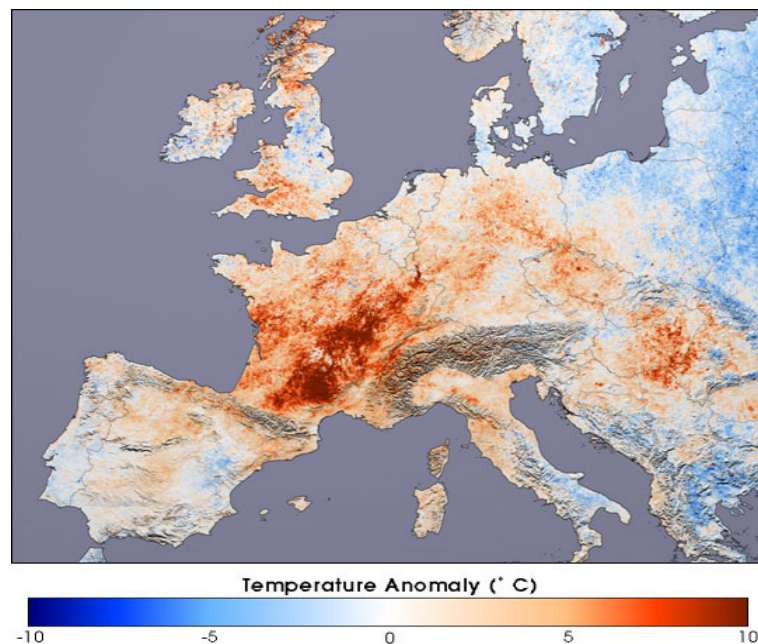


**HEATWAVE:
implications of the 2003 French heat wave
for the social care of older people**

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Cover photograph shows the temperature anomalies in Europe on the 15th August, 2003 (NASA).

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Introduction

The heat wave in France during August of 2003 resulted in the deaths of an estimated 15,000 people, most of them elderly. This catastrophe was a collective failure with multiple causes and consequences. Unlike many major disasters, heat waves are largely ‘invisible’ or ‘stealth’ killers. The phenomenon itself can be difficult to assess and the victims include some of the most isolated members of society, themselves often ‘invisible’. Such an event reveals unpalatable truths about the way governments and people in authority respond to unfolding crises involving vulnerable groups. But the fact that most of the victims of the French 2003 heat wave were elderly brings another dimension. French society has been confronted in a brutal way with the social implications of an ageing population and the tragedy of the heat wave has brought home to many people the important question of quality of life in old age. Two years after the heat wave, the shockwaves that surround the deaths of so many elderly people are still resounding in many different aspects of French political and social life.

This report aims to explore some of the social implications arising from French heat wave in the context of concerns about services for older people and more generally the quality of life in old age. It provides an outline of how the heat wave unfolded and the response of the French to an incident that has been ranked among the world’s greatest natural disasters of the past 50 years. At the same time, the report tries to move beyond a factual account by providing a sociological explanation of the event itself and the aftermath. Natural disasters are often events that provoke intense periods of social cohesion and release latent forms of help and support within families and communities.¹ In the case of the French heat wave, one of its most striking aspects has been the invocation of a *lack* of family and community solidarity as a primary cause of the catastrophe. Many important commentators have diagnosed the causes of the high mortality rates among older people as being due to rising individualism and the decline of community and social ties. This diagnosis is part of a now well known discourse which portrays modern society as a break down in intergenerational relations and a lack of

¹ See for example the analysis of Charbonneau et al., 2000 on the activation of social networks following the prolonged spell of freezing weather in Canada during the winter of 1998.

interest in the common good (Fukiyama 1999; Putnam 2000). In this discourse, the heat wave is seen a prism that reflects social decline. Understanding how the events of a natural disaster have repercussions for society that reach beyond immediate consequences is therefore a key objective of this report.

Approaching the social implications of the French heat wave in this way leads to a number of observations. It is well known that the first casualties of natural disasters are the poorest and most vulnerable sectors of the population, and this is no less the case for heat waves. In a thorough examination of a similar but smaller heat wave in Chicago during the summer of 1995 which caused an estimated 800 fatalities, Klinenberg (2003) has shown how mortality rates were substantially higher among the poorest and most vulnerable members of the elderly black population. Although this finding, regrettably, might not be surprising, what did surprise Klinenberg was the large differentials of mortality within the poorest sectors of the community. In districts populated by close-knit Hispanic communities and localities that were largely intact, casualties were significantly less than among sprawling under populated neighbourhoods that were rife with crime. Moreover, men were more than twice as likely to die as women, the implication being that older men tend to be more isolated than older women. The consequences of the Chicago heat wave therefore brought into focus such fundamental questions as gender differences in ageing – why do older women tend to retain social relationships while older men lose them? With the same meteorological event happening 8 years later in France, this report examines whether the French experience, like the Chicago heat wave, reveals similar insights into the social conditions of old age.

The second observation is concerned with how ageing and old age is interpreted and construed through the events and consequences of the French heat wave. The deaths of so many older people unleashed an unprecedented media and public interest into issues relating to ageing, ageing populations and that quintessentially French preoccupation with intergenerational relations and solidarity. After several years of struggling with reforms concerning the French pay-as-you-go pension system, the French were brutally confronted with the most negative aspects of ageing through the events of the heat wave. The wide media coverage fuelled the worst fears and images of old age as an inevitable state of loss and dependency.

But the spectre of inadequate institutional structures to meet the challenges of an ageing population has invoked the beginning of what may turn out to be a genuine public debate on the socio-demographic changes that are occurring to French society in particular and Europe in general.

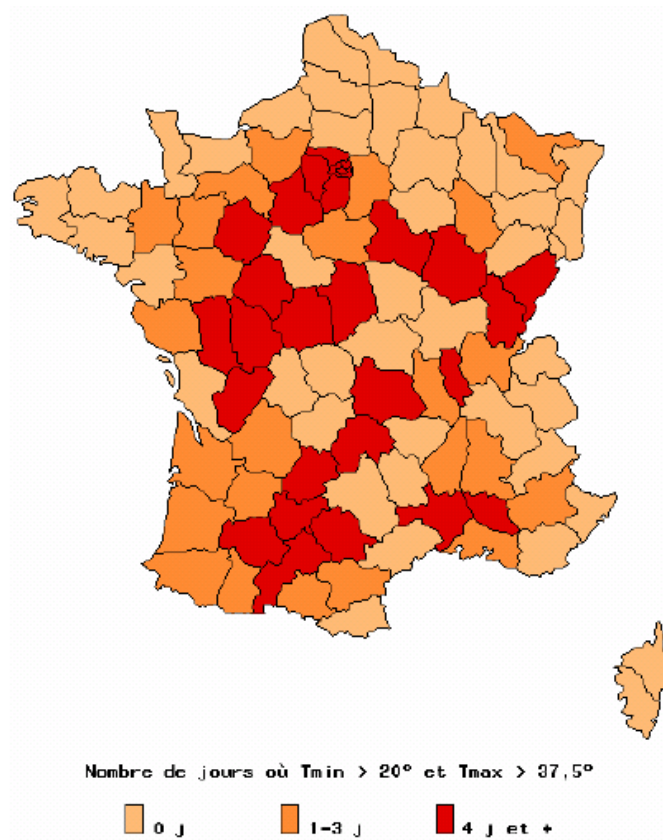
The events

In the first two weeks of August 2003, France experienced an unprecedented heat wave.² August is traditionally the period when most of the French population takes its annual holidays. In large cities such as Paris and Lyon, this temporary depopulation is clearly visible on the streets, on public transport and within the work place. The practice of shutting down entire companies during the August period is much less common than it used to be, but it is still is a time when the infrastructure of institutions is weak because of reduced staffing. In some areas, General Practitioners' surgeries are closed and only emergency doctors are available. Although emergency services are ensured, managers and senior staff tend to be thin on the ground during August, with important decisions often having to await their return.

The month began with sunny dry weather and temperatures above 30°C, already higher than the average of 25°C for this time of the year. By 4th August, temperatures above 35°C were recorded in two-thirds of meteorological sites, and above 40°C in 15% of these sites. For the following nine days, day time temperatures averaged around 36°C and 37°C and in some areas night time temperature did not descend below 24°C. The period of the 4th-14th August is now known to have been the '*longest sequence of consecutive hot days in the French meteorological history*' (Lagadec 2004 160). Figure 1 shows the number of days during the heat wave when the minimum day-time temperature was less than 20°C and greater than 37.5°C and the areas in France that experienced this degree of heat. The distribution of the hottest days does not follow the usual north-south divide. In particular, the area around Paris was particularly affected, as well as central France.

² The heat wave was not confined to France alone and affected other European countries, including Britain, although less intensely. Kovats et al. (2004) have estimated that England and Wales experienced an extra 2,045 deaths (16% increase) between the period 4-13th August, 2003.

Figure 1. Number of days during the heat wave when the minimum day – time temperature less than 20°C and greater than 37.5°C.

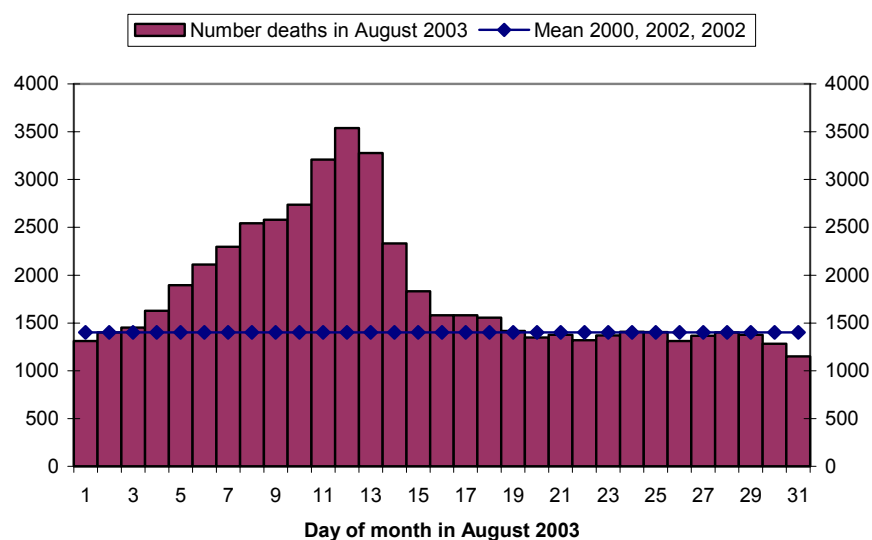


The 2003 heat wave, although not unique in France's history, had three main characteristics which combined to make it an exceptional climatic phenomenon³: first, higher than average mean temperatures were present throughout two-thirds of France; second, over a consecutive period there was only a small variation between day and night time temperatures; and third, a prolonged period when both these phenomena were present. These features, when combined with other factors such as high pollution levels in major cities, the absence of air condition or inadequate ventilation in homes and institutions, provoked an abnormal number of deaths for the period. Many of these deaths were due to hyperthermia and/or

³ For accounts of heat waves in other European countries prior to 2003, see Rooney et al., 1998 (Great Britain), Kunst et al., 1993; Mackenbach et al., 1997, (the Netherlands), Sartor et al., 1995, (Belgium), Alberdi et al., 1995 (Spain), Mammarella and Paoletti, 1989, (Italy) and Matzarakis and Mayer, 1991 (Greece).

dehydration, although cardiac and respiratory causes were also present. Researchers working for the French state funded medical research institution, INSERM⁴, have estimated that approximately 56,500 people died in August, 2003, a figure that represents about 15,000 more than the 41,300 deaths recorded in 2000, 2001 et 2002 (Figure 2). The final toll from the heat wave is therefore around 15,000.

Figure 2. Number of estimated daily deaths between 1st and 28th August, 2003 compared with the mean number of deaths in the summer for 2000, 2001 and 2002.⁵



The magnitude of the catastrophe was not immediately apparent. The first signs emerged about one week into the heat wave and they were mainly experienced by the emergency services such as ambulance and fire crew and emergency doctors. These services quickly realised that they were experiencing a higher than average number of emergency calls and hospital admissions. Many of the personnel notified their superiors that they were being overwhelmed with the number of referrals, a situation made worse by the fact that it was the holiday period. The unusual extra activity of the paramedics and emergency services was quickly followed by a similar pattern in the funeral and related services (morgues and crematoriums). Funeral parlours received a much larger number of bodies than

⁴ Institut national de la santé et de la recherche médicale.

⁵ Source : Hémon and Jouglu, 2003.

usual, so many in fact that several could not cope and had to use other makeshift methods of storing corpses.

By the beginning of the second week of the heat wave, the media had picked up the concerns of the emergency services and funeral parlours and the deaths began to be front page news items. The president of the Association des *Médecins Hospitaliers Urgentistes de France*, Dr. Patrick Pelloux, appeared on the number one TV news channel, TV1, and raised the alarm, stating that there had been about 50 deaths in the Paris region alone which were a direct result of the heat wave. Dr. Pelloux was critical of the failure of the main body responsible for overseeing public health (*Direction Générale de la santé*) to act. It is now clear that the government in general was slow to pick up on the extent of the crisis. Although a cabinet meeting was held on 11th August where the implications of the heat wave were discussed, at the top of the agenda was the technical problems that the French gas and electricity board (EDF) were experiencing in managing energy supplies. In fact, in a statement made on that day, the government preferred to focus on the need to economise energy and denounced the anxieties being expressed by the emergency services by stating that that *'this is not the moment for polemics'* and that contrary to several media reports *'the emergency services are not being massively overwhelmed'*.

During this second week of the heat wave, it gradually became clear even to the government that there was a link between the unusually high temperatures and a larger than average number of deaths. By the 13th August it began to respond by unleashing the 'White Plan' – a set of previously designed procedures to deal with unusual circumstances where the public good is at stake. But with death tolls peaking on this day at 3,000 any coordinated plans to prevent the catastrophe had come too late. Moreover, it was now clear that these deaths were occurring largely among the elderly population. However, the situation was confused, with casualties appearing in retirement homes and other institutions as well as in private houses and flats.

At the end of the second week of August, the death toll was known to run into thousands although there was still confusion concerning the full extent of the tragedy. Little information was known about the victims other than older people

figured predominately. But were these victims at risk simply by being old, or were there other factors which made some individuals more prone to experiencing the negative effects of the heat-wave and possibly a premature death than others?

The immediate aftermath

By the 18th August, with the peak of the heat wave finally over and the extent of the tragedy now apparent to the government, the first political casualty appeared. The Health Minister Jean-François Mattei criticised the head of the government's own body, the INVS (*Institut National de Veille Sanitaire*) – a watchdog for health and safety issues - and immediately the Director General of Health, Professor Lucien Abenhaïm resigned. Professor Abenhaïm published a book two months later in which he was strongly critical of the Health Minister (Abenhaïm 2003). In the book he denounced the health system's indecisiveness in responding to the events of the heat wave and a health service that was unprepared and ill-equipped to deal with such an emergency.

Events began to take a new twist on 24th August, when the Mayor of Paris announced that many corpses had still to be reclaimed by their families. These corpses were being stored in a make-shift mortuary in the town of Rungis, close to Paris and the main market for food and vegetables in France. The deaths caused by the heat wave, now known to concern mostly elderly people, had become the most important political issue of the day and the government was pressed into making plans to prevent and limit casualties in the event of future climatic events of a similar magnitude. But it was also clear that the heat wave had repercussions reaching far beyond such preventative measures, important though they were. At the core of these issues were services to older people in the context of an ageing population. Although policies concerning the social and health care of older people had been the subject of a number of recent reforms, the general view was that the current system was still inadequate to meet current and future needs.

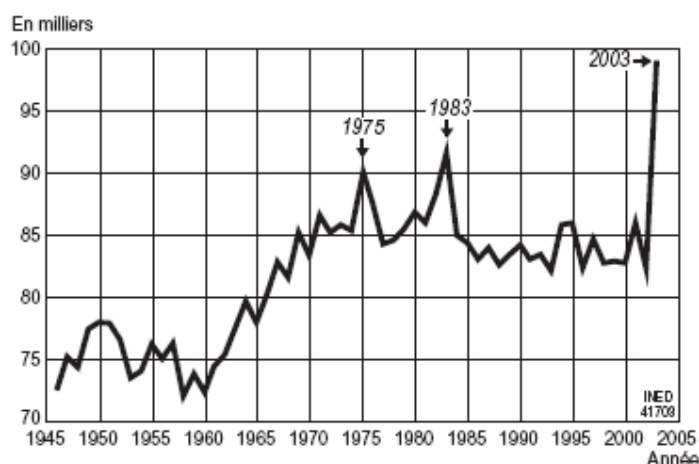
On the 26th August, the Prime Minister, Jean-Pierre Raffarin evoked the possibility of abolishing one of the several bank holidays and replacing it with 'a day of solidarity with older people'. This measure would require all salaried

workers to work on this day without pay, the forfeited wages being paid into a fund to provide social care for disabled older people. Companies and businesses would also be required to contribute through tax measures. Concerning the events of the heat wave, the state funded health research institution, *l'Institut National de la Santé et de la Recherche Médicale* (INSERM), was ordered to make a first preliminary report on the facts and to report back to the government in September.

On 3rd September, the President Jacques Chirac and the Mayor of Paris, Bertrand Delanoë attended the funeral services of 57 corpses that had not been reclaimed by family members. These unknown victims were the subject of much media exposure, with a series of underlying messages ranging from '*society no longer cares for older people*' to '*this is what happens when only a minimum of services are available*' being invoked. With the scale of the tragedy now known, the funeral of these unknown victims only added to the general feeling that France had failed to protect its most vulnerable members of society. Clearly, there would be political implications arising from the way that the heat wave had been handled by the authorities.

Meanwhile, researchers at INSERM had begun the process of estimating the number of deaths due to the heat wave as well as their profile (Hémon and Jouglu, 2003). They quickly established beyond doubt that the month of August displayed mortality rates well above the average. As shown in Figure 3, July and August had showed an abnormal peak in the number of mortalities. Moreover, high mortality rates are also observed for 1975 and 1983, years when France also experienced higher than average temperatures, although not on the scale of the 2003 heat wave.

Figure 3. Number of deaths in the months of July and August between 1946 and 2003 (in thousands)⁶



In October 2003, the director of a private nursing home was charged with being responsible for the death of an older woman during the midsummer heat. The charge related to not ensuring that the victim received adequate fluids and that the home’s environment did not have sufficient ventilation. This event not only implicated the individual, but also held the nursing home accountable. The heat wave had in fact crystallised a familiar debate within the arena of services to older people – the fact that some patients and residents in institutions and residential homes were not receiving proper and adequate care. While the government raised the probability of tighter controls and monitoring together with the requirement of higher staff ratios, the representatives and staff of nursing homes saw this as a political act which made a scapegoat out of one individual for the failure of government policy concerning the care of older disabled people.

On the 6th November 2003 the French prime minister Jean-Pierre Raffarin announced the ‘*reform of solidarity measures for dependent older people*’ which he had proposed immediately after the heat wave. This reform referred principally to the abolishment of a bank holiday with the forfeited money used to create a *Caisse Nationale de Solidarité pour l’Autonomie* – in effect a fifth pillar of the French social security system. In addition to abolishing a bank holiday, Article One of the project envisaged creating a plan of alert for isolated vulnerable older

⁶ Source : Hémon and Jouglu, 2003.

people in each French department. This plan requires local communes to collect information about the identity, age, and housing circumstances of isolated vulnerable people, but only if these individuals themselves request to be placed on such a register or if a third party asks on their behalf.

On 17th December, 2003, the French Parliament Commission on the heat wave was given feedback by the French Interior Ministry (Home Secretary), Nicholas Sarkozy. Briefed by two reports (the Lalande and INVS report) Mr. Sarkozy was critical of the slowness of the "*Pompiers de Paris*" (the Parisian Firefighters) to raise the alert and not to have given an earlier warning of what they saw happening to older people in the heat crisis. Responding in general to the criticism that the emergency services had been slow to react and inform higher authorities, Dr. Yves Coquin, a senior Health Official working for the government body *Direction générale de la santé*, said that ample information about the scale of the catastrophe has been sent in good time to the Ministry of Health, and suggested that poor communication between different departments had led to a slowness to act. This practice of claim and counter-claim, often within government departments themselves, has been a recurrent feature of the fallout from the heat wave. Overall, the government's response can be seen as belonging to the classic pattern of 'deny, deflect and defend' (Klinenberg 2003) that is common to official bodies in the event of highly politically sensitive events that emerge unexpectedly.⁷ Whatever the finer details of procedures that should have been in place but were not, or procedures that were not followed, it now seems clear that all the signs of bureaucratic inefficiency and the ensuing political implications were present throughout the French heat wave crisis. In the words of a specialist in the study of crises and crisis management, '*in a nutshell, organisations and people in charge did not have the intellectual and practical frameworks to respond adequately to the 2003 heat episode*' (Lagadec 2004 161).

⁷ A more recent and spectacular illustration of this process can be seen in the U.S. government's response to the hurricane Katrina that struck Louisiana in September, 2005.

Who were the victims?

In classic morbidity and mortality studies, a wide range of characteristics concerning patients or individuals are known to the researcher, whose task is then to find associations with outcomes and ultimately to determine cause and effect. When an event such as the French heat wave occurs, these details are invariably missing. As the Evin and Aubert Report of February 2004 notes *'unfortunately, we have no information on the social origins of those who died during the heat wave, and therefore we are unable to confirm the findings that lower social class groups were more at risk'*. Information about individuals available to official researchers such as those working for the government's health research institute INSERM comes mainly from death certificates, where only age, sex, date of birth, address and next of kin are recorded. More detailed information on family structure, social networks, health status, social class profile, quality of housing, and income and wealth, can only be reconstituted by a large survey with the nearest of kin of all of the deceased. In addition to the costs and logistics of such an operation, such a survey would have to confront issues of confidentiality and privacy, including the potential refusal of the next of kin to take part. In short, it is unlikely that a survey of this kind could be launched to collect the necessary retrospective information on each of the 15,000 victims of the heat wave.

In the absence of this information, little is known about the social characteristics of the victims of the heat wave. With the exception of one attempt to reconstitute the details of a sample of older people who died (described in more detail below), the full profile of the victims remains unknown. The identity of the casualties of the heat wave has therefore been the subject of much speculation by, among others, prominent members of the French establishment and representatives of associations of older people. What is striking about this debate is the evocation of social isolation and destitution as a defining characteristic. Whilst it is known that some of the victims were indeed very isolated, the imagery of destitution has often been projected onto all the victims. A weak social fabric as a principal cause of the high mortality among older people is discussed later in the report. Here, we try to piece together a picture of the victims from the available information.

The destitute

In the days following the heat wave, a number of bodies could not be formally identified. No next of kin had come forward or the authorities could not trace any relatives. These victims, 86 in total, were the subject of much media coverage and they came to the attention of someone not usually concerned with such issues. Jean-Claude Roehrig is the Director of a large European company dealing in genealogy and his company offered to help the authorities by tracing the relatives. The search began by trying to obtain birth certificates. This proved unsuccessful in 15 cases, several of whom were born outside France (Algeria, Serbia and Vietnam). The susceptibility of older ethnic minority men to social exclusion, an issue which has recently come to the fore in France was mirrored through these few cases. However, the full identity of the remaining victims became known over a period of a few weeks through the inquiries made by the genealogists.

Some of these cases did indeed fit the classic picture of social isolation and destitution. Among them, one in particular is striking – Marie France, an abandoned baby on the day of her birth, 25th August, 1914, and given the surname France by the authorities. With no brothers or sisters, she remained unmarried all her life and died as a result of the heat wave on the 12th August, 2003 at the age of 88, in a small flat near the railway station in the centre of Lyon. The case of Marie France is full of pathos and fuels the idea that society abandons its elderly citizens. But what was remarkable about these 86 victims was the diversity of their backgrounds and even their age. Although 57 of them were above 70, 11 were under 50. And even though most of them were living in abject poverty or on very small pensions, some had come from wealthy backgrounds. Many of these individuals had experienced traumatic events at some point and had subsequently led lives on the margins of society. They would have probably been known locally as ‘eccentrics’. In relative terms these victims represent 0.6% of the total and their circumstances can not be taken to be representative of the majority.

In total, relatives of 66 out of the 86 cases were eventually contacted.⁸ Most of these were distant, and had lost contact with their elderly relative many years before. The destitute victims of the heat wave made a strong impact on French

⁸ For a fuller analysis of the repercussions arising from the burial of the unclaimed bodies, see Collet (2005).

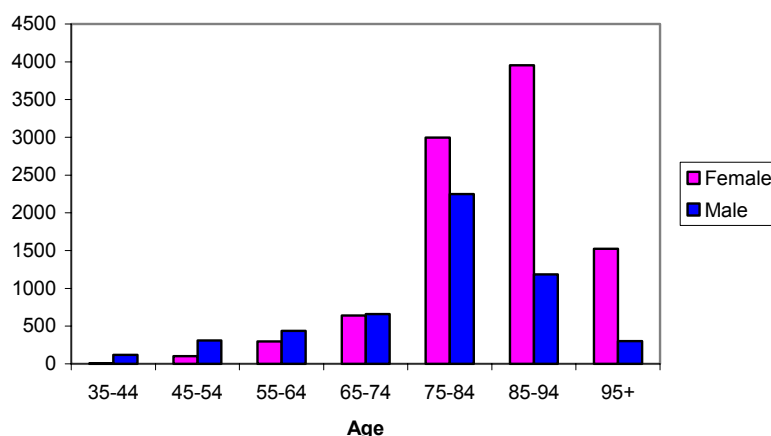
society through the image that they represented of how the final years of life might be lived. The fear of dying alone is one of the major taboos that still exists in leisure societies with ageing populations. What is to be gained from increasing life expectancy if all social ties are eroded towards the end of life? This was the central message arising from the deaths of destitute people during the heat wave.

The 'typical' case

The destitute victims of the heat wave do not therefore represent the majority. Three characteristics of the victims became known very quickly in the days following the heat wave – their age, sex and locality. These details were available through death certificates and related records and are detailed in the INSERM report by Hémon and Jouglu, 2003. The first, and most strongest finding, is that age is the most important single factor associated with the over-representation of mortality between the 4th and 14th August, 2003. The majority of deaths occurred in the age group of 75 and above. This was no surprise, since all previously recorded heat waves in Europe and North America had found that the 'oldest old' were particularly at risk. That heat waves affect first and foremost older people, there can be no doubt. The second characteristic of the victims to emerge was that although men and women both figured among the deceased, rates of average mortality were higher among women (70%) than among men (30%)⁹ – a finding very different to what occurred in the Chicago 1995 heat wave where rates were twice as high among men (Klinenberg 2003). The Evin and Aubert Report also reported that during the five hottest days of the heat wave, the above average death rate was +135% for men and +257% for women.

⁹ Hémon and Jouglu (2003).

Figure 4. Number of excess deaths in France during the period 1-20 August, 2003¹⁰

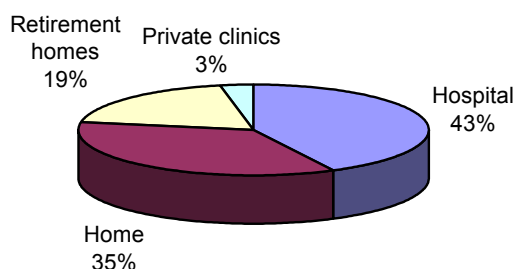


The fact that women were more vulnerable than men is due partly to there being higher numbers of women in the elderly population than men, and partly because older women tend also to suffer more from problems of thermoregulation than men. The third characteristic of the victims is that they appear to be concentrated in urban areas. The INSERM report noted that average rates of mortality affected some regions of France more than others – particularly affected were the centre of France and the Paris conurbation. The report established the correlation between age, sex and the extent of urbanisation – older women living in urban areas appearing to have been particularly exposed to the effects of the heat wave.

In addition to confirming the link between age, sex and locality, the INSERM report also found that rates for the period 4th – 14th August doubled both among individuals living in their own home *and* those who were living in retirement homes. In total, 42% of the 15,000 excess deaths registered during the heat-wave occurred in hospitals, 35% at home, 19% in retirement homes and 3% in private clinics.

¹⁰ Source: Hémon and Jouglu (2003).

Figure 5. Where victims of the heat wave resided at time of death



These figures show that the most vulnerable older people were not necessarily those living in their own homes in the community. This pattern is however difficult to interpret, since the different health status of these victims in the period immediately prior to their death is not known and some of them moved into hospital during the heat wave. However, for the one in five who died in residential homes or private clinics, social isolation (in the sense that were institutionalised) or weak family ties seems unlikely to have been a contributory factor. But the fact that a significant number of residential homes were affected has important consequences for the management and architecture of these institutions and a number of recommendations have subsequently been made. These are presented later in the report as well as in the Appendix.

Despite these findings, more detailed information on the characteristics of victims is still missing. The Evin and Aubert report of February 2004, stated that *'the conditions and causes of the deaths still remain largely unknown more than 6 months after the heat wave took place'*. Because of this lack of information about the profile of the victims and the risk factors for older people associated with heat waves, the *Institut National de Veille Sanitaire* (INVS) undertook a small survey in 2004. This research sampled 259 pairs of individuals – proxy family or other members of older people who had died as a direct consequence of the heat wave and who were living in their own homes immediately prior to the heat wave. This group was compared with a control group of similar individuals who had survived. Matching was made by sex, age and locality. Information was collected

on the social and family environment, degree of disability, health status and general characteristics of the home. The results from this survey give some clearer indications of the profile of the 15,000 victims.

The INVS report concluded that the social class status of the victims was a significant factor, with lower social class groups (*les ouvriers*) being more at risk. This finding confirmed the supposition of the Evin and Aubert report (February 2004) that a lower social class status was an important determinant of the heat wave crisis. At the same time, social class status was positively linked to a smaller number of rooms in the deceased's home— a factor that may have been decisive, since more rooms provide a greater potential to find a cooler place within the home. Disability was also linked to risk factors, with persons confined to bed or severely disabled being more exposed to risk. These two factors – the susceptibility of people from lower social class groups and those with a disability to succumb during a heat wave— would appear to fit along side the more robust findings from the INSERM reports concerning age, sex and locality.

However, the INVS report is inconclusive concerning the role of family and community ties and the effect of social isolation. In the statistical analysis used to extract risk factors, the researchers found an unexpected result. Older people who lived alone appeared *less* likely to be at risk, and the frequency of visits by family, neighbours, friends and others was associated with *greater* risk factors. Whilst the report concludes that the association of living alone with less risk may be in part due to a bias in the sample selection (the 'survivors' among the matched persons were more likely to be living alone than other individuals in the population) this finding does not suggest that social isolation was a major characteristic of the victims. As far as the greater frequency of outside visits that the deceased received is concerned, the finding is strongly related to the fact that these individuals tended to be in poor health. The inference to be drawn is again that social isolation did not appear to be a major characteristic of the majority of the victims.

Is it therefore possible to present a profile of the typical victim of the French 2003 heat-wave? If the Chicago victim of 1995 can be characterised as elderly, disabled, black, socially isolated, urban, lower social class and male, in contrast the French victim is elderly, disabled lower social class and female. These profiles

are of course, caricatures, but they go some way to informing us about the possible social implications of the heat wave for older people and society in general. Before we examine these implications, it is necessary to look in more detail at the *causes* of the French heat wave as opposed to the profiles of the victims.

Suggested causes

With the full profile of the victims unknown and unlikely to be fully reconstituted, much of the inquiry into the consequences of the French heat wave has focussed on the causes and risk factors associated with the mortalities. These are fully documented in a number of reports (see Appendices) and many of the recommendations arising from their conclusions have been put into action. Some of these causes are interrelated and it is difficult to isolate single factors. There even remains some controversy over the precise number of victims that can be directly attributed to the heat wave, what might be termed ‘direct’ causes of death. Beyond direct causes, procedural and administrative failures are high on the list of causal factors and these have been analysed in Lagadec, 2004 as well as being documented in official reports. A third suggested cause is the weak social fabric of contemporary society. Finally architectural design and housing in general has emerged as having a significant contributory effect to the heat wave disaster. Each of these four causes or potential causes is examined in turn.

Direct causes

Despite a general consensus that the heat wave produced a greater number of deaths than would have been expected at this time of year, (approximately 15,000) there still remains controversy over the precise definition of death that was a direct result of the heat wave. Part of this problem relates to the fact that hyperthermia (where the body temperature rises to above 40.6% centigrade) is the medical condition most associated with heat waves. Signs of hyperthermia include increasing body temperature, dehydration and lack of sweating, seizures, collapse and decreased consciousness. Although many of these symptoms, in varying degrees, appear to have been present among the majority of the victims, the

presence of hyperthermia could only have been reliably measured during the heat wave and not posthumously. Instead, many of the causes of death were recorded as being due to respiratory or cardiovascular problems. Hence the debate on the direct link between cause of death and the heat wave.

One explanation that has been put forward as a cause of death during the heat wave relates to the frailty of the victims and the suggestion that most of the victims were so frail that they were near to death before the onset of the heat wave. At its most insensitive, this view is expressed by stating that the victims were '*older people who would have died anyway*' and that the media coverage of the heat wave crisis distracted observers from this obvious fact. Indeed, this was the view of some of the social care workers interviewed in the report by the *Direction de la Recherche, des Etudes, de l'Evaluation et des Statistiques* (DRESS, May 2004). But there is a more objective side to this argument. Epidemiological studies of previous heat waves have noted that the first victims tend to be the most vulnerable and that in the immediate period following the heat wave the average number of deaths is *lower* than what would have been expected. This is known as the '*harvesting effect*', since the expected overall mortality rates for a given period are averaged out (Kalkstein 1993;1995).¹¹ However, one of the striking findings of the French heat wave is that the harvesting effect was notably absent. Toulemon and Barbieri (2005) have estimated the number of years that the victims of the heat wave would have lived if they had been protected from the heat wave and conclude that although some harvesting effect is present, '*the expected number of years lost for those people (the victims) is not negligible*' (p. 23). The implications from their findings are clear – many of these deaths could have been prevented.

Poor co-ordination of services

From the beginning of the heat wave crisis, it was clear to many health and social care professionals on the ground that poor co-ordination of services was a

This research has also shown that individuals can adjust gradually to unusual weather conditions such as heat waves, provided that this adaptation takes place over time. Humans may therefore be able to adapt to global warming, although this adaptation is relative to the degree of extremity of a particular heat wave and the acclimatisation by individuals that has already taken place to global warming in the affected area.

prominent factor. The Laroque Report (*Inspection Générale des Affaires Sociales*) of January 2004 examined how public services reacted to the heat wave in eight French departments. This report concluded that realisation of the extent of the catastrophe came too late and that it was principally the media who were the first to raise the alarm. The report also stressed that the coordination of services for older people was inadequate and generally not effective, neither in a preventative role nor in managing the crisis – despite the fact that there were many actors on the ground. Service providers and residential institutions were both slow to realise that an above average number of deaths were occurring – especially where they are used to regularly dealing with deaths.

These shortcomings were echoed in the Evin and Aubert report. In its conclusions, the report pointed out the ‘malfunctions’ of the government and public bodies in managing the heat wave and suggested that the Health Ministry and its administration were the weakest link in the chain. The report was particularly critical concerning the lack of action taken by the *l’Agence française de sécurité sanitaire et environnementale* (AFSSE) and the inaction of the *Institut national de veille sanitaire* (INVS). In addition, information at the local level held by the *Directions départementales des affaires sanitaires et sociales* (DDASS) was not passed upwards quickly enough and the *Direction générale de la santé* (DGS) was held to ‘*inexplicably unaware of the gravity of the situation*’.

Whilst there is almost universal agreement that poor coordination of services was an important element during the heat wave crisis, the underlying factors that caused the deaths of so many elderly people remain the subject of debate. These causes range from practical explanations relating to services to more general underlying causes. August is traditionally the peak period of summer holidays for the French. Not so long ago, it was not uncommon for companies to shut up shop for the entire four weeks of August. While this is less common today, many French still take their holidays during the first two weeks in August, including health and social care staff, and in particular general practitioners. But it was not only those normally on the front line who were accused of not being at their posts. Fingers have been pointed at the absent managers and politicians who should have been present (or at least delegated their decisions).

Similar criticisms concerning poor co-ordination of services are found in the working document by the DREES (May, 2004) which conducted 20 interviews in six regions with different professionals, including administrators in hospitals, firemen, local authority retirement homes, private retirement homes, G.P's, local representatives, voluntary associations. The conclusions are familiar - systems of cooperation in times of emergency are informal, individualistic and are based on solely on locally devised policies. In summary, there was a wide range of different procedures that were followed by doctors, social workers, communal establishments, family, individual initiatives, nurses, prior to hospital admission. Most of these actors became aware of the extent of the crisis through the media.

Weak family and community ties

In trying to construct a profile of the typical victim, the evidence examined so far in this report suggests that social isolation, unlike the Chicago heat wave of 1995, was not a major factor in the French heat wave of 2003. This is not to say that some of the victims were not isolated. Clearly among so many victims, there are cases which display all the signs of a society that has yet to find a successful way to combat social exclusion among vulnerable groups. But the general picture to emerge two years after the crisis cannot be portrayed as one where weak family and community ties were a significant factor. And even if they were, there is no sound empirical evidence to date that supports this claim. Yet despite an absence of reliable data to address this important question of whether older people in general are excluded within their communities or even 'abandoned' by their families, this perceived social ill has been evoked on a number of occasions by a diverse range of politicians, health officials, journalists and other social commentators.

One of the first statements suggesting community break-down came from no less a person than the Minister for Older People, Hubert Falco, shortly after the number of victims became apparent, in an official statement on the 21st August, 2003 entitled 'The consequences of the heat wave for the care of older people'. In this statement, the Minister suggested that gains in longevity have been off set by the growing numbers of older people that are socially excluded – *'the weakening of social ties, the evolution of different lifestyles are in a large part the cause of*

rising individualism and the isolation of older people'.¹² Nor was this view confined to certain sectors of the political spectrum. The secretary general of the largest trade union, the *Confédération française démocratique du travail* (CFDT), also reacted to the heat wave by stating that the *'the deaths of so many elderly people show above all the extent of individualism in society'*.¹³ And the director of a well-known geriatric clinic in Geneva, Charles-Henri Rapin, has also remarked that the heat wave revealed *'a lack of solidarity among the generations'*.

The disintegration of social ties also forms part of the Evin and Aubert report. In its concluding remarks, the report states that the social isolation of older people in inner city areas *'where social ties between the generations are considerably weakened, contact between neighbours is practically non-existent, and where patterns of family solidarity are less in evidence'*. The heat wave has even drawn the attention of contemporary novelists. The provocative and controversial French author, Michel Houellebecq, whose novels focus upon the rise of individualism, remarks that *"only an authentically modern country is capable of treating older people as pure waste"* (Houellebecq 2005 p. 92).¹⁴ The heat wave seems therefore to serve as a cataclysm to illustrate one of the greatest perceived social ills of the beginning of the twenty first century – the rise in individualism and a lack of social cohesion.

These overarching statements that evoke the heat wave tragedy as being caused by weak family and social ties do not fit what is empirically known about social isolation among older people. Sociologists of the family, demographers and others who have empirically examined the social networks of older people during the past 40 years have consistently found that ties remain strong. Although social capital decreases with advanced age (mainly due to the loss of a spouse and contemporary friends), support is still available to elderly parents. The English Longitudinal Survey on Ageing of 2002 (ELSA) found that *"adult children appear to play an central role in the social networks of the ELSA population (adults 50 and above), with more than half of the sample seeing their children at*

¹² '...la dégradation des liens sociaux, l'évolution des modes de vie sont, en grande partie, la cause d'une montée des individualismes de la solitude des personnes âgées'. (www.personnes-agees.gouv.fr/point_presse/c_presse/030821.htm)

¹³ *'la surmortalité des personnes âgées à l'occasion de la canicule révèle tout d'abord l'individualisme existant dans notre société'*.

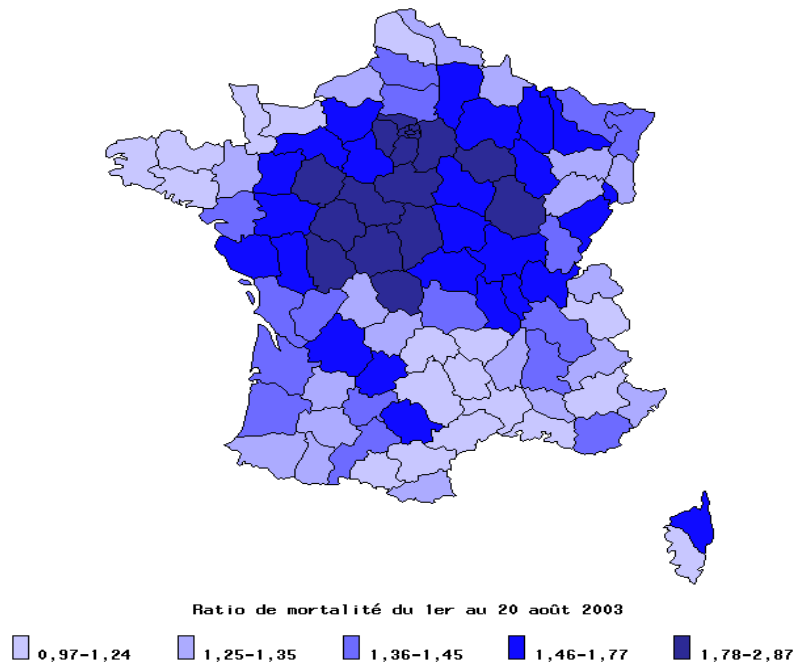
¹⁴ *« seul un pays authentiquement moderne était capable de traiter les vieillards comme de pur déchets ».*

least once a week” (Janevic *et al.* 2003, p. 301). This research also found that older women continue to maintain good social networks following widowhood and that the quality of social relationships may even improve with advancing age. The same findings are present in Europe, whether in the northern Scandinavian or southern Mediterranean countries. The recent Survey on Health and Retirement in Europe (SHARE) states that *“for present elderly Europeans, the family has remained a strong provider of institutional and everyday integration...the multi-generational structure of the family remains remarkably stable. Geographical proximity – and thus the potential for everyday support – is still high”* (Börsch-Supan 2005, p. 23).¹⁵

Despite little empirical evidence to back up claims of weakened social support, the events of the heat wave do highlight differences between urban and rural environments. In the Evin and Aubert report, the authors note that the heat wave was especially an urban phenomenon, with the Paris and Lyon conurbations having proportionally higher mortality rates than other areas. The research undertaken by the DREES among health and social care professionals, referring also to the higher mortality rates in urban areas, concluded that the Paris conurbation seemed to be much more associated with fragmented social networks whereas family networks in rural areas appeared to be intact. Section 5.1.4 of this report presents some interesting findings concerning the role of families and neighbours. The general conclusion is that family members of vulnerable older people were mobilised in the early days of the heat wave, and especially in rural zones. The report places particular emphases on the strength of informal networks in rural areas. When social isolation was evoked by the health and social care professionals interviewed, it was almost entirely in relation to older people living in urban areas without access to social care services or home help.

¹⁵ See Table 1 in Appendix for data on rates of face to face contact between elderly Europeans and their children.

Figure 3. Mortality ratios in France for the period 1-20 August, 2003¹⁶



The association of dense urban areas with victims runs throughout the reports and research that has emanated to date from the heat wave crisis. But there may be an explanation other than weaker social ties existing in urban areas. The effect of urbanity can be directly related to the climatic conditions of heat waves. This has been termed the ‘*urban heat island effect*’ (UHI), which refers to the fact that inner city urban areas register higher heat indices than suburbs or rural areas (Oke 1973; Lee, 1980; Moreno-Garcia 1994). This extra heat is in part due to urban microclimates caused by domestic and office appliances and in part because urban areas retain more heat during the night than rural areas. Although UHI can exist in all cities, those in temperate climates which experience a heat wave tend to be more vulnerable to adverse consequences than cities that are habitually used to high temperatures. This appears to be the case for the 2003 heat wave, not only in France where Paris experienced more victims than Marseille, but also in Italy where the same heat wave caused a number of elderly deaths in north western cities with lower annual temperatures than in southern Italy (Conti *et al.*, 2004).

¹⁶ Source: Hémon and Jouglu (2003).

Living in inner city areas is qualitatively different from living in rural areas, but it is more difficult to determine whether social isolation among older people is more common in urban areas or whether the consequences of social isolation in urban areas is more dramatic. The link between social isolation and type of environment is a complex one that still remains to be understood (Mollenkopf *et al.*, 2004). Hoggart *et al.* (1995) suggest that there are no significant differences in the social networks of older people between urban and rural areas. A recent study on the differences between urban and rural predictors of social isolation and loneliness has found that although living alone and the presence of chronic illnesses are common to both types of living environment, other factors operate differentially in each environment (Havens 2004). But in countries that are predominately rural, such as Ireland, social isolation among older people is associated with, among other factors, living with relatives in rural areas (National Council on Ageing and Older People, 2005). Recent data suggest that that there are no differences between rural and urban areas in the probability of adult children helping their elderly parents (Ogg and Renaut, 2005).

These indeterminate findings on the links between social isolation and environmental settings seem to say that there is something about urban environments themselves that make the consequences of social isolation more profound for older people. This is the conclusion of a report by Scharf *et al.* (2002) concerning older people living in socially deprived urban areas. This research shows that *'while the majority of older people are in regular contact with family, friends and neighbours, a significant minority are prone to social isolation and severe feeling of loneliness'* and that there is potentially a link between urban areas in England and loneliness among older people.

Architectural design and housing

The final suggested cause considered in this report of the mortalities cause by the French heat wave is architectural design and housing. One striking feature is the fact that many deaths occurred in residential homes and other institutions. Although poor staffing levels have been attributed by representatives of groups for older people in institutions and residential homes as a significant contributory factor to the deaths, the design of the buildings has also been brought into

question. The Laroque report of January, 2004 pointed to a lack of air conditioning in many affected residential homes – a factor which contributed to the dehydration of residents. The report also concluded that in residential institutions where there was no air conditioning and which were least affected by higher than average death rates, buildings tended to spread out and did not have many large windows.¹⁷ During 2004, the government announced that it would meet up to 40% of the costs of purchasing air conditioners for rooms in residential institutions. In July, 2005, The Ministry of Health reported that 90% of establishments for older people were equipped with at least one ‘cool room’ and that 81% have all the measures in place to launch the ‘blue plan’ in case of a further heat wave. This figure compared with only 18.5% in 2003.

Changes made to French services for older people

The Heat Wave Plan

Following the series of investigations and reports into the heat wave, the French government has implemented a number of preventative measures together with some general changes concerning the social care of older people. Some of these measures are procedural whilst others concern access to resources and are therefore more controversial. One of the first recommendations to emerge in the days following the heat wave was the implementation of a system of alert for health and social care professionals in the event of high temperatures occurring over a period of time. In January, 2004 the Laroque Report recommended the creation of a preventative system to be put into action in such exceptional circumstances. This has been done in partnership with the French Meteorological Office and the other important health departments (*‘les autorités sanitaires’*). The Report recommended implementing a ‘bright-red plan’ with procedures to be followed at national, departmental and local levels. The plan is coordinated by each of the French territorial departments.

¹⁷ Large windows refracted the strong sunlight in some homes creating oven-like temperatures in the interior.

On 5th May, 2004, the Government announced the 'Heat wave Plan', that was recommended earlier in the year by IGAS and it gained legal status from September, 2004. 'Vigilance', 'surveillance' and 'prevention' are the key words of the plan. The French Meteorological Office has now in place a 'daily heat check', which ensures that it can rapidly pass on information to the Ministry of Public Health. The heat wave plan includes definitions of heat levels to identify different types of situations by their potential gravity: vigilance, alert, intervention, and mobilisation:

- Level 1: declared by the coordination between the INVS and Meteo France. This level puts all the social actors on alert.
- Level 2: the Ministry of Health is alerted by the INVS, and in turn alerts the Prefects of the different French Departments.
- Level 3 (intervention) – three plans, blue, white, red. The blue plan mobilises retirement homes, red plan for the emergency services, and white plan for the hospitals. A further 'bright red' plan is designed for the older socially isolated people (based on the register for vulnerable, isolated persons).
- Level 4 is the commandeering of services in case of public order implications.

The plan is operationally from the 1st June each year, and it was fully put into action for the first time on 27th June 2005, when France had an unusual spell of hot weather. Level 3 of the plan was in place in seven regions. This hot spell did not cause anything like the number of deaths in 2003, mostly because the meteorological conditions were less severe. However, the implementation of the heat wave plan and the fact that memories of the 2003 crisis were still clear undoubtedly played a major role in preventing some deaths that would have otherwise occurred from abnormally high temperatures.

Register of vulnerable older people

Since September, 2004 all town halls throughout France are required to open a register of vulnerable and isolated persons living within the commune. The government announced in May, 2005 that 31% of communes and 97% of all

communes larger than 100,000 inhabitants had opened such a register. Each town hall of the several thousand French communes has been invited to '*optimise their system of detection by making available a list of persons who wish to be included as those being at risk*'. There seems however to be confusion relating to the confidentiality of such a register. Third persons can approach town halls with information about a vulnerable person, but only with the consent of the person concerned. What constitutes consent is not made clear in the directives concerning the register.

One example of the register in action is the town of Troyes. The town hall invites its residents to contact them if they know of a vulnerable, isolated person who is at risk. The council has even taken the initiative of placing a form on the internet that can be completed by persons who wish to be placed on the register, although this form cannot be filled in by a third person. Most, if not all vulnerable isolated older people do not have access to internet, so it is difficult to see how this measure can be effective. Another example is the town of Montpellier. In addition to the requirement of consent by the person concerned, Montpellier stipulates that the register should include persons living at home, aged 65 or above, or persons in receipt of disability allowance (*Allocation adulte handicapés, AAH*) or a carer's benefit (*Allocation compensatrice tierce personne, ACTP*).

These registers have yet to be evaluated. First it seems likely that most of the persons contained in them are already known to the social and health care services – such a register is unlikely to detect the most vulnerable. Where third persons request that a vulnerable person be placed on the register, the inference to be drawn is that these persons would act accordingly in the event of a heat wave and that therefore they are not strictly isolated. Most importantly, it is not clear what measures the town hall would take during a critical period in a heat wave that are directly related to the compilation of the register. Despite these questions marks, the register of vulnerable persons may contribute to the heightening of general awareness regarding the needs of isolated persons during crises.

Residential homes

The fact that a significant number of residential homes were affected by the heat wave raised a number of important issues. The Laroque Report was critical of the quality of staff in some residential homes, stating that personnel were not aware of the signs and consequences of dehydration. Indeed, shortly following the crisis, the director of a private nursing home was charged with being responsible for the death of one of his residents. According to the Laroque report, many residential homes were slow to realise that an above average number of deaths were occurring, a situation made complicated by the fact that deaths are a regular feature of residential homes. The report recommended the implementation of preventative plans in social and socio-medico establishments, by ensuring good practice and standards of care as well as paying attention to their design.

Representatives of residential homes and their staff, needless to say, have a different view on the problems they face. The issue of the level of staffing is a cause that has in particular been taken up by Pascal Champvert, the director of *l'Association des Directeurs d'Établissements d'Hébergement pour les Personnes Agées* (ADEHPA, Association of Directors of Residential Homes). As in many other European countries, France faces problems concerning the recruitment and training of personnel in residential homes. These and other related questions occasionally bring into question the quality of life in these establishments. Pascal Champvert argues that *'when a crèche or nursery opens in France there are strictly enforced laws concerning the ratio of staff to children. But this is not the case in establishments for older people. Currently the ratio of staff is four to ten residents in France. This is unacceptable. In Germany, Switzerland and Austria there are eight staff for every ten residents and in Sweden the ration on 100 per cent.'* Staffing issues in residential homes were present before the heat wave crisis, but the fact that so many residential homes were affected by the heat wave has brought the issue into the public domain.

In early 2005, a coalition of the four main trade unions, the representatives of retired people and their families and the directors of residential homes put forward nine propositions designed *'to alert our society to the needs of vulnerable disabled older people'*. Critical of the government's reaction following the heat

wave, they pointed out that the government's response is to give a bureaucratic response to what is effectively new aspirations of the population concerning ageing and growing old. This coalition is demanding that the government creates 40,000 new places for older people in residential homes by 2007 as well as improves the conditions within homes and the levels of staffing. In May, 2005, the government announced that an extra 26 million euros will be made available to reinforce the running of retirement homes. In addition, plans for a recruitment drive to employ young people in the social care sector are also announced, partly in response to the high level of unemployment among young people that France has experienced for a number of years.

As far as the building and design of residential establishments is concerned, there has been a massive drive to provide homes with air conditioning or a 'cool room' where residents could take shelter in the event of a heat wave. In July, 2005, the Ministry of Health reported that 90% of establishments for older people are equipped with at least one 'cool room' and that 81% have all the measures in place to launch the 'blue plan' in case of a further heat wave. This figure compares with only 18.5% in 2003.

The day of solidarity with older people

As a direct consequence of the French heat wave crisis, a new law was passed on the 30th June, 2004 abolishing the Pentecost May bank holiday in favour of a '*day of solidarity for older people*'. From 2005, employees are required to work on this day without pay, and the money raised will be put into a fund to provide social care for older people. In addition taxes on employers will be paid into the fund. The government also announced that a *Caisse Nationale de solidarité pour l'autonomie* is to be created, whose objective will be to financially contribute to the costs of caring for severely disabled persons (0.3% contribution by employers). This Caisse will spend its money on initiatives that promote the independence of disabled persons, the development of home help services, and the topping up of existing schemes in place at the regional levels, such as the care allowance *l'allocation personnalisée d'autonomie* (APA) for older people.

This reform is modelled very closely on the French pay as you go pension system, the idea being that an intergenerational monetary transfer is made at the macro level from the young to the old. However, this first day of solidarity (16th May, 2005) had only a limited success. The measure has not been greeted with much enthusiasm by the French public, with only 56% of employees turning up for work on this day. On 19th July, 2005, a report was submitted to the First Minister evaluating the day of solidarity for older people (abolition of May Pentecost bank holiday). The income generated is estimated to be 2 billion euros. Representatives of associations for older people have also been critical of the measure. The director of the Association of Directors of Residential Homes, Pascal Champvert, states that although the day of solidarity has gone some way to alerting the public to the reality of an ageing population, *'there is still an enormous amount of work to do to sensitise society to the needs of older disabled people'*. In summary, the effectiveness of the day of solidarity has still to be evaluated and there are currently moves for greater flexibility in the application of this measure and to leave more discretion to companies and employers concerning its implementation.

Implications for Britain

The French heat wave of August 2003 has raised a wide range of issues, some of them directly concerning older people (such as community care and the quality of life in nursing and residential homes), others relating to the management and coordination of services in a world seemingly susceptible to greater risks of crises. In the midst of these concerns, the tragedy of the event has brought the French population face to face with one of the major social transformations of contemporary society – the ageing of the population. The heat wave has re-ignited fears about the social fabric of communities and raised the spectre of social exclusion among older people – not just among contemporary cohorts but for the demographically strong cohort of the baby boomer generation who are currently approaching old age. These issues are relevant for all societies and in particular those who are entering the new territory of ageing populations. It is therefore important to address the implications of the 2003 French heat wave crisis for Britain.

One of the first implications is the probability of such a climatic event happening again and affecting countries in even more temperate zones than France, such as Britain. This is the subject of current debate in climatology, but the general consensus seems to be that global warming was a main cause of the 2003 heat wave. Writing in the scientific review *Nature*, Schar *et al.* (2004) state that despite a heat wave of the magnitude of 2003 being statistically very uncommon, '*the European summer climate might experience a profound increase in year-to-year variability in response to greenhouse forcing*' (Schar *et al.* 2004). Other climatologists appear to endorse this view - '*hot extreme events are still expected to substantially increase in intensity, duration and frequency*' (Brown *et al.* 2005, p. 3). Britain is not immune to these trends, and despite its northerly latitude, a future heat wave crisis affecting older people is not implausible. The outcome could be as negative as the French heat wave of 2003. The current thinking among climatologists is that humans can adapt to global warming but only in the absence of large temperature variability (Kalkstein 2000).

Britain, of course, has more deaths related to cold weather than to hot weather. Professor Sian Griffiths, president of the Faculty of Public Health has estimated that 40,000 more people die between December and March in the UK each year than would be expected from death rates during other times of the year.¹⁸ The fact that cold weather is a normal and predictable feature of the British climate means that unlike heat waves, the implications for the social care of older people do not receive wide media coverage or political fall-out. Cold weather deaths are a telling example of the failure of society to protect its most vulnerable members despite being a repetitive and well known phenomenon.

Leaving aside the possibility of a heat wave arriving in Britain, the 2003 French heat wave has raised many general social issues. Central are social isolation as major cause of the deaths and its corollary that community and social ties are not strong enough to support older citizens. Whilst recognising that there are still many unanswered questions, the general conclusion of this report is that the more alarmist fears of a breakdown in the social fabric of communities and a weakening of family ties are unfounded. The available evidence concerning the socio-demographic characteristics of the victims, as well as empirical studies on the

¹⁸ <http://news.bbc.co.uk/1/hi/uk/3342475.stm>

social networks of older people in France and elsewhere in Europe, do not suggest that the social isolation of older people exists on a scale indicative of a rise in individualism and a lack of intergenerational solidarity. The problems raised by the heat wave seem to be more procedural, administrative, and ultimately political oriented.

Weakened social ties should not therefore be attributed as a major cause of the heat wave crisis. At the same time, like the Chicago experience 8 years earlier, the heat wave does raise some important questions concerning the quality of life of older people in densely populated urban areas. These environments are often not adapted to the needs of older people and they can be one of the primary causes of social exclusion. Spatial and mobility related aspects of citizenship are increasingly recognised as important dimensions of social inclusion (Cass *et al.*, 2005) and older people in inner cities often face many disadvantages related to the access of services. Many studies have shown that inner city areas tend to have pockets of older people who lived most of their lives in the area and who have not been able to adapt to the fast changing structures of the local community (Phillipson *et al.* 2001). Accessibility is particularly important for the growing numbers of older people in urban areas and this is likely to be an area where researchers, planners and users can be increasingly involved in improving the quality of life.

Summary of key points

The heat wave during August 2003 and the consequent deaths of so many older people has left an indelible mark on French society. The issues raised by the failure to prevent these casualties are multi-faceted and reflect the complexity of modern societies. The heat wave exemplifies what Ulrich Beck has termed ‘the risk society’ and the unforeseeable consequences of a multitude of diverse social actions (Beck 1995). Seen from this perspective, it is difficult to identify concrete and specific areas of social policy that can be developed as a direct result of the lessons learned from the experience of the heat wave. The approach taken at the end of this report is therefore to summarise some of the key points that have emerged from the French 2003 heat wave. These observations do not have any

order of priority, but they all have in common future orientations for the social care and well-being of older people.

- There is now compelling evidence of the effect of global warming and its influence on climatic change. Hot weather produces health risks and older people are more susceptible to hyperthermia than younger age groups. Simple, practical measures can be taken by older people themselves and their entourage during periods of hot weather to prevent health complications developing.
- Greater attention should be given to how older people lead their lives in densely populated urban areas. The fast-changing composition of these localities often ignores the needs of older people. There is a role here for greater cooperation between the many players in urban design. In particular, it is necessary to prevent social isolation of older people which arises as a result of urban planning.
- The quality of life in residential homes and their architectural design has been a striking feature of the French heat wave crisis. The population of residential institutions is set to increase and the well-being of residents needs to be ensured.
- The current generation of the baby-boomers who are approaching old age should be a key factor in setting the agenda for future trends in social care. As the forbearers of mass consumerism, the baby-boomers need to define the terms by which they expect to pass their last years of life.
- Poor coordination between the different health and social care actors continues to be a major factor that impedes the maintenance and regulation of social and health care systems in modern societies. This is in part due to the inherent weaknesses of bureaucratic systems, but also a political reluctance to confront one of the major contemporary social transformations – the ageing of populations.

Appendix 1. The key reports

In the two years that followed August 2003, a number of reports have investigated the causes and consequences of the heat wave as well as providing recommendations concerning the direction of future policies to prevent a repetition of the catastrophe. These reports are summarised in chronological order here.

25th September, 2003: Hémon, D. and Jouglu, E. Rapport remis au Ministre de la Santé, de la Famille et des Personnes Handicapées, Institut national de la santé et de la recherche médicale (INSERM).

At the request of the French Ministry of Health epidemiologists working at INSERM published the first report into the heat wave in September, 2003, only several weeks after the event. This report confirmed the unusually high mortality rates during the period of the heat wave. On the 4th August, for example, more than 300 deaths above the average for a single day (compared with the same day previous years) were observed. Each day that followed during the heat wave registered the same higher than average mortality rates – by the 20th August the total number of deaths above the average for the same period in previous years was 14,800, representing an increase of 60% on the expected mortality rates.

The report stated that the above average mortality rates affected mostly the population aged 45 years and above. Moreover, mortality rates increased significantly with age among the older population - + 20% among people aged 45-54, +40% among the age group 55 to 74, + 70% among the 75-94 age group, and +120% among the population aged 95 and above. Men and women were both affected, but rates of above average mortality were higher among women (70%) than among men (40%). Above average rates of mortality affected some regions of France more than others – particularly affected were the centre of France and the Paris conurbation. The report established the correlation between age, sex and the extent of urbanisation – older women living in urban areas appearing to have been particularly exposed to the effects of the heat wave.

In addition to confirming the link between age, sex and area in above average mortality rates, the report also found that rates for the period doubled both among individuals living in their own home and those who were living in retirement homes. In total, 42% of the 15,000 excess deaths registered during the heat-wave occurred in hospitals, 35% at home, 19% in retirement homes and 3% in private clinics. However, as the authors of the report pointed out, it was difficult to interpret these figures because the health status of persons living in residential homes or those who were admitted to hospital varied considerably. Additional socio-demographic characteristics of the older people who died were more difficult to discern. In its conclusions, the report suggested that in addition the

factors of age, sex and urban environment, lower social class groups seem also to have been over-represented.

The immediate lessons to be learnt from the heat-wave were clearly drawn out in the report. In the short term, measures are needed to put in place a system of alert for the health and caring professions. Such a plan, it was suggested, should make these professions and the general public more aware of the risks that a prolonged period of abnormal temperatures poses to the population.

25th September, 2003 : Mission d'expertise et d'évaluation du système de santé pendant la canicule 2003,. Rapport présneté par Dr. Françoise Lalande, Pr. Sylvie Legrain, Pr. Alain-Jacques Valleron, et Dr. Dominique Meyniel, Ministère de la santé, de la famille et des personnes handicapées, (Ministry of Health Report).

This inquiry was commissioned by the Minister for Health. It brought together several experts in the field of health to evaluate how the health service responded to the heat wave crisis. A number of hearings took place during which the panel of experts heard from professionals involved in the crisis. The report concluded that none of the programmes of alerts for heat waves that were in existence prior to 2003 were adequate. As a consequence, the organisation, coordination and response was inadequate. The report noted that if there had been more coordination and information sharing the response would have been much more effective.

The Lalande report also pointed to the way in which the heat wave revealed shortcomings in the health care system, notably in emergency services and services for older people. In addition the role of GPs and the particular structure in France whereby less GPs are available in August due to annual leave was also criticised. Deaths that occurred within the person's home were attributed to a lack of intervention by all social actors and the deaths in residential homes were noted by the authors of the report to have been highly unusual. The use and misuse of medication was also invoked as a possible contributory factor.

The Lalande report made a number of recommendations:

- Research into the causes of death and the setting up of several projects involving epidemiologists, geographers, demographers and sociologists.
- Reorganising the INVS so as to provide better mechanisms for alert in the case of a further heat wave.
- Reorganising the way that deaths are recorded and establishing centralised computerised records
- Introducing awareness programmes for the elderly population and their families
- Improving the administration and coordination of emergency services

- Improving air conditioning systems within residential homes

INVS report, September, 2003 : Impact sanitaire de la vague de chaleur en France survenue en août 2003, Rapport d'étape, 29 août 2003, Département des maladies chroniques et traumatismes, Département santé et environnement, Institut national de veille sanitaire, septembre 2003.

The five chapters of this report present the studies undertaken by the INVS as well as surveillance monitoring and warning systems put in place.

Chapter 1 a) describes the available heat exposure indicators and identifies the most relevant for the evaluation of the impact on public health and the development of meteorological warning systems; b) reviews the literature on the heat's effects on, public health and associated prognosis and prevention factors; c) describes heat waves prevention action plans developed abroad ("hot weather-health-response plan").

Chapter 2 a) describes the exceptional nature of the heat wave in terms of meteorology and atmospheric pollution in 14 French cities b) substantiates the fact that the choice of a bio-meteorological indexes used for early warning should be supplemented by specific locally adapted monitoring/ advisory/ warning thresholds.

Chapter 3 discusses the five epidemiological studies set up by the InVS in August. These studies a) demonstrate the major impact of the heat wave on public health, b) describe the features of heat-related deaths, c) provide essential information for the setting up of an early warning system in conjunction with emergency departments.

Chapter 4 describes the public health impact of the Summer 2003 heat wave in various European countries. A comparison of consistent data between countries, however, is necessary. This chapter also describes how detection and early warning systems for temperature changes are organised in countries that have such systems.

Chapter 5 takes stock of the collaborative efforts in progress and yet to be developed in terms of surveillance, monitoring and early warning. It presents studies in progress on risk factors and heat-related deaths, and studies that could be undertaken in the near future.

The public health impact of the heat wave of August 2003 was major. This exceptional event raises questions about anticipating phenomena which are difficult to predict. The developed collaborative efforts and the group of actions and studies urgently put in place by the InVS will provide for discussion on the setting up of early warning strategies and thus efficient prevention.

January, 2004 : ‘La Prise en charge sociale et medico-sociale des personnes âgées face à la canicule de l’été 2003, rapport présenté par Mme. Anne-Marie Léger et MM. Didier Lacaze, Michel Laroque, et Didier Noury, The Inspection General of Social Affaires (IGAS).

This report examined how public services reacted to the heat wave in 8 departments. Among their conclusions is that realisation of the extent of the epidemic came too late and that it was principally the media that were the first to raise the alarm. One important conclusion of the report was the lack of air conditioning with residential homes – a factor which had contributed to the dehydration of residents. The IGAS also concluded that in residential institutions where there was no air conditioning and which were the least affected by higher than average death rates, buildings were isolated and did not have many large windows. Also apparent in institutions least affected by the heat wave was the reactivity of the management and staff who acted effectively by mobilising teams and taking the necessary precautions (ensuring nutrition, hydration, and using drips where necessary). The report made several recommendations:

- The creation of a preventative system to be put into action in exceptional circumstances; the recommendation was that this should be done in partnership with the French Meteorological Office and the ‘*les autorités sanitaires*’. It recommended the adoption of a ‘bright-red plan’ at the national, departmental and local levels, to be coordinated by each of the French territorial departments.
- The setting up of a preventative plan in social and socio-medico establishments. This should be done both by creating good practice goods of care and the building/architectural plans of residential establishments.
- The creation of a register of older people in difficult situations (with the consent of these older people); the development of new technologies such as telephone assistance systems; training of social and health care workers in crisis management.

The IGAS report also stressed that although climatic factors were the immediate cause of the death of older people, many of whom were at the end of their life, other factors contributed – such as the type of residence (architectural or environmental factors) or the quality of the staff who were often not aware of the signs and consequences of dehydration. The report also stresses that the coordination of services for older people was inadequate and generally not effective, neither in a preventative role nor in managing the crisis – despite the fact that there were many actors on the ground. Gerontological services were slow to react and in fact it was the media that first gave the alert. Service providers and residential institutions were both slow to realise that an above average number of deaths were occurring – especially where they are used to regularly dealing with deaths.

February, 2004 : Evin/Aubert Report to French Assemblée Nationale – Rapport Fait au Nom de la Commission D'enquête sur les Conséquences Sanitaires et Sociales de la Canicule.

This report has some answers to the question of the characteristics of who died. It states that the heat wave was especially an urban phenomenon and cites Paris as an example, where the poor housing conditions and the social isolation of older people were determining elements of the crisis.

The report confirms the finding of INSERM that victims of the heat wave were mainly people aged 75 and above. During the five hottest days of the heat wave, the above average death rate was +135% for men and +257% for women. The fact that women were more vulnerable than men is due partly to the fact that there are higher numbers of women in the elderly population than men, but also that older women tend also to suffer more from problems of thermoregulation than men. The report notes that there were no above average death rates among very young children, 'thanks to the vigilance of their parents'.

The report refers to the Chicago heat wave by stating that people from lower income groups are at greater risk during a heat wave. At the same time, it states that '*unfortunately, we have no information on the social origins of those who died during the heat wave, and that therefore we are unable to confirm the findings that lower social class groups were more at risk*'. It goes on to say that the conditions and causes of the deaths still remain largely unknown more than 6 months after the heat wave took place. At the same time, because above average death rates were particularly high in Paris and Lyon, the report concludes that the social isolation of older people in inner city areas 'where social ties between the generations are considerably weakened, contact between neighbours is practically non-existent, and where patterns of family solidarity are less in evidence'.

The report also referred to the French system of summer vacations (traditionally August is a peak period for holidays) and the system of taking time off which forms part of the recently reduced 35 hour week. It states that towns in July and August are becoming more and more deserted by the working population who have to take time off during this period. People who do not have the financial means to go on holiday and particularly for older people, those who do not know where to go or with whom to go have to stay behind.

In its conclusions, the report pointed out the 'disfunctions' of the government and public bodies in managing the heat wave and suggested that the Health Ministry and its administration was the weakest link in the chain. The report was particularly critical concerning the lack of action taken by the *l'Agence française de sécurité sanitaire et environnementale* (Afsse) and the inaction of the *Institut national de veille sanitaire* (INVS). In addition information at the local level (DDass) was not passed upwards quickly enough and the *Direction générale de la santé* (DGS) was held to 'inexplicably unaware of the gravity of the situation'.

May, 2004 : DREES working document : ‘Episodes caniculaire et personnes âgées ; éléments localisés de diagnostic, d’alerte et de plan d’urgence : synthèse des études réalisées dans les régions Île de France, Centre, Bourgogne, Auvergne, Haute-Normandie, et Franche-Comté. Alain Jourdain, Guillaume Gardin, Thomas Frinault, LAPSS – ENSP, n° 43 – mai 2004.

This report states that they are still looking for the precise determinants of the catastrophe. The report deals with the professional’s response to the heat wave. It interviews a number of professionals - 20 interviews in six regions, including administrators in hospitals, firemen, local authority retirement homes, private retirement homes, G.P’s, local representatives, voluntary associations. The report is very much about inter-disciplinary work. The report begins by trying to assess the level of services for each region. Its aim is to identify, by collecting a series of narratives from the different actors involved during the heat wave, exactly which procedures were put into place. In conclusions, the authors state that ‘we can say that there does not appear to have been any manifest disparities in the resources that were mobilised during the heat wave that could explain the above average death rates.

However, in the different regions studied, it is apparent that systems of cooperation in times of emergency are informal, individualistic and are based on locally devised policies

In summary, there was a wide range of different procedures that were followed by doctors, social workers, communal establishments, family, individual initiatives, nurses, prior to hospital admission. Most of these actors became aware of the extent of the crisis through the media.

Section 5.1.4 of this report presents some interesting findings concerning the role of families and neighbours. On the whole, it appears that family members were mobilised in the early days of the heat wave, and especially in rural zones. The report places particular emphasis on the strength of informal networks in rural areas. In residential homes and hospitals, staff gave conflicting views about the role of the family. For example, in all the regions the study showed that for those older people whose family was supportive prior to the heat wave, this help was intensified during the crisis. Thus there was a certain spontaneity of families, who suggested to the care professionals that they could help out with the care of their elderly relatives. On the other hand, in some establishments, the staff were critical of the relatives of older people, who in their view had abandoned or deserted their older relative. When social isolation was evoked, it was almost used entirely in relation to older people living in urban areas, without access to social care services or home help. On the basis of the interviews with members of staff and other personnel, the majority took issue with any attempt to place the blame for

the heat wave crisis on the family and were critical of the media and politicians who did so.

The report also notes that the heat wave was experienced differently in the Paris agglomeration compared to the centre of France. The Paris conurbation seemed to be much more associated with fragmented social networks.

The discourses of the heat-wave. Note that this report remarks that there is a gap between the reality of the figures (15000 dead) and the feelings of those interviewed. The scale of the tragedy at a national level seemed to many professional staff to be out of proportion with their experience at the local level. But there was also a tendency to minimise, or even contest the figures.

July, 2004 : Etude des facteurs de risque de décès des personnes âgées résidant à domicile durant la vague de chaleur d'août 2003, Institut National de Veille Sanitaire.

This report by the INVS details the results of a survey undertaken to determine the risk factors associated with the heat wave among non-institutionalised older people. The research was undertaken by a 'matching' of 259 pairs (those who had died as a direct consequence of the heat wave, and those who had survived) Matching was made by sex, age and locality. Information was collected concerning the respondent (or deceased) behaviour during the heat wave, the social and family environment, degree of disability, health and characteristics of the home.

The survey found that the variables associated with a death were a lower social class group (OR = 3.6 for workers), the degree of autonomy, cardiovascular disease, psychiatric illness, and the quality of isolation of the home

26th October, 2004 : Second INSERM report, Hémon, D. and Jouglu, E. Rapport remis au Ministre de la Santé et de la Protection Sociale: Surmortalité à la canicule d'août 2003, INSERM.

INSERM publishes a follow-up report, which confirms that the above average deaths rates in August 2003 were not sustained in the months that followed (which would have signified that a proportion of the elderly population were physically weakened by the effects of the heat wave). Also no below average death rates were recorded in the months that followed (which would have indicated that some of the above average death rates during the period of the heat wave could be attributed to deaths that would have happened anyway).

Appendix 2. Advice in the event of a heat wave

Advice given by Ministry of Health during periods of very hot weather:

- protect yourself from the heat by shutting volets and windows during the day and opening them at night
- stay at home if possible during the hottest hours of the day, in the coolest room or spend a couple of hours in a room with air conditioning (super market, cinema, library) or at least in a shady or cool place near to your home
- wear light clothes with light colours
- refresh yourself with water often; take showers
- drink and eat regularly to preserve your mineral salts – at least 1.5-2 litres of liquid a day (avoid alcohol, drinks with caffeine and sugary drinks)
- seek advice from your GP if you are taking medication or if you feel unwell
- if the heat is making you very uncomfortable, tell a member of your family, a friend or neighbour

Table 1. Face to face contacts (%) (excluding situations of cohabitation)

<i>Excluding cohabitation</i>	Every day or several times a week			At least once per week		
	With adult children		Pivot generation with elderly parent(s)	With adult children		Pivot generation with elderly parent(s)
	Elderly generation	Pivot generation		Elderly generation	Pivot generation	
<i>Type of Welfare State Country</i>						
<i>Social democrat</i>						
Norway	29	24	16	56	55	44
Finland	24	26	16	55	50	37
Denmark	26	26	18	57	46	41
<i>Liberal</i>						
Great Britain	27	34	19	54	50	43
Northern Ireland	60	70	56	79	82	78
<i>Corporatist Conservative</i>						
Eastern Germany	42	31	27	56	46	47
Western Germany	37	29	31	48	40	50
Austria	43	39	35	70	71	58
France	30	21	15	55	48	35
<i>Mediterranean</i>						
Italy	72	60	45	83	83	69
Spain	63	48	43	77	63	57
<i>Transitional</i>						
Slovenia	75	78	39	88	89	61
Czech Republic	50	54	28	75	77	59
Poland	57	46	32	72	59	51
Hungary	60	54	32	75	71	54

Source : ISSP-2001, *Social Relations and Support Systems (social networks II, from Ogg, J. and Renaut, S. (2005) Le soutien familial intergénérationnel dans l'Europe élargie, Retraite et Société, 46, pp. 28-55.*

This table shows rates of face to face contact between elderly parents and their adult children. The data are from the International Social Survey Programme, 2001. The elderly generation are defined as individuals who no longer have their parents alive but who have adult children. The pivot generation is defined as individuals with at least one parent alive and one adult child.

Reading the table (example). In Norway, 29% of elderly parents see at least one adult child every day or several times a week, 24% of the 'pivot' generation see at least one adult child every day or several times a week, and 16% of the 'pivot' generation see at least one parent every day or several times a week.

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