responsible for closure decision-making during the 2009 Auckland H1N1 (swine flu) outbreak and the 2006 Canterbury snow storm. The research focused on:

1. How closure was managed;
2. Respondents satisfaction with their closure process;
3. Changes to closure processes following the experience of a school closure; and
4. Identifying consequences of temporary school closure for local communities.

The notion that school is important to understandings of identity in New Zealand communities has been supported by previous research (Ministry of Agriculture and Fisheries, 1994; Witten, et al., 2001). Witten, et al., (2001) found that school played a central part in people's sense of community belonging. Schools are a "focal point for community participation and identification ... [and] can contribute to the broader health of a community" (Witten, et al., 2001, p. 309). Aside from the primary educative role that schools play, they are also places that afford people an opportunity to become part of a local community, hence serving "as catalysts for community participation, social cohesion and the vitality of neighbourhoods"

¹ For the purpose of clarity, a distinction between permanent school closure and temporary school closure is made here. However, the balance of the report uses the term school closure to refer to the temporary school closures which were the focus of the research.

(Witten, et al., 2001, p. 307). Researchers have found that “experiences of inclusion and exclusion [are] central to people’s sense of belonging” (Witten, et al., 2001, p. 314). In addition, research on schools can contribute to an understanding of the resilience of a community and the role that parents, students and school staff play in the creation and maintenance of that resilience (Ronan & Johnston, 2005).

The two regions that were the focus of the present study were chosen because of their experiences with the school closure process. There are, however, some distinct differences between the communities studied. Firstly, the circumstances which initiated closure in each region were different: the H1N1 influenza outbreak was a public health crisis while the other was an adverse weather event in the form of a snow storm. Secondly, the school communities affected by the H1N1 outbreak and the 2006 snow storm are different both geographically and demographically. The schools in the Auckland region are part of a wider urban conurbation with a population of just over 1.3 million (<http://www.arc.govt.nz/auckland/population-and-statistics/population-and-statistics-home.cfm>), whereas Canterbury is a more sparsely populated, rural area with a highly developed school transport infrastructure. A Canterbury school may service a community that has students coming from temperate coastal areas, or from relatively high altitude areas, or who traverse a transport route that involves crossing one of the numerous rivers of the region. All of these features of the physical environment have implications for the management of temporary school closure.

The present study was designed to examine instances of temporary school closure in New Zealand schools. What came to light during the research was that the two regions had marked differences in terms of their socio-economic and ethnic compositions. These differences will be discussed in section four. It pays to note that within the international disaster research literature, the importance of ethnocultural differences in relation to understanding disaster experiences has been demonstrated (Marsella, Johnson, Watson & Grycsynski, 2008). Communities affected by disaster have pre-existing social inequities which leave some people more vulnerable than others (Phillips, Thomas, Fothergill & Blinn-Pike, 2009). Understanding the importance of such differences in disaster events is a growing avenue of research which will be further discussed in this report.

1.1 Temporary closure in New Zealand schools

Of the 11 schools studied for this project, the representatives of four schools were commenting on school closure experience as a result of the H1N1 outbreak while the other seven were commenting on their experience with school closure as a result of a snowstorm. The representatives interviewed in relation to their experience of closure due to an H1N1 outbreak were all from primary schools. Representatives who were commenting on snow storm closures were from a mixture of primary and secondary schools. In some instances, schools had a history of closure for more than one type of event. Schools’ history of closure varied, with the schools in Auckland having no previous closures compared with the Canterbury schools where all reported previous closures with some respondents commenting that closure was a regular occurrence.

The schools that participated in the research are situated in markedly different geographic locations, from small, isolated rural towns to large, urban centres. The schools ranged from

decile 1 to decile 9² and ranged in size from a roll of 144 to 1150. The following table summarises some of the descriptive data on the schools. The method of transport used by students to get to school is included in the table because of the importance principals attached to this information in relation to how they managed temporary school closure.

Table 1 Descriptive data on respondent schools

School	Roll	Decile	Year Level	Location	Main method of transport to school	Reason for closure	Previous closure experience
A	200	7	7-13	Small town/rural	School bus	Snow	Yes
B	350	9	0-8	Rural/commuter	Private car	Snow	Yes
C	144	2	1-8	Urban	Walk	H1N1	No
D	750	1	0-8	Urban	Walk	H1N1	No
E	500	2	0-6	Urban	Walk	H1N1	No
F	370	1	0-6	Urban	Walk	H1N1	No
G	500	8	7-13	Rural/commuter	School bus/private car	Snow	Yes
H	230	9	1-6	Rural/commuter	School bus/private car	Snow	Yes
I	1150	7	9-13	Large town/rural	Walk/School bus	Snow	Yes ³
J	750	8	7-13	Rural/commuter	School bus	Snow	Yes
K	270	8	0-6	Rural/commuter	School bus/private car	Snow	Yes

1.2 Method

This qualitative exploratory research project employed a seven item, semi-structured interview schedule.⁴ Potential respondents were identified through a local contact's identification of schools affected by the 2006 Canterbury snowstorm and a Ministry of Education Virus Outbreak school closures list. Initial intentions for the study were to also canvas schools affected by the 2004 Manawatu flood, however, requests for participation in the research received no response from either email or telephone messages.

Possible research respondents were approached first by an email outlining the purpose of the research and inviting their participation. Respondents were primarily principals, deputy-principals and assistant principals of the schools who had been at the school at the time of the closure, although in two instances a teacher and a guidance counsellor were nominated by the school as the most appropriate person to speak with.

The interviews were digitally recorded and later transcribed. One hundred and eighteen pages of transcript were produced. Analysis was carried out using a matrix-based method of data management and analysis (Ritchie, Spencer & O'Connor, 2003). This involved

² A decile ranking is a socio-economic indicator which is arrived at by establishing the percentage of students who fall into the lowest socio-economic group calculated using census data. Schools with the lowest ranking of one have the highest percentage of students from the lowest socio-economic group. The highest ranking a school can have is 10 (<http://www.minedu.govt.nz>).

³ This particular school's history of closure experience did not always involve the whole school but was more frequently limited to students from a particular bus run or geographic area within the school's community.

⁴ A peer-reviewed, low risk ethics notification was approved by the Massey University Ethics Committee.

developing an index which provided a foundation for the creation of a conceptual framework for analysis. The framework identified four general themes: pre-closure environment; the decision-making process; the consequences of closure; and lessons learned.

In the production of this report, schools have been given a random letter for identification. Respondents are identified using the letter that represents the school they were from. In some cases more than one person at a school took part, but their comments are not differentiated according to speaker. Rather, they are identified only in relation to the school they belonged to.

As has been noted, the respondent schools are diverse in character. They range from small, rural, moderate to high decile schools with the majority of students arriving at school by bus to large, urban, low decile schools with no students arriving at school by bus. The school communities they are situated within are similarly diverse. Some are populated by students largely from multi-generational households with high levels of unemployment; some schools service students who live in isolated rural situations, while others have student populations who live in semi-rural locations but where most parents commute to a nearby city centre for employment.

When interpreting results, the limitations of the study need to be acknowledged. The intention of the project was to explore some of the emerging themes and issues relating to community consequences of temporary school closure. The results of this qualitative study are not intended to be representative of all schools that have experienced temporary closure nor are they to be generalised to a broader population. The qualitative approach relied on information gathered from semi-structured interviews and the data allowed for the preliminary identification of themes and issues that may provide avenues for future exploration.

1.3 Format of the report

This report has four further sections. The next section presents the thematic analysis of data from the 2009 H1N1 influenza pandemic related to the closure of Auckland schools. The third section presents the analysis from the Canterbury 2006 snow storm school closures drawing upon the same four general themes. The fourth section presents a comparative discussion of the data in relation to the two school closure events. The fifth section summarises the research and makes suggestions for the direction of future research into the consequences to communities of temporary school closures in New Zealand.

2.0 H1N1 PANDEMIC CLOSURES: AUCKLAND, 2009

In April 2009, news spread that lives had been lost in Mexico following the contraction of the H1N1 influenza strain (<http://www.searo>). Health authorities went on alert world wide and there was a proliferation of media and public interest in the disease and its potential spread. In New Zealand, the Ministry of Health issued the first of many media releases on April 26th, advising people that the Auckland Regional Public Health Service was investigating the possibility that a group of recently-returned travellers from Mexico may be infected with the H1N1 virus (<http://www.moh.govt.nz/>).

Schools in New Zealand which had students identified with the virus were advised by government ministry officials to close for a minimum of four days. In some cases, closure was restricted to a class or a year group. In other cases, whole school closure was advised.

While some researchers are calling for caution in the assumption that school closures are necessarily the best way to manage public outbreaks of viruses such as H1N1 (Berkman, 2008; Lofgren, Rogers, Senese & Fefferman, 2008; Vynnycky & Edmunds, 2007), others suggest it is currently the most efficient strategy for controlling the spread of such diseases (Sypsal & Hatzakis, 2009). Soon after the New Zealand outbreak, researchers here reported that “The apparent decline of the pandemic (shown by all surveillance systems) cannot be fully explained … we estimate that only about 11 per cent of the population have been infected by this novel agent” (Baker, et al., 2009).

2.1 The pre-closure environment of the H1N1 outbreak

There was a great deal of uncertainty surrounding the H1N1 virus outbreak both in terms of expectations around progression of the virus as well as the necessary or best response plans. During the winter of 2009, eight New Zealand schools were closed as a result of the H1N1 outbreak (Ministry of Education, personal correspondence, 2010). All of the respondents worked in schools closed for a minimum of four days and all reported that they had no previous experience of school closure for a similar event, or for any adverse weather events.

Schools that closed due to the H1N1 virus outbreak undertook closure in particular circumstances. First of all, these schools were not accustomed to the need to close the school under such urgent conditions. Secondly, the potential exposure to H1N1 had been well publicised in the media and was an issue that was of pertinence to the wider population in a way that is not always the case for schools affected by the need to close. This was not an individual school issue alone, but rather was one which concerned regional, national and international communities. Subsequently, school closure was managed with external advice from the Ministry of Education and Regional Public Health authorities. Although the final decision to close did rest with Board of Trustees (in consultation with school principals), respondents all spoke of closure as an action that they were advised or ‘told’ to undertake.

I didn't realise – I did later – that probably we could have said no we wouldn't (close), that it was ultimately the Board's decision but I felt that they [the Ministries of Education and Health] were the experts and they were in control of it and that we should co-operate really.

Respondent E

New Zealand schools traditionally experience higher absence rates during the winter months. Respondents reported that attendance rates at the time of closure were already being monitored closely and a growing number of student absences had been noted. Schools reported absences rates prior to closure in the region of 20 – 30 per cent of the school roll. Given the wide media and public interest in the H1N1 virus, the pre-closure environment of the schools included some awareness of the potential for closure prior to the actual event.

School E, a large, decile 2, urban school, was tracking student attendance in the period leading up to closure.

It was the middle of winter, and we track attendance really closely in our school because it's an issue in terms of making sure the students come and we often have a lot of children with asthma and respiratory problems in winter. A lot of poor families ... so ... we often have issues with having no lunch [and] in the winter, clothing is an issue ... getting clothes dry and enough clothing to get to school. So we often visit and check [people].

Respondent E

In respect of absences, then, schools were continuing a practice that was already established, though checking up on absences was taking more time than usual.

Media reports were also a feature of the pre-closure environment and principals were concerned to manage the anxiety this created as best they could. They addressed this problem by disseminating information around the process that would be followed for a variety of different closure scenarios.

Staff were getting anxious about what they were hearing in the media ... I had been giving them feedback about ... our plan ... But I had some who were particularly anxious ... The day before we shut down I had a special staff meeting and called everybody in and said we will go through this really in depth so that you understand, you know. Because some people were anxious and it helped to alleviate that anxiousness.

Respondent E

In the time prior to closure, schools had placed particular emphasis on encouraging appropriate hygiene practices as a means of trying to contain the spread of infection. Information on steps to take for this was available on government ministry websites. Notices were put up around the schools. "As a staff we had already upped our hygiene levels in the classroom. We had new posters done for the classroom and made sure we had plenty of soap and paper towels and all that sort of thing going on," said Respondent C. The well-being of students was also monitored with increased vigilance and any students displaying flu-like symptoms were sent to the sick bay and/or home.

The pre-closure environment in the schools was one with a number of features. These included a highly publicised virus outbreak in the middle of winter and a growing sense of anxiety amongst the general population and school staff regarding the potential trajectory of the virus. There was also an increased vigilance around personal hygiene, the state of individual's health and record-keeping around absenteeism.

2.2 The closure process for the H1N1 outbreak

The process of making the decision to close a school involved communication between principals and their Board of Trustee chairs, senior management teams, Ministry of Education, Ministry of Health and Auckland Regional Health representatives. Respondents report a largely favourable experience of the closure decision-making process. They said they knew what steps to take as these were already outlined in their pandemic response plans. They also said that ministry websites were frequently accessed during that time and

that these provided them with the information they needed. Respondents recounted the decision-making process as one that was made easier by prior preparation and awareness of what would be required should closure be necessary.

Respondents reported the decision to close the school as one that was made as a result of two key factors: high absenteeism and positive identification of the H1N1 virus in the medical testing results of a school student. In spite of awareness around the possibility of closure, the decision to close was nevertheless described as a one that seemed 'sudden' and which proceeded with a high degree of urgency around timeliness.

... We had a board meeting scheduled for that week. We were going to do it (delegate authority for closure from the board chair to the principal) at the board meeting [due later in the week of closure. But before that meeting could be held] ... I went and saw [the chair] and said, 'this is what's happening, it's moving pretty quickly! ... [so we did] a telephone vote.

Respondent C

While making the decision to close was experienced as something that involved pressure to be decisive in the face of much that was unknown, implementing the closure took some time as there was a need to ensure adequate communication with the school community. The length of time it took to implement a decision to close (from the time at which a school first knew that H1N1 had been positively identified to the actual closure) ranged from 16.5 hours to 36 hours.

Official notification to parents and caregivers was sent out at the close of the school day the afternoon before a closure. Schools notified the community of the closure primarily through a written notice, though the families of absent students received telephone calls. Other means of communicating the closure message included use of local media as well as whiteboard notices at the entrances to school grounds. The whiteboard included information on closure expectations as well as the contact details of principals. The speed at which developments occurred meant that it was not always possible to follow written procedure.

I thought we would be telling the students on the Tuesday afternoon 'don't come back', because I could see what was happening. It happened about 24 hours before I expected it, so we had to sort of skip some steps [in the pandemic plan] because of the speed it happened. Because we ended up with, I think, three more identified cases.

Respondent C

The intention of closure was described in communication with parents as an attempt to maintain their child's well-being. It was about trying to

... break that cycle of infection. And that's what we tried to explain, that's what the letter said. We are doing this to break the cycle of infection so your child won't get sick. That's what it's all about. We do have some sick children; we are trying to stop your child from getting sick. And that's how we explained it to our community.

Respondent C

Once the decision to close a school had been made, there was a need to inform staff, students, parents and caregivers. Teachers and administrative staff were informed of the necessity for closure through staff meetings. Students were informed by classroom teachers and through newsletters sent home with them to caregivers. In schools where the decision to close was made in the evening hours, notification of closure took place the following day through announcements, written notices, and through local media who were also asked to broadcast notice of the closure.

The primary difficulty respondents commented upon following the decision to close was how to manage communication of the decision to the school community in such a way that no child was put at risk and the anxiety and confusion caused was kept to a minimum. Hence, although the decision to close had already been made the day prior, in two of the cases next-day closure did not take place as it was deemed to carry too high a risk to children.

So Tuesday, I got this phone contact at home [about 8] and by [about] 10 o'clock they were talking about the fact that this little girl had been positively identified with [the H1N1 virus] and we should close the school. ... I said to them that we cannot close the school on Wednesday because there is no way we can get hold of people. A number of children will walk up to the gate and so – they will have walked from home – the parents may have gone out to work, so we just can't turn around and send them home. I said probably the best that we could do is to have the school open on Wednesday and notify the parents on Wednesday that we are closed Thursday/Friday.

Respondent F

The school closures necessitated by the outbreak of the H1N1 virus in the Auckland region highlighted what schools acknowledge is an on-going difficulty for them even outside times of such immediate crisis. Contact details for parents and caregivers change frequently. The wide-spread use of mobile telephones does not necessarily improve the efficiency of contacting adults responsible for children during such an event. "... Phone numbers can change from week to week. In our community, that is something we do notice," said Respondent E. All four schools identified changed contact details as an on-going problem and an issue that concerned them during this particular event.

One respondent reported that the use of text messaging via mobile telephones was problematic for their school community in a way that created confusion when the decision to close was communicated in an inaccurate way. In that instance, a board member

decided to send a text message out to a number of people in the community which was obviously the wrong thing to do ... and I didn't know anything about it. I got to school on Wednesday morning and we had people ringing up and saying 'Is it right that the school is closed today' [and we would ask] 'how did you know?' ... 'Oh well, this text message' – and it ran rampant through the community.

Respondent F

The outcome of the text message was that a large number of children did not attend school the following day even though the school was not closed.

Though absenteeism rates at the above school had been about 22 per cent the previous school day, they almost doubled to 40 per cent the day following the text message. Modern telephone technologies created problematic issues in some circumstances but respondents

also reported the usefulness of technology. Schools employed telephone answering machine messages to convey the details of closure and to update information on details such as opening dates.

A number of circumstances in the pre-closure environment at school E may have contributed to the spread of the illness. First of all, the children who became infected were from a large family so that rather than the spread of infection being contained within a portion of the school

... it turned out they were in the junior classes, the middle school classes, the senior classes. ... Throughout the school – it wasn't in one particular area – and that some of those children had come in close contact with others.

Respondent E

Adding to the risk of infection was the fact that

... their teachers had been away sick and then those classes had been split and so they had gone into other classes. So it just became more and more evident that [we would need to close].

Respondent E

Prior to the announcement of closure, some parents had begun to contact schools asking about the likelihood of the H1N1 virus being present at the school. Other parents responded before the decision to close was made, on the basis of rumours that were circulating in the community.

We hadn't said anything, but – you know – there's one [parent] ... [and] she came and said to me I heard outside the gate that there has been some children [with H1N1] – can I take my son now? I said 'it's up to you, you're the parent'. ... One Dad was in Pak'n Save apparently and he heard someone's phone ring and he heard someone having a conversation about [H1N1] at [our school] so he just left and came straight for his child.

Respondent E

Overall, the pre-closure environment of schools was one that involved heightened anxiety around the well-being of children, their families and school staff members, as well as community uncertainty regarding the likely course of action required. Even amongst senior staff members in possession of pandemic plans, there was concern created by the unknown nature of the possible progression of the illness and the speed at which critical decisions had to be made and communicated.

2.3 Closure consequences of the H1N1 outbreak

Reported consequences of school closure as a result of the H1N1 outbreak included the need to quickly communicate the closure decision to the whole school community, a subsequent increase of pressure on communication systems, unwanted media attention, and increased and continued anxiety in the school community. The schools' communication plans involved explaining the need for closure. As already noted, the primary reason given for closing was to 'break the cycle of infection' in order 'to keep your child from getting sick'.

Reports of positive consequences of the closure included an increased vigilance around hygiene standards and the containment of sick children and staff. Respondents said that as a result of the closure there was less illness following re-opening which they attributed to decreased exposure to a variety of seasonal illnesses that would ordinarily be spread amongst the school community during the winter months. Schools said it seemed that parents were keeping sick children at home in circumstances where previously they would have sent them to school.

Analysis of respondent's responses to questions around the consequences of closure for themselves and their communities suggested salient experiences revolved around changes to the physical environment as well as changes in the social/emotional environment. Respondents identified three consequences of the closure experience:

1. Increased anxiety (an on-going element of the closure experience);
2. Increased efforts to control the physical environment; and
3. Isolation.

2.3.1 Anxiety

Knowledge that an H1N1 pandemic was a possibility was communicated to the New Zealand population through the media. Schools said their communities were all aware that school closure was a possibility. Respondents said the situation caused anxiety in four different ways: because of the possibility that they or one of their family members might contract H1N1 with an unknown health outcome; because of a lack of staff/management certainty over how to best handle the school's closure process; because of concern for the financial implications given uncertainty around who would carry the costs of non-attendance of workers; and because of anxiety about doing the 'right' thing in the eyes of the community.

Concern about the contraction of the H1N1 virus was one shared with the general public. All respondents commented that they experienced some concern around managing the closure process in a way that was clear, that reached all affected members of the community and that resulted in the least amount of additional anxiety for students and their families. Their primary worry was related to their lack of experience managing such a closure and a concern that issues might arise that their policy documents had not anticipated. The financial consequence of closure was a source of confusion given the unusual, pandemic-related nature of the closure. Trepidation around financial matters was a part of the consultation process prior to closure and meant that schools acted to ensure that the correct process was followed so that financial liability would not rest with schools or individuals.

The area of concern that created anxiety around finances was the question of whether or not staff that were absent due to the school closure would or would not be paid and if they were paid then who would be responsible for their payment.

... We'd had some information from the Ministry of Education and from the Principals Federation and from NZEI ... and School Trustees – about who was responsible and who would be being paid, depending on who made the decision about the closure of the school and if we made the closure on the recommendation of the Ministry of Education – ah – then our teachers would still be paid. If we made it off our own bat, then our teachers would have to be paid directly from school funds ... so there were some grey areas there about who's

going to get paid, ... how's it all going to tie together.

Respondent F

In reflecting back on their post-closure actions, a respondent suggested that there were some things they had done that might have been problematic. This respondent had a child attending another school and went to pick the child up on the day their own school was closed.

... People kind of looked surprised – are you allowed to be here? Should you be here? I thought 'should I'? Because no one told me that I needed to be quarantined ... I mean the idea was for the students, when they took the letters home, that they should stay home and not go out and stuff ...

The respondent had further cause to question their actions later that day as they read the news on-line.

... and [the media] were going for a Pacifica⁵ minister in Christchurch. They felt he put his congregation at risk because he had been exposed to [H1N1] and he shouldn't have attended a service, and – you know – and they were saying he should stand down, he should do this – they really hung him out to dry. And all I could think of was – my God – I did that! ... If someone really wanted to get me, they could ring up the media and say – this principal's ... gone to [another school] ... and exposed – you know. And I thought – I felt really vulnerable ...

Respondent E

The experience of vulnerability was at least in part the result of confusion around what was expected of 'symptom-free' members of the school community. While it was obvious to this respondent that people with flu symptoms needed to be isolated, they did not identify themselves as someone requiring isolation.

2.3.2 Control

One of the consequences of the H1N1 outbreak was a need to control the physical environment and to contain contact with people who either had or potentially had the illness. The first steps towards control of the physical environment began prior to closure with the appearance of posters around schools to remind staff and students of the ways to reduce exposure to viruses generally through personal hygiene measures such as correct hand washing and drying. Following school closure, some schools reported having cleaning staff brought in to wash down and disinfect surface areas including telephones and door handles. Vigilance around cleanliness had a monetary impact on budgets with School C reporting an increase in expenditure for cleaning products, the supply of tissues, anti-bacterial soap and paper towels 'sky-rocketing'.

One of the most obvious consequences of closure was that members of the school community were required to restrict their physical contact with others in their school and extended communities. Containment began at first with sick children being sent to sick bays and then home. Containment became more widespread once the closure decision was

⁵ The respondent used the term Pacifica in this instance and at other times during the interview as a collective reference, as did representatives from other schools in the Auckland region. However, the authors of this report prefer the term Pacific peoples and will employ the latter in discussion of ethnicity issues later in this report.

made and could be said to be a primary consequence of school closure. While this response to the virus's presence in communities produced some negative consequences, respondents said that there also were positive consequences of school closure due to the H1N1 outbreak. The closures gave staff and students time in which they were socially isolated at a time of year during which contraction of a variety of colds and flu could normally be expected to take place.

"What was good about [the closure] was that we had a lot less sickness. I think it gave everyone a chance to get rid of their winter ills,"

Respondent E.

I'll tell you what actually happened was – it was actually good. It came at a time when there had been a lot of people sick and a lot of staff struggling with their health ... so a break away ... probably worked in our favour in the end in that the majority of the staff who were slightly ill, or had various sorts of niggly type colds and things, were able to actually spend time away from the place and it probably helped them to stay on board through till the end of the term; whereas we might normally have expected a few other staff members to get sick in the latter part of the term. The four-day break probably was actually quite good.

Respondent F

One effect of containment was thus the impression of a reduction of other forms of seasonal, contagious illness.

2.3.3 Isolation

The issue of social isolation during the H1N1 virus outbreak was a feature in respondent's accounts in a number of different ways. An issue arose when the father of a student at one of the schools died of a cause unrelated to the pandemic.

... We couldn't go to the funeral ... and that affected us. That was an unfortunate coincidence. I talked to [a community leader] and I said could you please let – I said I've put a card in your letterbox, could you please let the family know why we are not there? ... It was a shocker.

Respondent C

This was not the only way in which school communities experienced social and physical isolation. In addition to the above example of forced separation from a bereaved member of their community, and subsequent inability to offer physical presence and support in a public setting, other school community members reported experiences of ostracism. Itinerant teachers based in schools affected by closure were asked by principals in other schools not to come to do their work, although the principal said ministry officials had not recommended the necessity of such action. In another instance, a meeting established in order to have senior members of the school staff share their experience of the closure process at another school suddenly changed. Many of the students at the inviting school had siblings who attended the closed school.

But ... when we got there, they just scooped us into the principal's office and shut the door. (laugh). I think he decided 'I don't think I will take you to the staff room to talk to my staff'. (laugh) Yes – I said to [the other person I was with] do you

think that's funny? ... 'why don't you [come] and have morning tea with us?' ... [then] like no, we'll just lock you up in the office! ... Get rid of you, yes.

Respondent E

For families identified as having members infected with H1N1 and advised to remain at home, sudden containment created some practical problems.

... I went to the family – the family that had [members identified with H1N1] – they lived in the one house – and they had been quarantined and I was concerned as to how they were, so I rung the mother and said how are you getting on for food and things? She said that they were struggling because there were seven kids ... And so when I rung her and she was really shy about it – I said 'how's things going?' – and she said actually we have really got to the bottom of the freezer. So I said I'll bring you some meat and fresh veges and fruit and – um – she said thank you very much. She was really embarrassed about it. She rang me back and said – I hate to say this, but can you please bring toilet paper?

Respondent E

When this principal went to the local grocery store to purchase food for the family, they experienced the scrutiny of the check out operator. On presenting the school's credit card to pay for the food, the operator looked at it "put it down (laugh) and said are you the 'swine flu' school?"

Respondent E.

The isolation created for families with sick family members extended to the broader school community in other ways as well.

...They put a sign up to say that no students of [our school] were to enter [the public building] ... And also the Medical Centre – they were inundated with people so they also put a sign up as well. And it was interesting because it was kind of like we were lepers – you know. It really was. People were saying they didn't want [our school's] children going into their shops.

Respondent E

While isolation due to containment efforts was an unavoidable consequence of ministry level advice and decision-making, the sense of isolation this created was further intensified through both a gap in considering the needs of quarantined families for essential supplies and through a sense of social isolation that resulted from interactions with members of the wider community.

2.4 Lessons learned from the Auckland H1N1 outbreak

In reflecting on the lessons learned from the temporary school closure, respondents identified useful practices, as well as offering words of caution and advice to others who may experience the same circumstances of closure. As has already been noted, respondents largely reported being satisfied with the procedures followed in implementing the temporary school closure and generally felt the event had been managed well and that their procedure manuals had provided them with the necessary information to deal with the event. They identified some practices as ones which were particularly useful.

Useful practices included referencing policy manuals, Ministry of Education and Ministry of Health websites, using the media to publicise the closure, and putting whiteboard notices at all entrances to the school grounds. Problematic areas included confusion around whether or not staff were expected to be at school during the closure, the implications of closure for the payment of staff, how seriously isolation was to be taken and whether those who were symptom-free were also to avoid all contact with the public.

2.4.1 Advice and changes to practice

When asked whether there was anything they would do differently if they found themselves in the same situation in the future, respondents largely said there was not. They did not report any significant changes to their pandemic plans as a result of the 2009 experience. The advice principals offered other schools was to follow their pandemic response plan, to ensure they kept others in their schools' cluster up to date with developments, and to be prepared for media interest and know how to manage that interest.

Respondents commented on difficulties managing media interest, whose intrusions were mentioned as problematic. However, in respondents' accounts, relationships with media were described as something of a double-edge sword. Schools said that they used their local newspaper and radio station to help publicise the details around closure and re-opening, but, in general, media interest from national news teams was accounted for as an unwelcome, prurient intrusion. While the media was considered a useful means of ensuring the community knew about the closure, respondents were also distrustful. They resented phone calls which came to them on their private mobile phones and the incessant nature of media inquiries.

[The radio stations] they were quite – I [didn't] feel like talking to them because they were quite pushy ... I'd say – are you recording me? You know – someone will say, you say something and say – hang on, I'll just push the 'record' button – I said no, I don't want you to record my voice.

Respondent E

Principals advised other schools to ensure that they had accurate contact details for the parents/caregivers of students at the same time as they acknowledged this was likely to be an on-going difficulty for many schools. They also suggested that reacting 'too quickly' in an environment where messages from officials were frequently changing was not necessarily a prudent way to respond.

I think there was probably a lot of stuff that came out – in emails and things – from the Ministry of Education and from the Ministry of Health in advance – it was almost ... overload. We kept getting pandemic awareness updates and updates and updates. Now if we had acted on the first one, we would have spent hours and hours and hours putting stuff together and then there was another one within a few days that said 'no, don't do that, do this' so we tended to be a little bit cautionary and didn't jump in and do absolutely everything. And the same applied during the course of the [closure] because initially ... regional health [authorities] wanted us to send them a list of all the children who had been absent in the previous three days, with contact details. And we could have done that, but that was changed again within an hour. Less than an hour later they

said, ‘no – we don’t want all that information’. So there were … people who … jumped to a worse case scenario and then backed off. And we could have spent – we did spend some time because we started putting that list together and I’m glad we didn’t [spend any more time].

Respondent F

Table 1 Lessons learned from the Auckland H1N1 outbreak

Useful practices
<ul style="list-style-type: none"> ➤ Referring to school policy manuals ➤ Regularly checking Ministry of Health and Education websites during an outbreak ➤ Engaging the media in publication of the closure ➤ Setting up whiteboard notices at all entrances to the school grounds with information on the closure and contact details for key people
Problem areas that need addressing
<ul style="list-style-type: none"> ➤ Should staff be at school during a temporary closure? ➤ What are the pay (and other employment-related) implications of temporary closure? ➤ Is it necessary to isolate symptom-free students, teachers and other school employees? ➤ If isolation is advised, what degree of isolation is necessary? ➤ Is Ministry and Health Authority support enough when it is provided through email and telephone communication? ➤ Would the physical presence of Ministry and Health Authority representatives at the school be helpful or advisable?
Advice to other schools
<ul style="list-style-type: none"> ➤ Follow your pandemic plan but know that not every possible scenario can be accounted for in the plan ➤ Be prepared to manage media interest. The media is an important means of keeping your community informed, but media members may also have their own ‘agendas’ ➤ Endeavour to keep contact details for parents/caregivers as up to date as possible ➤ In making decisions be mindful there is much to be done and authorities can change their minds about what it is they want from you

2.4.2 Reflections on the experience

As respondents reflected on their experiences with temporary closure, they spoke of difficulties around the amount of communication that was necessary and in the interpretation of communications. One respondent reported a problem with regard to the meaning of a communication between themselves and Ministry of Health officials. The resulting misunderstanding added to the respondent's sense of isolation. In a telephone call the night before closure

He said, just letting you know there has been a case of [H1N1] identified in your school. You will be notified by the Ministry of Health very shortly and hung up, basically; didn't even speak to me. And then the phone rang and it was people from the Ministry of Health and they said that they had confirmed students in our school with [H1N1] and that they would need to – someone would be ... working with our school ... in the morning ... and they gave me a name of a doctor in the District Health Board and there would be a nurse in contact with us. And I had an assumption that they would be here, that they would come into our school – that when we got here in the morning someone would arrive and they would help. But that is not what happened. There was nobody. It was telephones – all done with telephones and email, which is fine but just kind of felt weird.

Respondent E

The expectation in this case was that someone working with the school would involve a physical presence that did not eventuate.

When asked whether any group in the community had been particularly adversely affected by the closure, respondents suggested new immigrant families who were not fluent in English and who did not have local extended family support could possibly have been worst affected. One respondent reported being asked by parents for a letter explaining their absence from the workplace. Other parents who were university students also asked if they could have a letter confirming their need to stay at home and care for children. In this same school, where a large number of parents were unemployed, the respondent said those worst affected were working parents.

Representatives from the schools interviewed for this project reported a range of experiences that required school management teams to respond quickly in an environment that was replete with uncertainty. In spite of anxiety around the potential progression of illness and around the lines of responsibility for decision-making in such circumstances, overall school representatives reported being satisfied with their ability to respond to the various challenges presented by the situation.

We kind of all just took it in our stride and did what we needed to do and kept on track. And then when it was over we regrouped and carried on with our job – which is teaching and learning.

Respondent D

Though there were lessons learned that would be taken into account when reviewing pandemic policies, respondents said that generally the need to be responsive to immediate and variable circumstances means that policies can only ever be used as a guide.

3.0 SNOW STORM CLOSURES: CANTERBURY, 2006

The Canterbury region in the South Island of New Zealand experienced a heavy snow storm on the night of June 11th and the morning of June 12th in 2006. The event was the result of a low pressure system moving across the Tasman Sea which involved a warmer north-westerly air stream being followed by a cold southerly air stream. The storm left a significant blanket of snow over the region. Although this region is accustomed to adverse weather events, exacerbating factors which increased the significance of the 2006 event included the unexpected intensity of the storm, the high winds which accompanied the snow, the extended period of the cold weather, and extreme delays restoring electricity and telecommunications. Some people were without these services for up to three weeks. The severity of the storm's effects varied across the region with Ashburton, Mackenzie, Timaru and Waimate districts being most severely affected (Wilson, Johnston, Paton and Houghton, 2009, p. 1).

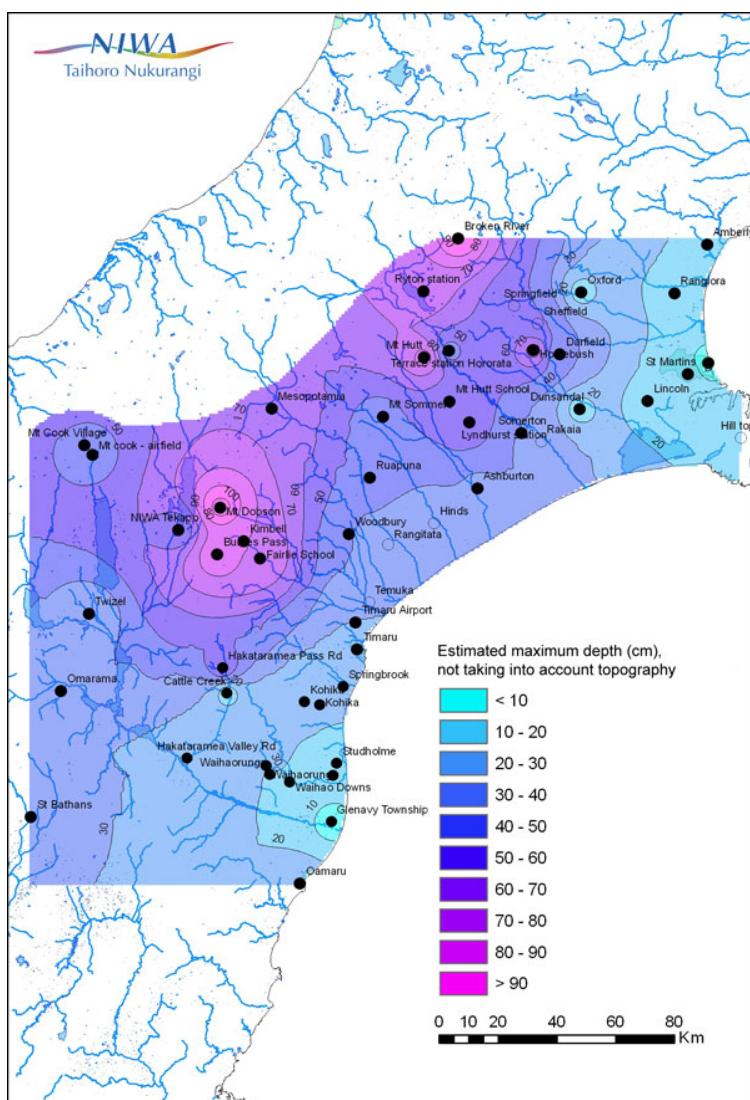


Figure 1 Maximum observed snow depths (cm) from the June 12, 2006 snow storm across the Canterbury Region. Taken from Hendrikx (2006). Note the snow depth interpolation surface only considers the data points and does not attempt to account for the effects of topography.

The 2006 snow storm brought heavier than expected snow fall and affected areas of the region included areas that were not accustomed to such weather. Even in areas where snow storms are more frequently experienced, the amount of snow, the length of time it stayed on the ground, and the amount of physical destruction and immobilisation of the population are characteristics that highlighted this weather event as out of the ordinary.

Although the focus of the present inquiry was circumstances surrounding this particular event, for many of the people living in this region partial or full school closure is something that happens often. Hence, their comments about the 2006 snow storm were interlaced with more general comments about closure events. These comments are included within the report because they provide valuable information about common practice.

3.1 The pre-closure environment of the 2006 snow storm

The pre-closure environment of the 2006 Canterbury snow storm involved media broadcasts of an impending storm event. Respondents reported being aware the night before that school closure was possible but there was no sense of alarm. Memories of that time were that the snow storm was not expected to be as significant an event as it turned out to be in a region where winter snow storms are common. "The evening before when we all went to bed there was no snow and we know that [no one] expected it to be as bad as it was," Respondent H.

In relation to closure events in general, weather is monitored usually for some hours prior. Given that the Canterbury region is so varied geographically, some school bus runs and some schools may need to close during a particular adverse weather event while others remain open. Even for a given school, it may be that some students need to be sent home or remain at home while others are not affected. Principals themselves do not necessarily live in the same area as schools or students, making closure decisions potentially even more complex.

I live ... 20 minutes drive from here and that is a complication in itself. I did use to live in the immediate community. So you are watching the weather forecast ... We have got everything from sea level to three quarters of an hour travel up towards [the mountain range], to up the ... [banks of the local river]. So we can have a situation of having nil or minimal snow here and none at all [in one area that students come from] but go [a short distance away] and you could have 50 millimetres of snow and then go literally only another small handful of kilometres inland further and actually double that and perhaps have 7 or 8 centimetres of snow.

Respondent G

For schools that experience closure on a regular (annual or biannual) basis, and where a weather warning has been issued the night before, the routine is for principals to rise earlier than usual on the day of the possible closure. They do this in order to check weather conditions and to begin the consultation process that is necessary to ensure everyone in the community is aware of what is happening.

It's a watching brief ... I have got a clear recollection of knowing ... you are going to be ringing radio stations first thing in the morning – you set your alarm for half past five instead of six. ...

Respondent G

Overall, principals and the teams responsible for making closure decisions reported no sense of impending crisis the day before closure and the expectation was that the situation would be similar to other such events previously experienced.

Of the seven school representatives interviewed, five said their school had a history of regular school closure and those closures were primarily for snow, although closures for flooding and high winds had also been experienced. Of the two representatives who reported that their schools did not experience closure on a regular basis, closure was still a relatively familiar experience for school staff. School B had closed twice in recent years for flooding. School I had closed for snow occasionally but more often would send students from certain bus runs home early when suspicions were that access could be too risky later in the day.

In the lead up to the decision to close, respondents commented on the importance of weather forecasts, caretakers, bus monitors and, in particular, local residents with historic knowledge of the area and its weather patterns. "You watch the forecasts very, very, carefully ... If you get any suggestion that there is going to be snow to low levels you are very, very alert about the whole thing," said Respondent G. Yet the forecasts are simply one source that principals turn to in the accumulation of information prior to a school closure. Bus monitors are another important part of the process.

In New Zealand schools relying on buses to deliver students to and from school, there is a nominated bus monitor responsible for managing that delivery process. The bus monitor may be employed just for that job or they may be a teacher or senior student. The bus monitor knows which students belong to which bus runs and they ensure that students are all accounted for before a bus departs.

In each bus run we [also] have a person who gets in touch with us if the weather is closing and starting to snow and there are concerns about children getting home. So that's a very common occurrence for us. It would happen several times every winter. But the children would be at school – we would get a phone call from whoever it was for that bus run who would say it's snowing and, ah, in their opinion it would be a good idea if the bus brought the children home right then.

Respondent A

While forecasts are valued, so is this local knowledge accumulated through experience. "One of our staff members who is farming up country ... knows more about the weather forecast," said Respondent B. Although forecasts will be consulted, this person's local knowledge is also important because "you'd be hard pushed to identify some [of the weather events] from normal weather forecasts," said Respondent B. There develops a relationship of trust between school personnel and these community members. "You get a reliable parent farmer inland saying send the buses now or they won't get through in two hours and you know to trust their judgement," said

Respondent G.

3.2 The closure process for the 2006 snow storm

Expectations for a snow storm and closure experience similar to previous storms were not borne out in the eventual course of events in 2006. Some respondents reported waking during the night and noting the particularly heavy nature of the snow storm while for others the first moment they realised the extent of the situation was when they arose early in the morning. In the case of this particular storm, though, the decision-making process was made easier by its extreme nature. Other times, closures may involve just one or a small number of bus runs, or one or a small number of schools. This particular event spread snow over a large geographic area, attracted extensive media attention, and occurred prior to school opening times. Announcements were broadcast advising people to stay at home and saying that schools in the region would be closed.

Well I'll be quite honest, 2006 was probably the easiest closure I've had in a long time because it wasn't during a school day or a school pattern. The school was closed before school started which makes it real easy.

Respondent H

...It was almost 'no brainer' decision-making.

Respondent G

Hence, three characteristics that mark this event as different from others is that communities were made aware of the necessity for closure through broad-based, public announcements carried by the media, the effect on transportation and essential services was more widespread than is other times the case, and the timing of the event meant that students were already at home.

The aforementioned characteristics made making the decision to close a straightforward one. The decision in this 2006 snowstorm was not one that had to be made alone. "... It quickly became an event that was bigger than you and bigger than your school, which is not always the case," said Respondent G. The storm brought the region to a near stand-still and the widely-publicised advice from local authorities was for people to avoid using the roads, many of which were impassable. "The mid-Canterbury Principals' Association put an announcement for the whole of mid-Canterbury to say that no school would be opened," said Respondent H. These circumstances mitigated what is ordinarily a pressure for principals: the concern to make the 'right' decision. The 'right' decision involves the negotiation of a fine line between reacting too soon and not reacting soon enough. A decision to close carries with it financial implications for employees and employers as well as an inconvenience factor. Remaining open when closure would be prudent carries the possibility of putting people's well-being at risk. The 'right' decision instead revolved around deciding when to open a school.

Mid-day school closures are more complex to manage than those which occur at the start of the day given the need to ensure children are not sent home to situations in which they may be inadequately supervised. Once the school day is under way, the location of parents and caregivers is more difficult to ascertain. This is particularly of concern in areas where parents/caregivers are part of what was referred to as a 'commuter' community.

Most people in our community would work [in one of the three larger towns/cities in the region]. The school itself is possibly the biggest employer in the township.

There is no work to be had [here] so to speak. And so in terms of [school closures], a lot of our parents are out of the community during the day. ... That sort of impacts on your closure procedures.

Respondent B

The decision-making process for school closures is one that involves an extensive communication procedure in which the safety and security of students is the core concern. Principals and the senior management teams responsible for the final decision to close will liaise with caretakers, who are often first on the site, and bus monitors, who are responsible for overseeing the transportation of students to and from school. There is a need to communicate with the management teams of other schools with whom bus services are shared. Those responsible for the closure decision may also contact local radio stations to spread word of the decision.

“So it’s not as simple as letting our kids go – there is all the massive complexity of that process of releasing,” Respondent G. The process often involves releasing children according to the bus run they are on as well as ensuring that parents/caregivers have been informed. The bus runs to areas further inland, at higher elevations and hence known to attract snow more often, are released first. For some schools, new contracts with bus companies have meant that the drivers for the bus runs do not live locally. Although theoretically this could cause a problem if transport routes became impassable before drivers managed to get themselves to the school, thus far it has not been an issue. While such costly options as sending drivers in by helicopter were mooted, the final decision for one school has been for drivers to remain in the area throughout the day if the situation looks ‘dubious’.

Respondent G commented that for their school the usual course of action in the likelihood of closure was to risk opening the school and then sending students home rather than risk closing the school unnecessarily. “Simply because so many people are travelling to work and things like that. You’d fall on your face a wee bit – you risk parental goodwill if you close and you haven’t got grounds for it.”

Use of a ringing list or phone tree is common practice in implementing a school closure, however, this practice was more formalised in areas where closure was a common occurrence and less formalised in schools that seldom closed. One school that seldom required closure said that the ringing list operated in a completely informal way. No list was kept of who was responsible for ringing whom and the principal relied on their own localised knowledge of social connections to spread news of a closure.

Because these events are so rare ... you just sort of deal with it ... because I have been here forever, I sort of know how the connections in the community work and so I ... thought of the first bunch of parents that would be a good way of getting [news of the closure] out around ... the ones who ... a) I knew the parents were there and were not going to be rushing off to work and b) they could get on the phone and ring as many people that would filter it through the system.

Respondent B

In schools where closure was a more common occurrence, the contact system tended to be structured.

We have a ring-round system that works on a – you send a text out and then they have a small cluster of people within an area that they have to re-contact and then they contact the schools to be ticked off and once the bus is ticked off they are then sent home.

Respondent H

That kind of a system is not fool-proof, though. Just because a message had been sent did not mean that it had been received by the parent/caregiver. “You get reported back that a parent has been … [contacted] but you find out it was the neighbour or someone else that answered on their behalf without really knowing [where the parent was],” said Respondent H.

The process of communicating and managing a school closure is made easier if school personnel possess two particular social resources. The usefulness of local knowledge and previous experience with closure events were described as assets in crisis circumstances. In commenting on the process of closure, Respondent H said:

So you have got your bus co-ordinator … Not a teacher, a paid employee that does that. And that’s interesting. [The current co-ordinator] never had to do a closure. Where [our previous co-ordinator] was there for 7 or 8 years – she was pretty slick at it. But [the new co-ordinator has] got all the procedures there, but I guarantee it won’t be quite as slick when we have our next one.

Closure is described as a process that relies on experience for efficiency and which no amount of prior organisation and planning on paper can entirely account for.

In the 2006 Canterbury snow storm, schools were closed for anywhere between one and five days, depending on the severity of their individual situation. One college that was subsequently closed for four days said that after two days shut they were

sort of feeling a little bit of – I was feeling a little bit of pressure to bring the senior school students at least, to see whether we could manage, but we discussed it and decided on the Wednesday that we wouldn’t be able to have students on the Wednesday … there was just such a quantity of snow that we had to accept that we weren’t going to be in a position to get students to school on the buses. The bus turn-around was semi-cleared, but we now had huge stacks of snow which would have been a risk for the students and also the frosts that followed each morning meant that where the snow melted it was just ice.

Respondent J

Although opening was possible for this school on the Friday, only about half the students were in attendance due in part to difficulties communicating the decision to re-open. Power was still out in some areas and cell phone batteries had run flat. Even where individual cell phones were still working, the transmitting towers necessary for them to work were no longer functioning due to drained batteries.

Once students did arrive back at school, missed lessons were not the only things that needed attention. After days without power, without showering and toileting facilities, and for some, without proper meals, Respondent J said "it wasn't a normal state where you could say they have arrived at school 'as they usually do'. Some of them arrived at school feeling pretty rugged" and needed time with guidance counsellors.

We also operated a gathering centre in the library for students who just felt too unsettled to go to class. In class, because the numbers were very low, staff did a sort of holding teaching so that people that weren't here weren't going to be missing so much. So ... we tried to keep the kids relaxed and just feeling that everything was going to be okay.

Respondent J

The potential hazardous situations that principals sought to avoid included putting parents/caregivers and children at risk of injury on unsafe roads, putting children and staff at risk of injury by having them at school when the grounds or class rooms were unsafe or unhealthy, and sending children into circumstances that may be unsafe in ways not anticipated. The responsibility for the well-being of others creates a sense of anxiety given the unknown nature of adverse weather events and the changes to the environment that can be a result of such events.

3.3 Closure consequences of the 2006 snow storm

Some of the complications arising from the 2006 Canterbury snow storm were of more immediate concern while others were of a more enduring nature. Likewise, some effects were of a more tangible nature than were others. In relation to complications that were of immediate concern, there was the obvious lack of transportation and power. Consequences such as the loss of teaching time were less direct and of a more long-standing nature. The effects of snow storms are not restricted to the brief point in time when media coverage is at its peak and public awareness is highest, according to respondents. The effects are often felt more deeply some time after the event when public and media interest has dissipated.

The consequences of the snow storm were experienced differently not only as a result of the geographic location of a school, but also because some schools were unaccustomed to being affected by snow.

[Our town] is probably better set up than what a lot of the other communities were set up because we have it [closure] occur to us every year at some stage, normally. We have to be ready for it, but [some] places ... they just didn't have the equipment to deal with it.

Respondent H

In addition to having the physical equipment to deal with snow and ice, school staff's previous experience of school closure as a result of adverse weather was also mentioned as helpful in managing a closure event. However, even when school personnel had that experience, the changing nature of the parent/caregiver population and difficulty in communicating the emergency process message were highlighted as on-going problems.

We have got [our closure system] down, fairly well tuned, but because we haven't had a closure this year, next year will be an issue because we will have

parents who have not been in the system before. It doesn't matter who you are, until they [parents/caregivers] experience that system for the first time ... we send out all these information sheets – it's amazing what goes out ... But no one reads it! You know they don't read it because when you say, have you followed the steps that are in there – it's the same steps we follow and it's very clear ... but you have people with commonsense and people without and ... when their children come into it ... when emotion comes into it, there's no right or wrong in it. And people make silly decisions when emotions come into it.

Respondent H

Experience of school closure hence becomes an asset of both staff and parents/caregivers in responding to subsequent closures.

While technology, particularly in terms of cell phone/texting communication, was helpful in some instances, it also caused problems at times. One of the difficulties created was when children sent out the wrong message to parents, who then arrived at school to pick them up either prior to a closure decision being made or at the same time as buses were being called in to uplift students. The increased pressure on roads and turning bays can create another hazard situation in what is already a difficult situation to manage. Another problem created by the use of cell phones by students was that parents would by-pass the usual procedures for collecting their child and go directly to a classroom to uplift their child. Not knowing that the office had not been informed of their actions, teachers might release a child. This could cause problems later if bus monitors were trying to locate the whereabouts of a child before releasing a bus and there was no record of their release. This could exacerbate attempts to manage the degree of risk faced by students and bus drivers as children sat waiting on cold buses and as weather worsened.

Analysis of respondents' interviews in relation to the outcomes of the 2006 snow storm in Canterbury indicate that there were three particularly salient consequences:

1. Destruction to the physical environment and subsequent obstruction in transportation routes and communication systems;
2. The experience of social cohesion; and
3. Social and emotional strain.

3.3.1 Obstruction/destruction

The first concern when snow falls for a school that has begun its school day is how best to communicate the decision to close and then how best to transport children safely to their homes and families. A snow storm brings with it obstruction in transport routes and the widespread and heavy nature of snow fall in the 2006 storm caused massive difficulties for road authorities. The fact that the snow fell at night, however, meant that transporting children back to home was not necessary. While the obstruction of transport routes was of particular consequence generally, on this occasion it was not a primary concern for schools in relation to the return of their students.

What did cause difficulty in terms of deciding when to reopen was the safe movement of staff and students around the school grounds. The snow made travelling on foot a treacherous prospect. "For days afterwards it was very dangerous walking round the school, okay? And like worryingly dangerous," said Respondent G. Clearing footpaths and walkways around the school was a top priority. Schools experienced with extremely cold weather suggest that

getting rid of snow around the school grounds as quickly as possible is critical. "Once the snow has fallen it's got to be cleared before it's trampled because once it's trampled it's really dense and icy and it's an absolute swine to try and move," said Respondent A.

The most immediate consequences of the snow storm included disruption to essential services such as roads, power supply and telephone. Respondents suggested that those worst affected were people who were farming, where the need to care for stock and to protect future financial livelihood was paramount. In addition to the damage done to infrastructure and farming businesses there was also unusually extensive damage to trees, which respondents said many people found distressing. "The destruction of many trees was pretty horrific in terms of the weight of the snow," said Respondent A.

In the aftermath of the snow storm event, respondents said that both the brightness of the snow during the day and the long, dark nights without power were difficult to cope with. Both of these consequences of the snow storm were accounted for as factors which contributed to a sense of fatigue. "It's just one thing after another and it wears them down ... It is exhausting," said Respondent A.

The loss of power as a result of adverse weather is common for some South Island communities. When the school loses power "everybody just gets out. We close the school and get out and get home," said Respondent A. In the 2006 storm, the loss of power went on for much longer than usual and affected far more people than in previous storms.

We had staff members without power and we had families without power and some of those families were really quite traumatised by the end of it. In terms of coping with the worry of just managing. I mean if you haven't got electricity you have got to plan ahead so much. If you are cooking on a fire, on a wood stove, or a log burner ... then you have to plan ahead. And like you have just about got to have something cooking all day to get a hot meal.

Respondent A

Coping, or not coping, was a central theme in respondents' comments on the aftermath of the 2006 snow storm. Coping appears to involve taking events in one's stride and not showing any demonstrable emotional after-effects from the destruction of the storm, though further exploration around the meaning of coping and not-coping is warranted.

Now some people coped really well, but some people really didn't and we believe we were still coping with that at the end of that year. Because not only – I mean the snow went but there was all the devastation of trees and fences and just the work that farmers were doing and the worry they had. And the children were of course – that bounces off on them as well – so they were quite – at times we found people quite difficult. You do all these things and people are quite ungrateful ... and we got criticised ... but we knew we had done a really good job of trying all the time to think about our community ...

Respondent A

One act that was helpful in supporting parents in the community to cope was to get schools open soon after an event, though whether or not a child actually attended was a decision best left to parents.

... Opening the school was a really important thing to do to give the children a focus so that the adults could get on with what they had to get on with.

Respondent A

3.3.2 Social cohesion

There is certainly a real pride in resilience of living here ... I think there is huge pride in this community and how caring it is and how helpful people are.

Respondent A

The tangible consequences of the snow storm included the financial implications for farming operations, for telephone and power companies, as well as the pressure on budgets for roads that needed repairing. There were also less tangible consequences of the snow storm in terms of the effects on social connections. In accounting for the communities to which they belonged, respondents constructed particular understandings of that community. In the case of the 2006 Canterbury snow storm, the event brought both opportunities for accounts of social cohesion as well as accounts of strains on social relationships. The provision of pragmatic supplies afforded those affected by the storm with recognition of the difficult circumstances they faced and with a sense of being supported by others.

[We] got food parcels from people around the community and ... it was nice that somebody had thought [about what] we might need ... Because you are busy providing for other people and ooh, it was really nice. ... It was a nice thing to do – and you think people have caught on [that] this is pretty tough.

Respondent A

Support came not only from those not affected by the storm, but also from others who were facing their own difficulties as well.

I think people are pretty resourceful. And if they are not resourceful, their neighbours will be. So people are being looked after. I think that's what happens. I think you might – um – overlook any disagreement you might ever have had and make sure everybody is looked after ... that's the sort of mindset you get into – I wonder if such-and-such has got power. If they haven't, I must make some soup because there are things that you can make over a fire or a barbecue or something like that ... Amongst the staff we looked after each other too. So we allocated people with electricity ... to look after [those] who didn't have electricity. So we were cooking for them. Because quite often ... they could get something heated ... but cooking from raw was way too much. So we did a lot of that ... It is team building in that you have shared – you have shared an event.

Respondent A

Respondents expressed pride in their community's ability to respond to crisis, to care for those who needed assistance, and to continue on with life in ways that did not involve an ongoing focus on the consequences of the event. It was common for respondents to talk about

the community's reaction to the event in ways similar to the following respondent. "Basically the town took it in its stride," Respondent I.

In addition to the community's ability to take the event in stride, respondents spoke of the ability of school staff to manage their own emotional response to the crisis situation.

The staff did not get down in the mouth about it. Staff recognised the situation for what it was and there was nothing you could do about it. They didn't get ratty about it. They were quite supportive of the decisions I made about when they should be here and kids shouldn't and things. So from that point of view the staff were quite supportive. And morale didn't go plunging through the floor all of a sudden.

Respondent K

Experiences of both social cohesion and social strain were consequences of the 2006 Canterbury snow storm. A situation accounted for as one that brought tension was where students were required at home to help deal with the crisis situation.

We have to accept [students being kept at home on farms]. Because the community is rural, and because they would do it anyway, we have to accept that it's part of the lifeblood of the community to have these kids at home to help. And we have to be tolerant of it and accommodating of it because it's the sort of community we live in. And when the dealing with lambing, and activities like that that are going on, if there's a need to keep them at home – it's not an automatic right to keep them at home, but if there's a need as an emergency, then they would certainly be allowed to.

Respondent J

While this respondent accepted the need for students to stay home to help, it will become evident in the next section that this attitude of acceptance is not always apparent.

3.3.3 Social and emotional strain

It's emotionally, it's also – the worry ... It's really the impact down the track. It's not in the fortnight when you haven't got power and all that, it's a way down the track as you have lost stock and you have lost those sorts of things. It took a long time I think for people to recover ... emotionally.

Respondent A

The snow storm offered communities an opportunity for social cohesion through sharing adversity, cooperating with and helping one another, however, the analysis of respondent's accounts suggests that experiences in which emotions frayed and social relationships were strained were also a consequence of the event. As mentioned above, one of the consequences for schools following the 2006 snow storm, and something that has been a consequence in other adverse weather events, is that the children of rural families may be kept from school in order to help at home either with the care of stock, the farming property or young children. Student's absences may extend much longer than the school closure. This situation reportedly elicits a range of responses from school staff members. While this situation is sometimes one that requires acceptance, Respondent A said that

Sometimes staff don't see that there is a need for the students to be staying at home and ... because I've brought my children up in this area ... [I see] there is a need. These children are exceptionally useful and helpful at home when parents are busy on their farms trying to get animals fed. Animals are the priority and – I mean after your families and humans, of course – but these are the livelihoods and your children are needed to cook food and things like that. They – the older ones – and to look after younger ones and things. So I'm not sure some staff see it that way.

Social strain was also created in relationships of a less on-going nature. Snow storm situations often attract media attention and the 2006 event was no exception. Respondents understood media interest as unavoidable but problematic. In one example, a respondent remembered coming across a four wheel drive vehicle belonging to a well-known New Zealand current affairs programme on a road that held no other traffic and that she felt should not be travelled on. Her husband was a contractor whose machinery was being used to help farmers in trouble. On the irritation she reported feeling in relation to the appearance of the TV crew, Respondent A said

They were only doing their job – but don't do it while I've got mine to do, thanks! ... To them it's an adventure and to us it's work. And there was still three hours of it to go and it was nearly dark, and our stock weren't fed.

The need to support students traumatised by their experiences of isolation while at home without transport or other essential services was met by classroom teachers, counsellors and 'de facto' counsellors in the form of other adults with whom students came into contact.

Our library staff were there acting as listeners/counsellors. There was some senior staff if we – had non-contact – could go to the library to sit and just talk to the students because a lot of what they needed to do was talk out how things had been for them. And though it had been the same for fifty other families, we really needed to listen to all fifty narratives to give them – yes, we had heard them. And once they had talked it out they seemed to be able to cope with it a whole lot better and I know the Guidance Counsellors were very busy with the same sort of thing – the pressures that the snow put on parents, and I know some [students] said it wasn't safe to open your mouth at home because dad was so 'down' with what had happened and mum was keeping everything going and trying to keep a good face on. But they were – yes – pretty stressed. So the kids showed this stress that the parents were feeling when they came here.

Respondent J

Senior students who knew they would be facing external examinations at the end of the year were of particular concern for school staff.

... Our senior students were most affected because they know, because we tell them all the time that they have got to get through all of this work and they were pretty concerned that heading up to exams they weren't at school, so they were missing time for doing their work and then they were missing time to do revision and they weren't going to have the time they needed to run towards the exams so there was a little bit of anxiety on the part of students there.

Respondent J

Respondents found that there was retrospective criticism from some members of the community in relation to the decisions they had made around closure.

And that's what gets me – it's the phone calls after, while everyone tells you your pedigree. You have got to have a thick skin, basically. And go: 'we made a decision at the time and that's where it stands'. And people will accept that in the end, they do.

Respondent H

In relation to the emotional strain created by the event, a representative of a school that often closes for snow but whose community was particularly badly affected by the 2006 event said the strain went on for a long time. Some weeks after the event, this respondent commented on the experience of being at a meeting where pictures were brought out to show to someone who was visiting from outside the region. The respondent reports not wanting to look at the photos.

I remember thinking to myself, I don't even want to look at them... So I guess although I didn't really experience any particular hardship, it was a grind to keep ... thinking about everybody, day after day, and they are not particularly... grateful a lot of the time. ... It's not a glamorous thing to be doing, to be looking after people in these sorts of situations. So, yes...we did our best...for people. ...But... in unanticipated ways, it is an ordeal as well. You get sick of the sight of snow. And as I say, the most simple tasks become much bigger tasks and much more significant.

Respondent A

Within respondent's accounts of the closure events they not only recount the event itself but they also draw upon their own interpretative resources to make sense of the closure event in particular ways and to produce an understanding of the school as a community. The construction of community within these accounts has highlighted experiences of social cohesion and unity as well as social and emotional strain and discord.

3.4 Lessons learned from the 2006 Canterbury snow storm

In responding to questions around the 2006 adverse weather event in Canterbury, respondents not only talked about the details of the consequences of this event but they also brought up broader issues that they had since had cause to reflect upon. An issue raised was the changing nature of the communities in which their schools are situated. One change involves the increasing likelihood that there will be no parent/caregiver at home for children who may need to be sent home during the day. School principals mentioned that it is increasingly common for people to live in one area but commute to work in another. Principals themselves were less likely to live in the immediate physical vicinities of their schools than they had been previously in their work lives. The tendency for parents and caregivers to be physically removed from home at the time a school closure decision is made is important because during adverse weather events transportation routes are often affected.

A greater likelihood that members of the school community are newly immigrant to the region and/or the country was seen as a relatively recent historic development and one that adds to the complications of managing school closure. While difficulties in language and hence

communication were mentioned as a problem for migrants from other countries, even migrants from other places in New Zealand had an effect on managing closure events.

The other issue is that now we have got a lot more ... changeover in our community. So [where] people [were] familiar with certain places and zones, now they are not. If someone ... [is not] familiar with where we are talking about. And they don't know what the bus route is for their child. You say what bus route are they on? ... And they don't know their rapid number. So it's quite – literally, we have that information in our office so we have to flip through and find it, but it only takes one person to change how we've organised it and suddenly the whole thing falls down.

Respondent H

Another difficult issue was the lines of responsibility between parents/caregivers and schools when it comes to children. “Most of the time ... parents create more of the issues for us. They’ll go and follow a different procedure to what’s the procedure we have” said Respondent H. For example,

It's accepted that once a child's going home on a bus, that's what should happen. Then you'll get a phone call saying 'I'm coming in to collect my child'. Now that creates difficulty because (1) we are trying to get 16 buses out of here; and (2) it's one little area and you have got traffic backed up and people are coming in when you are trying to get others away; and then you have got to separate that child.

Difficulty can also be created by a parent who bypasses the school office and uplifts a child directly from a classroom without informing office staff of their intentions. So I spend some nervous [time] panicking.

Respondent H.

Difficulty is also created when a child tells school staff that “Mum said that if it was snowing we had to go to such and such, but there’s no written note to follow it, so we have to follow the instructions ... That’s where it goes wrong,” said Respondent H. This respondent’s impression is that what happens is “parents think of it from their perspective and only ever from their perspective, never from what the school needs to happen.” The challenge in regards to situations such as this one is difficult, the respondent said, because of powerful ‘emotions’ that come into play when parents and children are involved. This respondent says that effecting change by getting parents to follow school procedure is not easy because “I don’t think there is any way you can beat human nature.”

Although rural communities might be at higher risk of suffering as a result of adverse weather events through road closures, power outages and the effects on farm animals, commuter communities close to town are at risk in other ways. Respondent C commented that if her school community “were to get a real dump here, and we couldn’t get out to shops and things like that, then we wouldn’t be as well prepared as country communities.” Hence, conclusions regarding community resilience in situations such as the 2006 snow storm need to take account of the complexity of interlinking factors which affects the ability to manage during adverse weather events. Those who live in more isolated locations are assumed to have

freezer stocks, their pantry stocks – those sorts of things – it's a way of life to them. They don't expect to go shopping ... every couple of days ... Whereas in town we are much more dependent on having access to all those things and if they were shut down we would be severely tested.

Respondent C

Respondents from schools affected by the snow storm said that media coverage tended to produce the wrong message about the well-being of the community in such circumstances. "As far as the media was concerned everything was solved after a week or so. But the truth was, it wasn't for a lot of the community," said Respondent H. The other incident which created resentment in the southern communities was their perception that the way the media covered the snow storm and a later power outage in Auckland failed to account for differences in the severity of the two events.

So there was a wee bit of residual – you know. Auckland closes down and the latte's, [they] don't have coffee for the afternoon – there was that accident. We were out for three and a half weeks and we get mentioned in the news for one day and you guys have half a [day without] latte and it's a crime ... I mean that's the impression they give. And ... when it affects a lot of people, it's a major issue, when it only affects a few families no one really takes that into account do they?

Respondent H

Respondents commented on the extension to their educative role that schools play in a variety of situations, including following the snow storm. As has been noted, classes did not necessarily return to normal even though students were back in attendance. Emotional support was offered through class room teachers as well as school counsellors. "[We] seem to do more social work than we do teaching sometimes," said Respondent K. In a town where there is only one college, "the town's problems come into school, basically ... The school is looked to by the town for various things," said Respondent K.

3.4.1 Advice and changes to practice

It doesn't matter what you do, no system is perfect.

Respondent H

Respondents commented that the school closure event brought with it an opportunity to observe and later to reflect on both the efficacy of their emergency management plans and the ways in which those plans could be improved upon. One assistant principal with 30 years experience in their South Island school suggested that every closure event had brought with it an opportunity to test existing procedures and to learn or improve some aspect of those procedures. Another principal commented that regardless of the efficacy of the school's systems there is a constant need to educate in-coming parents to what those policies and procedures are.

In offering advice to others who might conceivably find themselves in similar circumstances requiring temporary school closure, respondents had advice about practical steps to take in preparation for adverse weather events as well as advice specific to the decision-making process. In terms of general advice,

... it's the advice that the community gets very regularly about 'keep up a good supply of food and batteries and candles and torches'. We have got solar power torches now sitting on the window sills; with radios ... we've certainly stepped up there. I think if it's advice to a school it's 'let the families sort themselves out with the help of the rest of the community'. Be open when you can, but let the children come back as the parents have got through the most traumatic bit and just be very accepting that they are going to come back in dribs and drabs ... But – be normal.

Respondent A

In relation to making the decision to close, respondents suggested the need for a balance between causing undue inconvenience and potentially creating other risks to the safety of students and their parents/caregivers with the need to be decisive in rapidly changing weather conditions. The most important thing was to listen to the advice of people such as the school caretaker and people who manage local roadways, but to also "keep your eye on the big picture and not sweat the little stuff," said Respondent J. In situations such as closure due to an adverse weather event, it was important to focus on the aspects of closure that worked well. "Like there may have been a family we missed getting in touch with, but let's concentrate on the fact that we got in touch with 99 others, rather than thinking of the little things that went wrong," said Respondent J.

Another respondent suggested that keeping a 'cool' head was the most important thing. However, the difficulty of both keeping cool and making timely decisions was commented on.

Keep cool. Use your commonsense. (laugh) Err a bit on the side of caution because pupil's safety – you can't have people driving round in cars and things when it's dangerous. So, be a bit cautious ... [But] act reasonably quickly as well and seek the advice of the Board Chair or other members of staff and so on if you need to. And advise people quickly of your decision so you don't put people out too much.

Respondent K

The complexity of managing a closure decision thus involves not reacting so severely or quickly that extra safety issues or undue extra community anxiety are created but also not delaying a decision such that the scenario is made more difficult.

Being the Principal, I wouldn't be so concerned about closing the school. I wouldn't have that feeling that I should open. You know, 'I've got to get it open as fast as I can' – that became much less important as the time went on ... There were bigger interests that we needed to be taking notice of, such as safety of students at school, safety of students travelling on the road, safety of buses.

Respondent J

The advice of one principal to anyone implementing a school closure is to take the time to ensure that all of the procedural steps have been followed and to prioritise the order of release so that children from geographic areas most adversely affected are sent home first.

Students within walking distance can be escorted home on foot at a later time. Those responsible for managing the closure should ensure children are definitely going home to a parent/caregiver or to someone designated as a guardian for such instances. "If you are uncertain, retain the children in the school," said Respondent H. In addition, it was advisable to have a billeting plan in the unlikely event that it is impossible to return children to their homes. Overall

Don't assume! Don't assume that all will be right. I think sometimes that we assume that because it's happened before that everything's going to go as it should go. You can't assume that at all. You have got to make sure you follow a clear procedure and people know what's going on.

Respondent H

As well as offering advice for others who may one day find themselves in the same kind of adverse weather event necessitating closure, respondents commented on the changes they had made to their own systems as a result of their experience. One change made at a school after the 2006 snow storm was the introduction of a walkie-talkie system. The system is two-pronged. It firstly allows for communication between the office and classroom teachers who are spread out in separate buildings around the school grounds. This is helpful in relation to the aforementioned problem of having students released from a classroom without office staff knowing. Secondly, it allows for communication between the bus co-ordinator and three different schools that are in close physical proximity to one another and which share the bus runs.

... You have to be very clear [in your communications]... you see we've changed things. ... We now have a separate cell phone ... that's our [school's] home cell phone. We also have four little walkie-talkies that we use so we can communicate around the school to find out whether [a child's] been taken or not and we can communicate with the buses so the children don't go and sit out on the bus for an hour while they're waiting for one person to be confirmed or not.

Respondent H

The introduction of this system came about as a result of problems in managing previous school closure events.

Another respondent said that a particularly useful new practice that was initiated after the 2006 event is greater communication between Canterbury principals of different schools.

Post-2006 we realised that we didn't want to be vulnerable when we are often drawing out of the same wider catchments. ... We don't want to be having one school closed when others haven't, unnecessarily – so some of that communication is fairly important too.

Respondent G

Experience with the closure process has led schools to develop a more detailed plan for communication as well as for the movement of children.

They sit in their classrooms, they then go to the hall – so that's [the] procedure ... When the buses are nearly ready to go we get them to go in their bus group to the hall. They get from the classroom to the hall – they sit in the hall until we get

the okay saying the ... bus is now ready to go and we go out at that point and you put them on the bus while the bus is still running, whereas [in the past] the bus [could be] sitting there for an hour and a half, he's turning the engine off, suddenly everyone's getting cold. And I've got cold children and the longer time they spend outside the wetter they are, so - we've certainly refined that.

Respondent H

Table 2 Lessons learned from the 2006 Canterbury snow storm

Useful practices
<ul style="list-style-type: none"> ➤ Reviewing policies and procedures in light of actual events ➤ Using walkie-talkie communication to keep everyone aware of changing events where staff are spread out ➤ Purchasing solar-powered torches ➤ Keeping shovels and sand at school to clear paths quickly
Problem areas that need addressing
<ul style="list-style-type: none"> ➤ Communication with people new to the area (both from other countries and from other regions in New Zealand) ➤ Remaining sensitive to the issues specific to commuter-communities in relation to closure events ➤ Responding to parents emotional reactions to events involving their child or children to ensure additional risk is not created ➤ More information to assess whether opening a school will help or hinder families' recovery from an event
Advice to other schools
<ul style="list-style-type: none"> ➤ Ask people like bus monitors, caretakers and long-time local residents for advice ➤ Act cautiously but decisively ➤ Don't assume that things will happen just as they have in previous events ➤ Remember that constant changes to the school roll means there is an on-going need to educate parents/caregivers around policies and procedures ➤ Keep your emergency kits up to date ➤ Accept that students will return once the pressing issues at home have been resolved

3.4.2 Reflections on the experience

In reflecting on the experience of the 2006 snow storm, respondents suggested that it was important for communities to realise that highly publicised extreme weather events were not the only ones to cause stress to rural communities. A school counsellor suggested that the lengthy nature of drought conditions and the financial implications for farming communities were situations that did not receive the attention they deserved. Under such conditions,

students were even more likely to need social support. "Parents don't deliberately put it on their children, but children are good at picking up the signs of what's going on for their parents and so they pick up when parents are stressed," said Respondent A.

Likewise, another cause of stress that often went unrecognised by the general public, including the media, was that the consequences of an event such as the 2006 snow storm were not over once the school re-opened or the snow melted. Rather the consequences were of both a physical and emotional nature and they were on-going for some time into the future. "It's about long-term effect, rather than short-term effect," said Respondent A.

In spite of the on-going effects of such adverse weather events, the consequences were certainly not all problematic.

... When we have something like that – an emergency or a crisis – I'm always amazed at how very phlegmatic the community is in its dealing with it. ... It's very much a community that supports people within it. People support each other, work with each other and cope rather than wait for help. Very pro-active in doing it and very considerate of each other. I'm not explaining it very well, but they are not begging the TV cameras to come out so they can be on TV, they just quietly get on with it.

Respondent J

This general attitude noticed in the community's adults is in evidence in the actions of students as well.

We might have days where the students are very restless and fidgety because the nor-west wind is blowing [or] you would [be thinking] that snow [was possible] and having to go home during the day would be very, very, upsetting and hysterical-making but that's when they really show their solid roots and are very good about 'this is what we have to do'. Because I think many of them, and the communities they live in, and on the farms they live on, they are used to things going wrong and to things being worked through, so they don't dramatise what's happening. They may, after it, need to talk about it, but at the time they are not dramatising people.

Respondent J

Experience with having 'things go wrong' hence is constituted as one which provides a protective element in the face of other similar situations.

While the 2006 Canterbury snow storm was a particularly serious adverse weather event, respondents have suggested that the systems in place were effective and that as severe as the consequences of the storm were, the community did demonstrate resilience. The immobilisation of community members made for difficult circumstances. In spite of the physical isolation people endured, however, respondents report a sense of social cohesion was created by the support offered them by both the local and wider New Zealand community.

4.0 DISCUSSION: COMPARING EXPERIENCES

Prior to a crisis, people belong to socially striated communities and their position in society has an influence on levels of vulnerability to hazard-type events (Phillips, et al., 2009). The consequences of crisis events thus occur within a world in which social division already exists. Crises thus strike communities which have pre-existing differences in terms of their levels of access to social and financial resources. Differences between communities affected by crisis are not only evident between countries but also within countries. The schools that participated in this research project have distinct differences. The most immediately obvious difference between the schools was their physical location but this was not the only difference noted.

Those schools that were required to close because of the H1N1 outbreak are situated within the greater Auckland region. This region is urban and generally the children from these schools arrive on foot or by private car as school buses are not provided. The representatives from these schools reported no prior experience with the management of temporary school closure within the memories of the people working there.

The schools affected by the 2006 snow storm are located within the Canterbury region and service communities that are largely rural, although some are also serviced by a large town. Increasingly the members of these communities commute to work in other places in the region. The children from these schools are most likely to arrive at school by school bus though schools in small, commuter settlements tended to rely on private car for student transport. The representatives from these schools all had some experience with temporary school closure and for some closure was a regular occurrence.

The two regions from which research respondents were drawn are also distinct in terms of their socio-economic and ethnic composition. The Canterbury schools are all at the top end of the decile ratings and were predominantly Pakeha in ethnicity⁶. The Auckland schools were all at the low end of the decile ratings and predominantly of Maori and Pacific peoples' ethnicities. This research project was not a quantitative inquiry and was not designed to make generalised comparisons based on such characteristics; however, it may be that this observation could provide direction for future research, as will be discussed shortly.

Closure of the schools in the Auckland region occurred for a different reason than did the closure of the schools in the Canterbury region. In the case of the Auckland schools, the crisis event was precipitated by the outbreak of a virus. In the case of the Canterbury schools the crisis event was created by an adverse weather event. Respondents' accounts of their experiences with closure afforded them an opportunity to construct an understanding of their school's community. In the case of the Canterbury respondents, those constructions revolved around notions of their community as 'caring' and 'resilient'. In addition to some instances of constructing their community as one in which caring actions were extended between members, the interviews with the Auckland respondents also involved reports that they had sometimes experienced the community as exclusionary in the face of the unknown nature of the H1N1 virus.

⁶ The question of ethnicity was answered in an informal manner during the introductory stages of the interviews. Respondents were asked about their school community and one aspect of that was its ethnic composition.

The schools from the Auckland region which were forced to close as a result of the H1N1 outbreak belonged to lower socio-economic communities prior to the event. In addition to the necessary isolation of children and community members with symptoms, some members and organisations of the general community also sought to isolate symptom-free school/community members. Representatives from the affected schools had some uncertainty around the necessity of such action.

The schools from the Canterbury region draw their students from communities that belong to relatively high socio-economic groupings. As a consequence of the 2006 snow storm, representatives from these schools reported feeling supported by their wider communities through the provision of things such as food parcels. Although this event did cause strain to social connections in some instances, respondents made numerous comments about the way that the event brought people together and also allowed for past social tensions to be overlooked in the present crisis circumstances. Similar types of comments did not feature in the accounts of representatives from the H1N1-affected schools. In the case of the Auckland outbreak, respondents did not report students being kept at home to assist in recovery from the event, while Canterbury respondents said that some of their students were kept at home even after re-opening in order to help families recover.

In both crisis events, there was an external threat to the safety of students and school community members. In the case of the Auckland schools, that threat was a virus which created uncertainty. In the case of the Canterbury schools, that threat was an adverse weather event which also created uncertainty. In both cases the consideration of closure involved weighing up the possibilities in terms of outcomes for students, staff and parents. The difference between the two events is that with the H1N1 outbreak, the potential threat was carried within the persons affected, while with the snow storm event the potential threat remained external to the affected community members. This difference carries implications for the way in which the wider community might provide or withhold support for those affected by a crisis event. In the snow storm situation, the experience of feeling supported by a wider community was reported whereas in the H1N1 situation, respondents reported experiencing further isolation and ostracism as a result of the event.

5.0 CONCLUDING REMARKS AND RECOMMENDATIONS

Experiences of temporary school closure in the two New Zealand communities researched for this exploratory project suggest that the official policies and procedures in place for the management of such events have provided a useful guide to affected communities. Although the circumstances of their temporary school closures were stressful, by and large respondents were satisfied that they and their communities had responded appropriately to events as they unfolded. Appropriate response required both awareness of official policies and an ability to use those policies as a guide, responding with some flexibility when the immediate situation did not exactly fit with the scenarios predicted.

Events such as those explored here involve school management staff taking action in circumstances where it is not possible to know in advance what the trajectory of a given event will be. These situations therefore place those people with decision-making responsibility in a difficult situation in which they must calculate the potential for future risk of any given action. They are required to be decisive in the face of much that is unknown. They must weigh up the need to protect the safety of their staff and students against the need to guard against unnecessary school closure and the potential of losing the goodwill of their parent/caregiver community should closure later be judge unwarranted.

This investigation has discovered that while school representatives are largely satisfied with the way in which these past events have been managed, they continue to look to stories of the experiences of others to find new ways to improve their own systems and as an indicator of what unforeseen problems may lie ahead in future events. Thus, systematic national archives of temporary school closure events could be the focus of future research and a valuable resource for schools. In order to understand the consequences for communities of events such as the 2009 H1N1 influenza outbreak and the 2006 Canterbury snow storm, extending interviewing to other members of affected communities would also be a useful avenue to explore. Respondents from both regions said they felt there was more they themselves needed to understand about the effects of these events on parents/caregivers and students. One group that respondents said could be at greater risk during hazard events is non-English speaking new immigrants, a group that many respondents said had a growing presence in their communities. Though research respondents, who were primarily principals, acknowledged that were a part of their local community, they said there was much they themselves still did not hear about in relation to event consequences. Comments from some respondents and the lack of participation of Manawatu schools suggest that the timeliness of any future research is an important consideration. Canterbury school representatives suggested that where an event is too far in the past, respondents may be concerned about their ability to remember and the event may seem of less importance by the time the invitation to participate in the research is extended.

The results of this research project suggest that more understanding is needed around New Zealand school communities' experiences of temporary school closure. The ways in which schools play a greater or lesser role in building and maintaining social cohesion within communities during and following a crisis event requires further research. Respondents also suggest that research that aids understanding of the complexities of the school-media relationship during a crisis event would be of use to schools' senior management staff.

In particular, research into the importance of socio-economic and cultural differences in relation to crisis events in New Zealand is scant, though there is a body of epidemiological research on the interaction of measures of social inequity and health (see Howden-Chapman, Isaacs, Crane & Chapman, 1996). The international literature on disaster research, as mentioned in the introduction to this report, indicates that understanding the interaction of such differences within the context of crisis events could be a valuable direction for New Zealand research. Little is also known within New Zealand of the ways in which community is constructed within accounts of crisis events and the effect – if any – that this has on community resilience. More needs to be known about the ways in which belonging to marginalised communities might interact with experiences of temporary school closure and the exclusion that may ensue, particularly in relation to public health events such as the H1N1 virus outbreak. Another avenue for future research could be a comparison of experiences of inclusion and exclusion during different types of crisis events.

There were a number of other comments from respondents that could usefully inform future projects. A respondent from the Canterbury region (a counsellor at a school frequently plagued by temporary school closure due to snow) suggested that the adverse weather event that most affected students, and which was too often not recognised as a crisis, was the situation of drought. In relation to future research on public health crises, one of the respondents from an Auckland school commented that since the recent recession there had been a rise in the number of families returning to live with their families of origin because of job redundancies. As a result of the loss of work, the respondent said, the families of their students were more commonly living in larger family groupings thus potentially increasing the numbers of people who might be exposed to illness in an outbreak. Another respondent commented that although other schools had been able to close single class rooms or year groups, in their school's situation the large families that were common in their community meant that the exposure to risk was wider because children from an affected family were likely to be found across year group levels.

This research has provided a basis for the future development of projects involving the investigation of temporary school closures in New Zealand by identifying relevant issues and themes. The results reported here would also be of use to school management teams and Boards of Trustees as a source of information about how other schools have managed crisis event scenarios. The research demonstrates the relevance of New Zealand's temporary school closure experiences to more general understandings of crisis events.

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APPENDICES

APPENDIX 1 INFORMATION SHEET

I am writing to request your participation in the 'Impact of School Closures on Communities' research project being carried out by the Joint Centre for Disaster Research. The Centre is a joint venture between Massey University and GNS Science. This study has two aims. The first is to develop an understanding of the consequences of school closure for staff, pupils and the community of which the school is a part. The second is to understand what emergency management arrangements were in place prior to the school's closure and whether there have been any changes to those procedures as a result of the experience of closure.

Three hazard events are being studied as a part of this project; they are the 2004 Manawatu flood, the 2006 Canterbury snow storm, and the 2009 swine flu outbreak. You are being approached for participation in this research because of your experience in one of these events.

What would I have to do?

If you agree to take part, I would like to meet with you for an interview which will take about one hour.

Your participation in the interview is subject to Massey University's ethical requirements as listed below. With your permission, the interview will be audio taped, and subsequently transcribed by me. Tapes and transcripts will be kept in a secure place until the research is completed.

The interview will be subject to the following ethical guidelines as established by the University's Human Ethics Committee:

- You have the right to refuse to answer any questions, to withdraw from the study and to withdraw any information supplied at any time.
- You have the right at any time to ask further questions about the study.
- You have the right to ask for the audiotape to be turned off at any time during the interview.
- You have the right to have access to your transcript and to be able to make comments on it or make changes to it.
- You will be given access to a summary of the findings of the study when it is concluded.
- The information you provide is completely confidential to the researcher. All records will be identifiable only by code number and will be seen only by the researcher and the research team. Excerpts from the interview may be included in publications of the research.

What next?

If you haven't already suggested a time to meet during my initial phone contact, I will be in touch with you within the next day or two to set up an appointment. In the meantime, I look forward to meeting with you to discuss your experience with school closure. Please feel free to contact me at any stage.

Yours sincerely,

NB: This project has been reviewed, judged to be low risk, and approved by a research team under delegated authority from the Massey University Human Ethics Committee. Those named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Ethics & Equity), telephone 06 350 5249, email: humanethicspn@massey.ac.nz.

APPENDIX 2 SEMI-STRUCTURED INTERVIEW SCHEDULE

- 1) How would you describe your school and its community?
- 2) Tell me about the time leading up to your school's closure. What kind of a management plan was in place for closure?
- 3) Tell me about the closure. Possible prompts: How did you decide to close? Who was involved in the decision-making process? What did you do once you had decided to close?
- 4) What were the effects of the closure on: staff, pupils, parents? Was the closure more difficult for some people than others?
- 5) How would you handle closure if it were to happen today? (any differences to how it was handled?)
- 6) Do you think you learned any lessons from the closure?
- 7) Do you have any advice for schools who haven't had to close in the past but who might need to do so in the future?

APPENDIX 3 INTERVIEW GUIDE

- Your school and its community
- The school closure
- Making decisions on closing
- Community response to the closure

Specifically:

Is there anything that you would do differently next time?

If you had to give a colleague advice on school closure, what would it be?

Is there anything else you would like to comment on?



www.gns.cri.nz

Principal Location

1 Fairway Drive
Avalon
PO Box 30368
Lower Hutt
New Zealand
T +64-4-570 1444
F +64-4-570 4600

Other Locations

Dunedin Research Centre	Wairakei Research Centre	National Isotope Centre
764 Cumberland Street	114 Karetoto Road	30 Gracefield Road
Private Bag 1930	Wairakei	PO Box 31312
Dunedin	Private Bag 2000, Taupo	Lower Hutt
New Zealand	New Zealand	New Zealand
T +64-3-477 4050	T +64-7-374 8211	T +64-4-570 1444
F +64-3-477 5232	F +64-7-374 8199	F +64-4-570 4657