Dealing with mass death in disasters and pandemics

Some key differences but many similarities

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Abstract

Purpose – There are many differences in how authorities handle the dead during mass death incidents involving disasters and pandemics. These differences would suggest that planning for a disaster death and planning for a pandemic death should be done separately. This may be true to some extent, however, there are many similarities between the two that this article will seek to examine. The main objective of this study is to show that planning for both disasters and pandemics should either be done by a single entity that coordinates both types of responses, or by agencies that communicate closely and frequently.

Design/methodology/approach – This study compared mass death incidents predominantly within the Canadian historical record, including disasters and pandemics. It took a specific look at the influenza pandemic of 1918 in North America and how the dead were handled.

Findings – Both disasters and pandemics offer unique challenges in handling the dead and documenting the incident. In a pandemic the cause of death is usually clear, while in a disaster it is not always understood. However, the similarities they hold in common must not be overlooked. They will involve immense and complicated amounts of paperwork, cause a shortage of supplies (be it medical, food or otherwise) and create the need for assistance.

Originality/value – The research finds that though disasters and pandemics are often handled differently by the various agencies involved, they should be treated alike and dealt with in the same manner.

Keywords Disasters, Death, Planning, North America

Paper type General review

When 74 miners died in a mine disaster in Springhill, Nova Scotia in 1958, the bodies of most were recovered quickly and identified by those who knew them, the mine manager, a union officer and the local physician (Burden and Safer, 1991). To handle the funerals, the local funeral director called for assistance from nearby communities – Oxford, Amherst, Pugwash and Parrsboro. He worked out that there would be five funerals a day with the funerals planned so they would not overlap at the same church or the same cemetery.

At the last minute, we had a call from the union. We can't get from one funeral to the next to be in time for the next service. We called the first minister and said, "Can you shorten your service by 10 minutes?" He said, "Yes, I can do that". We called the second minister and said, "Can you start your service 10 minutes later?" He said, "Yes, I can". That gave the union reps 20 minutes to get from one service to the next[1].

Because the cemetery staff could not dig graves fast enough some miners were hired as grave diggers.

Fewer problems today

Today, the same kind of incident would probably cause fewer problems. Now, in the wake of a mass death incident, the bodies are soon controlled by the medical examiner or coroner and not released until he/she is satisfied – first that they have been properly identified, perhaps from dental records, fingerprints or DNA; and second, if there is any reason to suspect foul play, that the cause of death has also been established. The result is that there is rarely a surge of bodies into the funereal system but rather a steady flow of human remains as persons are identified. Sometimes that flow can last for days, months, or even longer, as was true after 9/11 or the Indian Ocean tsunami-hit tourist areas in Thailand.

In most cases, the response by the authorities is based on the generic mass death plan developed by the International Police Criminal Organization (Interpol, 1997). That plan assumes that the dead will be at a site, that this site will be controlled by law enforcement, that no human remains will be moved until they are marked and photographed in place, and that then they will be moved to a morgue where they will be examined by pathologists, odontologists (forensic dentists), fingerprint specialists and others until they are identified. That is what happened in December 1985, when a chartered aircraft carrying soldiers of the 101st Airborne crashed in a wooded area, meters from the airport in Gander, Newfoundland. The crash area was cordoned off, staked out and each body was marked and photographed before being taken to a morgue set up in an unused hangar at the airport (Emergency Communications Research Unit, 1985).

The situation is different, however, when the cause of mass death is a pandemic. After a disaster, identifying the dead is a key priority even if intact bodies are not recovered. In a pandemic, because most of those who die do so at home or in a healthcare setting, identification is rarely an issue; and, in any case, all bodies are intact. After a disaster, cause of death may be a concern especially if criminal activity or terrorism is suspected. After both Air India and Pan Am 103 blew apart in mid-air, bodies and body parts were examined carefully to see if they could help determine the source of the explosive devices. During a pandemic, because cause of death is usually obvious, there is no need for post mortems. After a disaster there is nothing to prevent normal funereal rites, such as wakes, funeral services and a ceremony at the cemetery when a body was buried. In a pandemic, bringing people together risks contagion. Wakes and funerals are prohibited. In a disaster, emergency agencies are usually not among the victims: in a pandemic, emergency personnel, especially front-line medical staff, are often victims (Johnson, 1997). That is much less likely in a disaster. Finally, after a disaster, it is usually possible to get assistance from neighboring communities. Mutual aid is part of most emergency plans. In a pandemic such assistance may not be available because the impact will be widespread.

At first glance, those differences would suggest that planning for disaster death and planning for pandemic death should be done separately and, to some extent, that is happening. Canada, for example, has an annex to its Pandemic Influenza Emergency Plan providing “Guidelines for the Management of Mass Fatalities during an Influenza Pandemic” (Public Health Agency of Canada, 2010). The US Department of Health and Human Services states one of its priorities is to “assist communities with surge mortuary services to accommodate a large number of expected fatalities” (US Department of Health and Human Services, 2005, p. 25). The British are still

assuming all types of mass death will be dealt with the same way: their planning document emphasizes that it “will be the aim of local service providers to maintain current processes for as long as possible” (Home Office, 2007, p. 12). This approach has been criticized by Her Majesty’s Coroners; and the government has consulted many who would be involved to see if that approach makes sense (Home Office, n.d.). It seems likely that there will be changes in UK planning.

However, while there are major differences between disaster mass death and pandemic mass death, a closer look at the two suggests there are also many parallels. Both pandemics and disasters can lead to problems of locating and collecting the dead. Both can lead to identification issues. Both require paperwork as death is recorded and certified. Both can lead to shortages of facilities and personnel: even finding enough persons to dig graves can be an issue. Both require decisions about whether there should be mass graves. Both can have a widespread impact, making it difficult for communities to assist each other. Both can impact emergency personnel. These similarities suggest planning for both should be done if not by a single entity, then at least in parallel. While this article draws substantially on Canadian material, it includes examples from the USA to show that the issues there are much the same. The limited material available from UK sources suggests that this would also be true for the UK. In short, if Canada, the USA or the UK experience a repeat of the 1918-1920 pandemic there will be problems dealing with the dead, many of them comparable to what happens after a major mass death disaster. Planners should keep that in mind.

Literature review

The literature on disaster mass death is both increasingly abundant and readily available. The first detailed studies were done about 30 years ago when researchers at the Disaster Research Center, then at Ohio State University, studied a number of American mass death incidents (Blanshan, 1977; Blanshan and Quarantelli, n.d.; Hershisier, 1974; Hershisier and Quarantelli, 1976, 1979; Quarantelli, 1979). There were also publications by Vanderlyn Pine (1969a, b, 1974, 1980), a funeral director and sociologist, Janet Kitz’s (1994) chapter in *Ground Zero* on the 1917 Halifax explosion mortuary, articles by Japanese physicians after the 1995 Kobe earthquake and two journal articles by Joseph Scanlon, one also on Halifax (Nishimura, 1997a, b, c; Scanlon, 1998a; Scanlon and McCullum, 1999). There were technical articles, some by Canadians (Brannon and Kessler, 1999; Brenner, 2005; Clark *et al.*, 1989; Pretty *et al.*, 2001a, b). Now, thanks to US National Science Foundation (NSF) funding, there is new extensive published research on disaster death (Scanlon, 1998a, 2006a, b, 2008, 2009; Scanlon and McCullum, 1999; Scanlon *et al.*, 2007). As well as overviews, it covers such topics as the problems of foreign ministry call centers handling inquiries and the role of the private sector in disaster victim identification (Scanlon, 2006b, 2007).

Essentially, this research shows that the basic Interpol plan is often not applicable to the early stages of response to a mass death disaster. Instead of bodies being at an easily controllable site, they are often spread over a wide area. Instead of being left in place until they are photographed and data about them is recorded, they are often collected by ordinary persons and taken to public locations such as schools, police stations, churches and recreational facilities. That happened in Darwin (Australia) after a cyclone, in Rapid City (South Dakota) after a flood, and in Kobe (Japan) after an earthquake (Hershisier, 1974; Scanlon, 1979; Nishimura 1997a, b, c). However, that

research also suggests that once that initial response is over, the handling of the dead is taken over by law enforcement and forensic professionals and those who knew the dead are excluded until the dead are identified. Only then are the bodies released so their families can carry out whatever rites they wish. That is exactly what happened in Thailand after the Indian Ocean tsunami: the bodies were collected and laid out in rows on the grounds of temples but gradually they were taken under control by foreign police and forensic scientists operating with the permission of the Thai government (Scanlon, 2006b). Only after they were formally identified were they released to relatives.

More recent research has shown that while this pattern has become common in Western countries in recent years, it is less likely to occur in other parts of the world, and it was not the norm even in Western countries until the second half of the last century. In Sri Lanka, for example, after the tsunami, the mosques used their public address systems to warn that unless people quickly identified a body, it would be buried in a mass grave. One reason for this was a conviction – though incorrect – that bodies constituted a disease threat. In Indonesia, where there were thousands, perhaps hundreds of thousands dead, there were hasty efforts to identify some dead before most were buried in mass graves. In Canada, as recently as Hurricane Hazel, which struck the Toronto area in 1954, bodies were collected by volunteers, and identified by those who knew them or said they knew them. When two university students volunteered to assist and it was learned one was a medical student, the pair found themselves running a makeshift morgue:

Behind the partition, the now Dr Elliot Baker and I were accepting incoming bodies. Our job of setting up and administering the morgue turned out to be one of cleaning the bodies as best we could and searching for some identification. We would then write a brief description of the body and where it was found, tag the toes, and give the description to the Salvation Army. Here, behind the partition, we had three rows of bodies, men, women, and children in order of age. Each body was covered with a blanket (Kennedy, 1976, pp. 125-6).

In fact, a study of Canadian mass death incidents found that forensics was used only when necessary, in short when a body was disfigured or burned or when only body parts were available. Because only one relatively intact body was recovered after the crash of Swissair 111, the passengers and crew were identified using various forensic techniques; but when the oil rig *Ocean Ranger*, an American-flagged vessel, capsized in the Atlantic off Newfoundland, since most bodies were intact, the identities were confirmed by persons who knew the dead and by personal effects on the bodies[2]. However the death certificates were issued by the US Coast Guard.

Pandemic research

There is also now a great deal of literature on pandemics, especially on the 1918-1920 Spanish flu (major works about the American and world situation include Barry, 2004; Bollet, 2004; Crosby, 1976, 1989; Galishoff, 1969; Katz, 1974; Nikiforuk, 1991; Persico, 1976; Peters, 2005; Rose, 1937; Rosenberg, 1992; Starr, 1976). More specifically, there is a wide range of books, chapters, articles and papers about what happened in Canada during the 1918-1920 influenza pandemic (important Canadian works include Andrews, 1977; Bacic, 1999; Belyk and Belyk, 1988; Herring, 1994; Herring and Sattenspiel, 2003; Humphries, 2005; Johnson, 1997; Jones, 2002, 2005, 2006, 2007; Keer, 1994; Kelm, 1999; Lux, 1997; MacDougall, 1986, 2007; McGinnis, 1976, 1981; O'Keefe and MacDonald, 2004;

Palmer *et al.*, 2007; Pettigrew, 1983; Phillips, 2004; Quiney, 2002)[3]. This literature continues to expand: Johnson, whose early research was done in Kitchener, Ontario, recently produced a book on the British experience in 1918-1920 based on his doctoral dissertation at Cambridge (Johnson, 2006). Despite this extensive and growing literature, there is still nothing focusing on pandemic death[4]. Nevertheless, accounts dating back to the seventeenth century show that dealing with the dead has always been a major problem in pandemics. Miquel Parets (1991), writing about the plague that struck Barcelona in 1665, vividly describes the collection of bodies:

It was terrifying to see the carts [...] move through the streets filled with the dead, some fully dressed and others naked, some wrapped in sheets and others with only their shifts on [...] and there were so many that anyone going through the streets constantly ran into them (p. 55).

There are similar accounts describing the plague in London about the same time:

The streets were now a melancholy sight [...] the pavement was overgrown with grass [...] as for the shops, they were all shut close [...] not a coach or cart to be seen, except now and then a coach carrying a sick body to the pest-house, and every night, three or four times a night, the dead-cart, with the bellman crying, "Bring out your dead" (Dafoe, 2003, p. 94).

And the same thing happened in Philadelphia in 1918:

At the height of the epidemic, Philadelphia's undertakers couldn't keep up with the body count. They ran out of coffins, spaces to put coffins with bodies in them, and places to bury the victims. Embalmers were in such short supply that many bodies started to rot. Horse carts trolled the city streets, their drivers calling for the dead to be brought out (Peters, 2005, p. 31).

Other customs have also survived for centuries. Parets (1991) reports that when a plague victim was identified in Barcelona his house was marked with a white cross. Samuel Pepys's (1897) diaries report a similar custom in London:

June 7, 1665 This day, much against my Will, I did in Drury Lane see two or three houses marked with a red cross upon the doors, and "Lord have mercy upon us" writ there; which was a sad sight to me, being the first of that kind that to my remembrance I ever saw (p. 428).

Pettigrew (1983) describes Toronto in 1918:

On front doors in Toronto, a white sash denoted the death of a child, a gray one a person of middle years, and purple was for senior citizens. White hearses for children were a common sight. [...] Although Canada's first motorized hearse went into service in Toronto in 1914, there were still horse-drawn hearses everywhere in 1918; wagons and other emergency vehicles were pressed into service during the epidemic (p. 52).

In a pandemic, dealing with the dead can even overwhelm ill survivors:

Probably, during the initial stages of the epidemic, when there was sufficient manpower, the living could lay the dead to rest. As the epidemic progressed, and the dead overwhelmed the living, however, there was no hope of interring the deceased. The grim sight of unburied piles of human remains was seen in the Canadian Northwest in several places for many years after the epidemic, a powerful reminder of the awesome force of the disease (Hackett, 2002, p. 107).

Of course, in Northern climates, it was not possible to bury the dead during the winter and desperate measures were sometimes required. Herring (1994) reports that those who died over winter were stacked on the roofs of buildings to preserve the bodies from scavenging animals.

Similarities

While there is a great deal of research on disaster mass death and none focusing on pandemic mass death, it is still possible to extract enough anecdotal material from the pandemic literature, much of it Canadian and American, to show that there are many parallels between the two types of mass death. For example, while identification is usually a problem in a disaster and rarely a concern in a pandemic, there have been identification issues in a pandemic. In Drumheller, Alberta, for example, in 1918, the local druggist was asked to figure out who had died and where their bodies had been taken after the pandemic subsided:

It was an impossible task. Although the patients' names had been attached to their beds when they were brought in, many of them had got up and wandered in their delirium. Sometimes they fell into someone else's bed with a name tag on it, and if they died there, no one knew who they were (Pettigrew, 1983, p. 98).

Crosby reports similar problems on an American ship carrying dead soldiers:

One of the most aggravating problems was the matter of identifying the sick and the dead. Many soldiers were too sick and too delirious to identify themselves, and, of course, the dead were forever silent on the matter. The army had ordered that each man wear a tag around his neck with his name and number thereon, but for some reason hundreds of the men on the *Leviathan* had blank tags, and many others [...] had no tags at all (Crosby, 1976, p. 129).

In Saskatoon (Saskatchewan) there was no morgue to store the bodies, and the local registrar of Vital Statistics, J.M. Lloyd, was overwhelmed by the demand for death certificates and burial permits. Saskatoon's cemetery caretaker was charged in early November with allowing burials without a permit [...] The situation had become impossible by early November, and a number of burials took place at the Catholic cemetery without permits. Local police in Moose Jaw rounded up loafers and unemployed men and pressed them into service as grave-diggers (Lux, 1997, p. 10).

Those are not the only similarities. For example, in 1998, when a severe ice storm forced 65 communities in Eastern Ontario to declare a state of emergency at the same time, one of the major concerns was for elderly people living alone in rural areas, without power and, therefore, without water or sewage:

With the help of police, firefighters, public health nurses volunteers and soldiers [...] communities organized door to door checks to monitor residents. They found most were all right but they persuaded about 200 to leave their homes because they were at risk (Scanlon, 1998b).

Although the ice storm canvassers did not locate anyone who was dead or dying, that did happen in Alberta when a similar canvas took place during the pandemic. Volunteers realized they had to try to make it to every house every day after finding parents or entire families dead upon arrival (Keer, 1994).

If bodies were located of course they had to be collected; so collection of the dead is another issue that rises in both disasters and pandemics. For example, after a mid-air collision over Moose Jaw, Saskatchewan, bodies were scattered along the fairways of the Willowdale Golf Course fairways. As each body was spotted it was covered with a white sheet and guarded by city police, RCMP or RCAF personnel until it could be taken to a morgue in the Moose Jaw Armouries. When there are a lot of bodies to be collected vehicles other than ambulances or hearses have to be pressed into service. In

Montreal, during the pandemic, grocery carts were used to transport the dead to funeral homes and streetcars were pressed into service to carry bodies to cemeteries.

Another common problem is overcrowded funeral homes. After the 1917 Halifax explosion, for example, the city's funeral homes soon ran out of space for the 1,963 bodies. The hastily formed Halifax Relief Committee ordered a morgue created in the basement of Chedebucto School. After a mine incident, often one of the mine buildings is set up as a morgue. But morgues have also been set up in armories, unused hangars at airports and military bases, hockey rinks, school basements, a town hall, a movie theatre, an empty store, a pizza parlor or a church hall. Bodies have also been taken to a church hall (Molly Corbett Beaton Institute, n.d.). In 1916, after forest fires killed hundreds of persons in Northern Ontario, one small morgue was set up at McNabb's funeral home in Cobalt. The main morgue was in Matheson, where two tents were used to handle bodies. There were piles of coffins beside the tents, some labeled "full" and others labelled "empty". Soldiers collected bodies of humans and horses and brought the human bodies to the tent morgues (The Daily Nugget, 1916). An overcrowded funeral home is an even greater problem if the only funeral director is ill, as happened in Cranbrook, British Columbia in 1918:

When the local undertaker fell ill there was no one to prepare for burial the flood of flu victims. Fourteen-year-old Frank Robert's father assumed the role of mortuary caretaker during the absence of the undertaker. One night the boy accompanied his father to the funeral parlour to check on the furnace. After entering the building through the back door, his father pulled the cord on a bare overhead bulb. The flood of light suddenly revealed a ghastly sight. The room was full of bodies; so many that they were stacked like firewood (Belyk and Belyk, 1988, p. 48).

In Philadelphia in 1918 there were corpses everywhere:

The corpses had backed up at undertakers', filling every area of these establishments and pressing up into living quarters; in hospital morgues overflowing into corridors; in the city [Philadelphia] morgue overflowing into the street. And they had backed up in homes. They lay on porches, in closets, in corners of the floor, on beds. Children would sneak away from adults to stare at them, to touch them; a wife would lie next to a dead husband, unwilling to move him or leave him. The corpses, reminders of death and bringers of terror or grief, lay under ice at Indian summer temperatures. Their presence was constant, a horror demoralizing the city; a horror that could not be escaped (Barry, 2004, p. 326).

[The city tried] to clear homes of bodies that had remained there for more than a day, piling them in patrol wagons, but they could not keep up with the digging and fell further behind. The police wore their ghostly surgical masks and people fled them, but the masks had no effect on the viruses and by mid-October thirty-three policemen had died, with many more to follow (Barry, 2004, p. 326).

Grave diggers needed

Even if the bodies reach the cemetery there are problems, mainly with finding enough persons to dig the necessary graves. As mentioned above, Springhill had to find extra grave diggers after a mine disaster. That has also been a continual problem in a pandemic:

[In Vancouver] the gravedigger shortage became more acute. Thought was given to moving steam shovels into the graveyard in order to alleviate the problem but in an era when religion played a significant role in daily life, this suggestion appalled the vast majority of people. The

idea was dismissed and somehow enough men and boys were found to provide graves for another 25 bodies which had arrived from the isolated Britannia Copper Smelter on Howe Sound. Accessible only by sea, the community of Britannia had already shipped more than 100 sick and dying victims to Vancouver (O'Keefe and MacDonald, 2004, p. 130).

John Barry (2004) describes similar problems in Philadelphia:

First the families of the dead picked up shovels and dug into the earth [...] For gravediggers would not work [They] found it impossible to hire persons willing to handle the bodies, owing to the decomposed nature [...] the head of the Pennsylvania Council of National Defense, George Wharton Pepper and the Philadelphia office of Defense's Judge J. Willis Martin offered ten dollars a day to anyone who would touch a corpse, but that proved inadequate, and still the bodies piled up [...] The city and archdiocese turned to construction equipment, using steam shovels to dig trenches for mass graves (p. 327).

Crosby (1989) describes much the same:

On September 10, 500 bodies awaited burial and the undertaking establishments, coffin manufacturers, and grave diggers were falling further and further behind [...] At times the city morgue had as many as ten times as many bodies as coffins [...] Six wagons and a motor truck toured the city and collected 221 corpses which had gone without burial for one to four days since death (p. 82).

The usual complement of grave diggers was far too small to dig the number of graves required. Various city departments, including the House of Detention, sent men to cemeteries and they, plus volunteers, did the job. The Bureau of Highways offered a steam shovel to dig trenches in Potter's Field for the burial of the poor and friendless. Such was the confusion and the speed with which the dead were thrust into the ground that it was apparent that there would be some, perhaps many, cases in which relatives would want to move their dead to family plots or even to other cemeteries, so the bodies were tagged for identification if they should later be disinterred (Crosby, 1989, p. 83).

Johnson (2006) notes precisely the same problems in the UK during the 1918-1920 pandemic:

[...] a massive strain on the economies, on families, on medical personnel and facilities, and even on cemeteries and morgues. The funeral industry showed the strain as many towns ran out of coffins and coffin makers, grave diggers and others were put on extended hours, while cemeteries opened for longer hours (p. 206).

In some cases, the only solution was mass graves:

[...] one of the things which filled me with horror during this time was the mass burial. When the epidemic was at its worst, a number of people died within two or three days of each other and those who were left were too sick to lay out the corpses and make coffins. A large hole was dug in the cemetery, and seven bodies were carefully wrapped and buried side by side (Hanson, 2001, p. 45).

It was about December 8th, when we began to dig a large grave in which to bury all the people who had died during the epidemic. This was no easy matter, as the ground had already frozen to a great depth. When we got down to about three feet we came to the old frost and we were obliged to make large fires and we used up a considerable quantity of petroleum, otherwise we should not have been able to get down far enough. In this way we dug down to 7 or 8 feet and the length of the grave was 32 feet (Moran, 1988, p. 25).

The problems were especially acute in Northern communities where burial was difficult to impossible during the winter.

But those are not the only similarities between pandemics and some disasters. In a pandemic, the impacts – and the problems of dealing with the dead – are usually spread over wide areas, perhaps over much of the world. That makes it difficult for one community, one region or one country to provide assistance to another. While that is less common in a disaster, it can happen. During the 1998 Eastern Ontario ice storm, 65 communities declared a state of emergency at the same time (Scanlon, 1999). That made mutual aid difficult to impossible and made it very difficult for the provincial government to provide effective support. Not surprisingly the Regional Municipality of Ottawa Carleton called upon the Army to assist. There were similar problems during an earlier ice storm that struck the area around Rochester, New York. Similarly, while it is true that pandemics are more likely to impact emergency personnel than disasters that is not always the case. When the munitions ship exploded in Halifax in 1917, it killed all the senior officers of the fire department and injured so many soldiers and soldiers' families that the military was unable to respond for some time to the needs of the civilian population.

Summary and conclusions

Tom Brondolo, who was with the medical examiner in New York City during 9/11, has identified four criteria that can be used to evaluate the complexity of a mass death situation. He puts these as questions:

- (1) Is there a manifest, a list of the dead?
- (2) How many dead are there?
- (3) What condition are the bodies in?
- (4) How fast are bodies being recovered?

He argues that the problems are greatest when there is no list, when there are many dead, when the bodies are disfigured or cut to pieces and when most of all the dead are recovered quickly. Given those criteria, the tsunami was a close to a worst-case scenario. There was no list. There were hundreds of thousands of bodies. They were recovered very quickly. The only positive was that most bodies were in good condition.

Brondolo's model was developed as a result of his experience with a terrorist attack on the World Trade Center and an air crash, not a pandemic. But a look at the 1918-1920 pandemics suggests the same criteria could apply and the results would be similar to the tsunami. In 1918-1920, there was no list of the dead. Bodies were recovered very quickly. The numbers were not necessarily that large on a local basis but the overall totals were overwhelming. And, once again, just as after the tsunami the bodies tended to be in good condition.

There is no question there are major differences between pandemic mass death and disaster mass death. In a pandemic the victims usually die at home or in a health care facility and their identity is usually – though not always – known. In a pandemic cause of death may be ascribed to a number of things but the underlying cause is clear – whatever it was that caused the pandemic. In 1918-1920 that cause was swine flu. However, it is also clear that there are often many similarities between both types of mass death. There may well be problems in locating and collecting the dead. There will

be problems with paper work. There will be shortages of supplies such as body bags and personnel such as grave diggers. Given widespread impact there may be an inability for communities to assist each other.

The fact there are major differences should not be allowed to hide the fact that there are many similarities. That suggests that coordinated planning makes sense. It is certainly clear that no matter what planning approach is taken, that approach must include plans to deal with large numbers of dead. Dealing with the dead has been a problem in pandemics for centuries. That is not likely to change.

Notes

1. ECRU promises all human sources that they will not be identified.
2. This material is taken from as yet unpublished study of Canadian mass death disasters soon to appear in an online Canadian text (Scanlon, J., Stoney, C., Kramar K., Peckmann T., Brown I., Cormier C.L., McMahon T. and van Haastert C., "Forensics if necessary: similarities and changes in Canadian mass death incidents").
3. Most authors use the dates 1918-1919, but Maureen Lux (1989) states explicitly that 102 deaths occurred in Saskatchewan in 1920. They occurred in Northern areas of the province, which escaped the initial onset of the disease in 1918-1919.
4. The senior author has been awarded \$99,430 by the Social Science and Humanities Research Council of Canada for a pilot study on how three Ontario communities dealt with death during the 1918-1920 pandemic.

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