

Chapter 6

SOCIAL IMPACTS

6.1. INTRODUCTION

The Mississauga derailment did not cause any deaths or major injuries. However, for the people involved, there were many ways in which the emergency affected their lives.

This chapter documents the social impacts on different groups of people such as the sick, families with children, senior citizens, pet owners, and people using the Evacuation Centres. It also summarises all the known health effects of the emergency and the evacuation experience. One generalised impact of the experience has been to increase the public's level of awareness of risks (Section 6.10).

The chapter is based on three main data sources:

- (a) the public surveys carried out by the project;
- (b) in-depth taped interviews with Mississauga residents;
- (c) interviews with physicians, pharmacists, church leaders, and many health and social service organisations (governmental and non-governmental). These are listed in the Acknowledgements.

Where statistical data are presented, they are from the public surveys. Other statements are based on the interviews with residents or on expert opinion.

6.1.1. Social dimensions of the emergency situation

Several aspects of the circumstances surrounding the derailment influenced the nature and degree of the social impacts.

The accident occurred at midnight on a Saturday evening, in winter. This fortuitous timing meant that most of the people who were to be evacuated were already at home and together. As has been described in Chapter 5, families who were together at the time of evacuation, left together

and stayed as a family unit. Their uncertainty and consequent concern about each other's welfare was therefore minimised. In contrast, those families who were separated spent more effort in becoming reunited, even where this meant delaying their evacuation from the area. They were also more anxious until the family were back together. Had the evacuation taken place on a weekday when families were split up with some parents at work and children at schools and day care centres, the social impacts would have been quite different, and probably far greater.

Secondly, the accident did not kill anyone. Evacuees were not fleeing from a disaster but were removing themselves from a potential danger. The situation was one which encouraged orderly, rational response rather than a horror-struck mad scramble.

Thirdly, the residents of Mississauga are largely grouped into small, nuclear families with incomes around \$40,000 per year. Many heads of households are in professional and managerial occupations. Most residents speak English as a first language and almost every household owns at least one car, and has communication via radio, television and telephone. These social and economic characteristics helped the evacuation to proceed smoothly and to reduce the negative impacts of the experience.

Thus, the nature of the accident, its timing, and the characteristics of the population at risk, all favoured a successful outcome with minimal social impacts. On the other hand, there were several institutions, including nursing homes and three hospitals which had to be evacuated and which could have produced major social and health problems.

6.2. HEALTH EFFECTS

Most of the health effects of the emergency were minor

and temporary. In general, evacuees received good health care, especially those particularly at risk such as hospital patients and people in institutions. This is the consensus of the many medical and social welfare experts contacted in the course of the study. It is also corroborated by survey data on the short and long term effects of the emergency on the evacuees (Table 6.14). Fourteen percent of the evacuees questioned in November 1979 report experiencing anxiety (worry) as a result of the derailment. By August 1980, 11% reported that they were more nervous since the accident. Increased anxiety and nervousness is the only health effect to be reported by more than 1% of the evacuees.

The health effects discussed below are therefore rare when considering the total number of people evacuated (226,000). They are recorded, not because they were significant in the Mississauga emergency, but because some of them are associated with organisational deficiencies in providing access to medical facilities. By considering these problems for future emergencies, many of them can be anticipated and resolved.

The health effects of the emergency can be considered under nine headings:

- (1) eye irritations;
- (2) respiratory problems;
- (3) chest pains;
- (4) food poisoning;
- (5) psychological disturbance;
- (6) anxiety and psychosomatic illnesses;
- (7) existing health problems exacerbated by lack of access to medication or medical attention;
- (8) health conditions exacerbated by lack of privacy and access to personal hygiene in crowded emergency evacuation centres;
- (9) injuries such as bruises, sprains and broken bones.

6.2.1. Eye irritations

A few people complained of eye irritation, particularly those living near the accident site and those returning to basement apartments on Tuesday, afternoon (13 November) before the advice to ventilate homes was announced.

Generally, it appears that these people sought advice and medication from their pharmacists rather than from their general practitioners. No long-term eye irritation problems are known.

6.2.2. Respiratory problems

Respiratory and heart conditions were mostly of concern to senior citizens and others who already had such problems. Many of them checked their health status with their own doctors before signing the waiver on the CP Rail claim form for compensation. People with existing respiratory problems who lived near the accident site also complained but appeared to suffer no long term effects. One General Practitioner believes he may have seen more patients with respiratory problems, but November is a common time of year for coughs and chest problems to emerge. A Respiratory Specialist reported increased symptoms after the evacuation in many of his patients with chronic lung disease. He believes that these symptoms were more likely to be caused by the stress of the evacuation than by chlorine or other gases.

6.2.3. Chest pains

Seven people were taken to hospital on Wednesday, 14 November, complaining of shortness of breath, dizziness, chest pains and nausea. Others complained to their doctors or pharmacists about chest pains. Generally, these people had already experienced chest problems and/or were anxious about the emergency.

6.2.4. Food poisoning

Seven cases of food poisoning were reported to the Peel Region Health Department on November 14. Householders returning to their homes after the evacuation were given the following advice about left food, "When in doubt, throw it out". Likewise, businesses were asked to check for spoiled food. No long-term effects were reported.

6.2.5. Psychological disturbance

The Distress Center received no additional calls for help that can be attributed to the emergency. However, at least one person, a teenager, suffered a profound personality disorganisation from the accident. He was close to the accident site at the time of the explosion and fled in terror, believing he was dead. This patient had subsequent anxiety attacks and problems in coping with his school work and personal relations. However, he recovered within a year.

Most of the people who experienced psychological problems were children. Some of these children already had histories of sleeplessness and personality difficulties. They were already vulnerable to stress and the accident and evacuation provided a focus for the stress. About ten children were referred by their paediatricians to a child psychiatrist. The most common problems were sleep difficulties and nightmares. They would dream frequently of fires and dying. Some young children (3-6 years) had seen the fire and flash and were frightened by the accident itself.

The problems persisted for some months but are not considered to be long term. Some families even reported improved behaviour on the part of their children and some 'difficult' children had learnt through the crisis to be more cooperative within the family.

6.2.6. Anxiety and psychosomatic illnesses

Increased anxiety was the most widespread health effect of the emergency. It particularly affected families with young children, separated families, people needing special assistance, and those already prone to psychosomatic illnesses. However, most people who suffered anxiety about the danger, the disruption to routine, or lack of news about their relatives, pets or home, did for a short time only.

During the emergency, the majority of evacuees (64%) report feeling some concern about their families' safety (Table 6.1). Generally, this concern occurred at the beginning, when they heard or saw the accident, or when they were asked to evacuate and realised that the situation was serious.

Both the survey results and the in-depth interviews with evacuees show that the women in the families were more concerned than the men (Chi-square test significant at .005 confidence level)¹.

Concern was also heightened if there were young children (0 - 9 years old) or if the mother was pregnant (Chi-square test significant at .001 confidence level). Concern was not significantly increased if the family only had older children, nor if the size of the household were larger.

The main reasons given for concern during the emergency were the danger, the uncertainty and the health (often specific health problems) of family members. On the other hand, people who said they were not concerned, based their judgement on two main beliefs: that they were a safe distance from the accident, and that the authorities had everything under control (Table 6.2: differences significant at 0.001 confidence level). It is interesting to note that, as a group, those who were unconcerned and believed themselves to be a safe distance away, were not

¹ This test is explained in Appendix 3.

Table 6.1. Responses to "At any time during the emergency, were you seriously concerned for your own or your family's safety?"

	<u>Yes,</u> <u>very concerned</u> %	<u>Yes,</u> <u>concerned</u> %	<u>No,</u> <u>not concerned</u> %
All evacuees (N=504)	31	33	35
Evacuees in centres (N=175)	41	28	29
Control group (Don Mills) N=200	9	25	65

Table 6.2. Reasons for degree of concern felt during the emergency.

<u>Reasons for</u> <u>concern/no concern</u>	<u>Very</u> <u>Concerned</u> %	<u>Concerned</u> %	<u>Not</u> <u>Concerned</u> %
Danger	35	35	6
Uncertainty	19	24	1
Family health	29	21	-
Distance to accident	9	7	48
Authorities had control	-	-	22
Evacuation out of control	1	3	3
Not worried	-	-	8
Danger exaggerated	2	1	4
Other	5	9	8
	—	—	—
	100%	100%	100%
N=504			

actually any farther away than people who were concerned. What is important is whether they perceived the distance to be a safe or dangerous one.

For most people, this anxiety lasted only as long as the emergency itself. Pharmacists in the area report no noticeable increase in requests for mood-altering drugs like Valium, either immediately after the emergency, or later.

Some anxiety among the elderly and those receiving care in hospitals, nursing homes and home care was reported by medical and nursing practitioners but generally these cases were mild and short-lived.

Psychiatric patients appear to have been no more anxious than others about the evacuation and for some psychiatric patients, the effects were more positive than negative. Church ministers likewise report only a few short-term and relatively mild cases of anxiety among those who came to them for help.

Most doctors and pharmacists contacted felt that many of the illnesses reported to them were psychosomatic problems induced mainly through anxiety. These included shortness of breath, asthma attacks, chest pains and respiratory problems. These problems generally disappeared within days or weeks of the end of the emergency. One doctor reported fewer psychosomatic problems during the emergency, which he attributed to higher community and family morale.

Anxiety therefore was probably felt for a short time by many people in Mississauga, particularly during the emergency itself, and by people who were more prone to anxiety through their own health status or their family situation. It does not appear to have led to many more serious, or more long-lasting health problems.

6.2.7. Existing health problems exacerbated by lack of access to medication or medical attention.

These problems ranged from generalised anxiety in patients who felt they would not be able to get in touch with their doctors if they needed them, to specific conditions brought about by lack of medical attention or medication. For example, doctors reported patients with high blood pressure and diabetes who were at risk because medication and diet were interrupted when they were evacuated.

Some people did not take any medication with them. Others, even those needing regular medication, took insufficient supplies. These included women on birth control pills. Nearly 12% of the households surveyed (representing some 8750 families) specifically mention that medication left behind caused them problems during the evacuation. Patients discharged from Mississauga General Hospital were given only 3 days supply of necessary medication and ran out of supplies before the evacuation was over. Three days supply was considered by the hospital staff to include a safety margin because they also expected that the evacuation would last only one day. Patients with chronic disorders, who would not have been sent home if the hospital had anticipated the possibility of a week long evacuation, were sent home. Their families had trouble giving them proper nursing after 2-3 days.

The problems were caused by:

- (a) evacuees and discharged hospital patients taking insufficient supplies of regular medication with them;
- (b) a breakdown in communications between doctors and their patients.

Appointments were missed and others could not be made because both patients and doctors were evacuated. New doctors were reluctant to prescribe medication without reference to the patient's medical records;

- (c) doctors and their answering services having to evacuate their offices and leaving their medical records behind.

Doctors were refused re-entry into the evacuation zone to retrieve medical records.

(d) people remaining within the evacuation zone;

Doctors were refused entry into the zone to give medical assistance to those who remained behind, although one doctor at Mississauga Hospital stayed inside the evacuated area and was given access (with a letter of authorisation) in and out of checkpoints on the perimeter. The Victorian Order of Nurses also were allowed to visit people requiring home care who lived in the evacuated area but near the perimeter.

Generally, it was expected that people voluntarily staying in their homes should leave the evacuation zone if they required medical attention. It is not known if any of these people became sick and whether they decided to stay or leave. No major health problems were reported among the people who stayed behind in the evacuated area.

6.2.8. Health conditions caused by lack of privacy in emergency quarters.

These problems were reported to their doctors mainly by women who were in Evacuation Centres. Some of them had pre-existing conditions, such as vaginal infections, which were temporarily made worse by a lack of privacy for personal hygiene. The International Centre, for example, had only twenty to twenty-five toilets and washbasins and no showers for 1000 evacuees.

There was also concern among medical staff in attendance at the evacuation centres that people bringing infectious diseases with them would lead to outbreaks of disease. For example, two children with scarlet fever (later found not to be contagious) were reported at the International Centre, and one doctor reports a couple who may have caught scabies at an Evacuation Centre. However, no major public health problems arose at the Evacuation Centres.

For many people, access to proper health care was better at the centres than elsewhere, because medical help and medication was available through the St. John Ambulance and Public Health Nurses located in all centres. Local pharmacies supplied missing medication and seriously ill people were taken directly to hospital.

6.2.9. Injuries

A few minor injuries were reported during the emergency, particularly among the people working at the accident site. They included bruises, sprains and minor fractures. There is no evidence, however, that an unusually high number of injuries was sustained among the general public.

6.3. PROBLEMS IN DELIVERY OF HEALTH CARE DURING THE EVACUATION

Although no deaths or major health problems can be directly attributed to the emergency, it is clear that the health care system for people in the area was vulnerable and major problems could have arisen. The two main sources of difficulty in health care delivery were:

6.3.1. Inadequate advice to people to be prepared for the possibility of an evacuation of several days.

Many families including some with people medically dependent on regular medication were at risk because they did not take sufficient medical supplies for the amount of time they were eventually evacuated. Many of these people did not just forget to take medication; they believed that they had sufficient (as did the hospital authorities) for one day plus a safety margin. Most of the evacuees had several hours between the time of the accident and being asked to evacuate. They could, if they had been advised, have gathered together medication, prescriptions, for the time they were away.

6.3.2. Lack of any official plan, or action, to provide continuity of doctor's services to the general community.

Because doctors, patients and doctors' answering services were all evacuated, normal communications between them broke down. In addition, doctors were separated from their patients' medical records. No emergency plan to deal with this situation existed and no action was taken by people at the Command Post to set up an emergency communications centre for doctors and patients.

Doctors became very frustrated and patients became anxious and in need of medical supplies and attention. By the evening of Wednesday, 14 November, an emergency communications for doctors and patients was set up at Apple Mills Clinic by one doctor and this telephone number was given out to police, T.V., radio and newspapers. However, other doctors report that they did not hear about the clearing house system and did not use it.

The Mississauga emergency demonstrated clearly the need for an emergency communications system to link doctors with their own patients in addition to emergency hospital and public health services. This need was underscored by the fact that most of the evacuees were not in evacuation centres where they had direct access to medical personnel but were scattered in homes and hotels throughout Metro Toronto and Southern Ontario.

6.4 FAMILIES WITH YOUNG CHILDREN

Nearly a third of the households surveyed had children under 10 years old. Most of the parents were professional or managerial people in their thirties with family incomes between \$15,000 and \$30,000. Like most people in Mississauga, they generally owned their own homes.

At the time of the derailment and subsequent explosions, parents of young children and pregnant women experienced varying degrees of anxiety about the danger. As news of the chlorine gas spread throughout Mississauga, they became increasingly anxious.

A pregnant mother.....

When the accident occurred, Mr. and Mrs. G. had an 18 month old son and were expecting a second child. They live close to the lakeshore and only heard a noise at midnight on Saturday to which they paid little attention. Unaware of the emergency, they drove to Milton for Sunday brunch and heard about the accident there. Still not really concerned, they returned home about 2 P.M. and phoned the police. They were told to evacuate immediately.

Mrs. G. began to get worried. She took two green garbage bags and filled them with enough clothes for the three of them for a week. Her husband didn't think they would be away that long, but Mrs. G. was determined to be prepared for any eventuality. It was an offshoot of travelling with a child.

Hearing the radio reports in the car and seeing the ambulances made everything seem more serious as they drove to their Aunt and Uncle's home on the other side of Etobicoke Creek. Everyone seemed to enjoy the visit but Mrs. G. was glued to the T.V. and radio for more news.

On Wednesday, they were allowed to go back home. It was funny to see some homes with lights on and windows and doors wide open, being aired, while others were in complete darkness.

The worst day for Mrs. G. was Thursday. Her husband went off to work on Oakville in their car. She felt stranded. Her neighbour felt the same without a car and the two of them worried about how to get out of the area again quickly. You can't call a taxi and the police are too busy. There's no way to get out quickly without a car.

Thursday was so awful that Mrs. G. and their son accompanied her husband to work on Friday. The stress of waiting to see if they would be re-evacuated was the worst part of the whole experience. Mrs. G. also worried about the effects of gas on her unborn baby. Shortly afterwards, she did have a miscarriage but she doesn't attribute it to the emergency.

Today Mrs. G. is still concerned when she sees trucks on the highway with "flammable" signs. She feels we play Russian roulette with ourselves and with our environment.

Parents of children with respiratory problems, asthma or allergies were worried that the gas would aggravate their childrens' existing conditions. For most of these parents, the evacuation relieved their anxieties. There were a few who were also worried about long-term health effects. At least one pregnant mother who smelled gas fumes while driving from her home worried about losing her baby. She said that she thought she was going to have a miscarriage in the car.

The impacts on the children closely paralleled those on their parents. Some children became anxious in response to their parents' concerns. Others were too young to understand that there might be danger. Many children slept through the explosions but a few young children, especially those nearer to the site, became frightened by the fire and explosions. These children, once they were evacuated, were generally happy again. Older children, aged 9 and up, tended to find the whole event exciting and few showed any fear.

During the evacuation, most children enjoyed the change in routine and the visits to relatives and friends. Their parents, however, were concerned about disrupting their hosts' lives and they felt stressed by the cramped conditions and fear for Grandmother's china. Even so, they say that they would go back to the same temporary homes in similar circumstances. Some parents had to miss work to stay and look after children whose school or day care centre was closed and some parents reported losing pay.

By and large, parents did not report any unusual health problems for their families during the evacuation. Some said that their children had sleeping problems for a time (usually days or weeks only) after they returned home. Children also tended to associate any siren or fires with the emergency, but were not apparently upset by this association.

Some of the major difficulties were encountered by parents

who were separated from their children. This generally occurred not at the time of the accident, but sometime later during Sunday morning. Unaware of the impending evacuation, some parents went out on Sunday and found they could not get back in. Many had arguments with the police and were determined to get around the barricades to be with their children. One man said, "I would have got home any way I could, even if I had to walk". These parents expressed anger that, when they left the area to go to church or to visit friends, they were not warned by the police that they might not be able to return.

The families in the surveys who had young children do not feel differently from other evacuees about the way the emergency was handled or about its impacts on them. However, they are much more likely to say that they are now better prepared for any future emergency (Chi-square test significant at < 0.001 confidence level). They almost all said they would take enough clothes and games for at least several days next time.

Parents with young children did suffer the additional anxiety of concern about their children and the extra work of looking after them in strange places. The stress on parents with several young children is revealed also in our survey results showing that they felt more money was necessary to compensate them (Chi-square test significant at < 0.001 confidence level). However, apart from a few children who suffered some emotional disturbance for some weeks afterwards, the social and health impacts of the emergency on this group differs little overall from the impacts on the general population. No major or long-term health effects on children or their parents was uncovered in the survey or in the follow-up interviews.

The evidence does suggest, however, that parents separated from their children will defy any evacuation orders to reunite themselves with their children. In the case of Mississauga, this situation involved only a handful of parents. Had the accident occurred during a weekday when parents are at

work and children are at school, the numbers of parents trying to reach their children could have run into thousands. It would present a very different and more difficult evacuation management problem than the task posed at Mississauga.

6.5. PEOPLE REQUIRING SPECIAL ASSISTANCE TO EVACUATE

6.5.1. People in institutions

The Mississauga emergency involved the evacuation of a number of residential institutions such as nursing homes, children's homes and homes for the aged. It also required the total evacuation of three hospitals: Mississauga Hospital, Oakville Trafalgar Memorial Hospital, and Queensway Hospital. Mississauga Hospital had 479 patients and includes Emergency, Surgical, Psychiatry, Obstetric and Paediatric Departments with a nursery for premature babies (see Section 4.4).

There were many elderly people in various states of health who had to be moved during the evacuation, as well as hospital patients and children in care. All of these people required assistance to evacuate and the experience was more of an upheaval for them than for the other evacuees.

Patients from Mississauga Hospital were either transferred to other hospitals by ambulance (186 patients) or were discharged and sent home in the care of relatives (262 patients). Of 41 psychiatric patients, 30 were out, or were sent out, on passes; one was sent home and another 10 were transferred to another hospital. Patients and hospital staff reacted calmly and efficiently to the evacuation order and no major problems were reported. The main impact on hospital patients was anxiety among those sent home and out on passes about their medication running out after three days, and about their inability to get in touch with their own physicians (Section 6.2.7.).

For the elderly in nursing homes, some found the experience exciting and looked upon it as a holiday while others were clearly distressed and disoriented and said that they wanted to die. Having to leave at night rather than during the day dramatically increased the trauma of the move. For example, the Sheridan Villa Nursing home was evacuated at 21:00 on Sunday, 11 November, and the patients were not settled into their new quarters until 01:00 on Monday, 12 November.

While they were in their emergency homes, elderly nursing home patients received much attention and were kept busy with the help of volunteers. At the same time, anxiety was minimised by having familiar staff in familiar uniforms look after them in the temporary quarters. Nursing home staff noticed that many elderly patients became more dependent and "regressed" during the evacuation. The less senile patients were the most anxious and would probably be the most affected if they had to go through such an experience again. Their anxiety, however, was over the move and the disruption to their routine rather than over the danger.

For the handicapped, the evacuation made them more aware of their vulnerability and dependence on others. Emergency quarters lacked the special facilities that they were used to and emphasised their inadequacies.