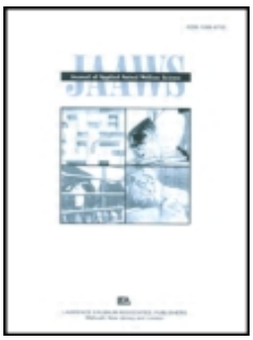

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Animal Disease and Human Trauma: The Psychosocial Implications of the 2001 UK Foot and Mouth Disease Disaster

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The 2001 UK foot and mouth disease (FMD) crisis is commonly understood to have been a nonhuman animal problem, an economic industrial crisis that was resolved after eradication. By using a different lens, a longitudinal ethnographic study of the health and social consequences of the epidemic, the research reported here indicates that 2001 was a human tragedy as well as an animal one. In a diary-based study, it can be seen that life after the FMD crisis was accompanied by distress, feelings of bereavement, fear of a new disaster, loss of trust in authority and systems of control, and the undermining of the value of local knowledge. Diverse groups experienced distress well beyond the farming community. Such distress remained largely invisible to the range of "official" inquiries into the disaster. That an FMD epidemic of the scale of 2001 could happen again in a developed country is a deeply worrying prospect, but it is to be hoped that contingency plans are evolving along with enhanced understanding of the human, animal, and financial cost.

In May 2003, 2 years and 3 months after the outbreak of the world's worst epidemic of foot and mouth disease (FMD), a small group of concerned people

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gathered on a bleak, windy, former airfield site to commemorate the slaughter and burial of more than 1 million nonhuman animals on the farm. Great Orton was the largest disposal in Cumbria, the county in Britain worst hit by the disaster. The former airfield became the scene of a massive disposal operation in 2001 after the British army was brought in to handle a crisis prompted by the sheer scale of the slaughter. The ceremony was an attempt at regeneration and healing; the site was renamed Watchtree Nature Reserve after some landscaping and planting and the dedication of a memorial stone, unearthed during civil engineering works to prepare the site for animal burials (Figure 1).

In this article we report on findings from a large-scale longitudinal study following the 2001 FMD disaster in the United Kingdom. On February 20, 2001, FMD was confirmed in the United Kingdom for the first time in 34 years (Picado, Guitian, & Pfeiffer, 2007), an event described as the most serious ever to occur in a previously FMD-free country (Cumbria County Council, 2002) and "… a rare set of circumstances had already determined that this would be one of the worst epidemics of FMD the modern world has ever seen" (Anderson, 2002, p. 20). On January 14, 2002, after a cumulative total of 2030 cases, the culling of between 6.5 million and 10 million animals and economic loss that the Department of the Environment, Food, and Rural Affairs (DEFRA) estimates to be £9 billion, the last county (Northumberland) was declared FMD free (Anderson, 2002; Campbell & Lee,

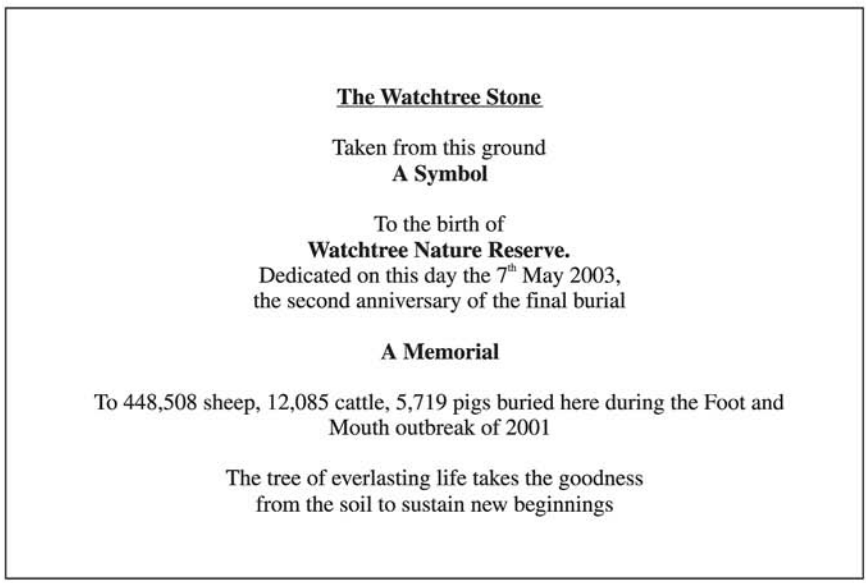

FIGURE 1 This plaque is attached to the face of the Watchtree Stone at the Watchtree Nature Reserve in Cumbria.

2003; Picado et al., 2007). In North Cumbria, 893 farms had confirmed infected cases; a further 1,934 had complete or partial culls of livestock, representing 70% of farms (National Audit Office, 2002).

STUDY DESIGN AND METHODS

> Post disaster, people often come to feel estranged from the rest of society and lose confidence in the structures of government … voices like those deserve to be listened to carefully. (Erikson, 1991, p. 455)

In the wake of the epidemic, the "official" inquiries—Anderson Inquiry, Royal Society Inquiry (2002), Policy Commission on Farming & Food (2002), European Parliament (2002), Cumbria County Council Inquiry—were concentrating on narrower aspects of the crisis: outbreak management, agricultural policy, economic impact, veterinary science issues, and FMD prevention. These inquiries—with the exception of a number of "public sessions"—were not held in public (although when calls for a national public inquiry were rejected, a number of county councils held their own inquiries in public). Our research into the health and social consequences of the disaster for a rural population was designed to provide a different kind of knowledge, a grounded view of living through the crisis, a record over time made from direct experience, and agreed analysis of that experience, which we would make available as widely as possible to inform future policy and planning.

The Lancaster study worked with the active participation of a multidisciplinary, multiagency steering group drawn from those public and voluntary organizations most active during the FMD crisis. The research was designed with the steering group's assistance during the final months of the epidemic in late summer 2001. Because we knew continuing biosecurity pressures would prevent data collection in the early part of the project, we used in-depth interviews to capture respondents' experiences of the previous 11 months and a diary method to trace the process of recovery through 2002 and 2003.

From informal contacts with local health practitioners, journalists, and—in particular—those voluntary organizations that had sprung up to provide emergency assistance, we knew that there had been wide-scale traumatic experience in Cumbria. The study methodology needed to be sensitive and respectful of the dignity and potential vulnerability of individuals and families involved. As Cornwall and Jewkes (1995) indicate, research strategies that emphasize participation are gaining greater purchase within health research in developed and developing countries. They are increasingly being used in studies of health and illness in areas of practice where there are serious or intractable problems (Hart & Bond, 1995) and are particularly suitable in disaster settings.

A combination of qualitative research tools was employed to capture data at both individual and collective levels from the panel of 54 respondents:

1. Initial discussion groups—to explain the project and capture early responses;
2. Interviews—to collect individual testimonies of the 2001 experience;
3. Diaries–to show weekly reflections over following 18 months; and
4. Follow-up group meetings—to provide validation of analysis.

This combination allowed for extensive triangulation of data, promoting a rounded, situated understanding of individual, family, occupational, and community perspectives on disaster and recovery. We give a fuller account of data collection and analysis in Mort, Convery, Bailey, and Baxter (2004, 2005).

RECRUITING THE STUDY RESPONDENTS

A standing citizens' panel structure was devised, its composition and membership shaped by prior discussions with the steering group (which also later assisted in considering recommendations for recovery and regeneration post disaster). A demographic and occupational profile of respondents was drawn up and given to an independent professional recruiter whose task was to deliver a panel to meet this profile. The citizens' panel was thus recruited to reflect both the range of lived experiences and the spatial dynamics of FMD in North Cumbria while achieving a relative demographic balance within agreed targeted groups. The purpose was to recruit a panel that was seen as a legitimate group of "lay" experts who could provide credible evidence about living through the disaster. Targeted groups included the following:

1. Group 1: Farmers, farm-workers, and their families (culled and standing farms);
2. Group 2: Small businesses such as tourism, hotel trades, and other rural businesses;
3. Group 3: Workers in related occupations such as agricultural suppliers, livestock hauliers, auction mart staff;
4. Group 4: Frontline workers, including DEFRA, Environment Agency, slaughter teams;
5. Group 5: Community, including teachers, clergy, residents living near disposal sites; and
6. Group 6: Health professionals, including general practitioners, community nurses, veterinary practitioners.

The initial discussion groups held in December 2001 and January 2002 proved to be highly charged and emotional events: The farming participants, for example, had suffered severe movement restrictions for 10 months, and some had been culled out. Other group members had lived in close proximity with the disaster and were still in a state of shock. These group meetings were quickly followed by in-depth, one-on-one interviews with all 54 panel members. Respondents then commenced writing their weekly diaries in which they were invited to describe their daily routines and reflections.

THE DIARY/INTERVIEW METHOD

Diaries have been used in social science research for about 60 years but only occasionally in health research (Elliot, 1997; Mechanic, 1989). In a review of diary studies in health research, Verbrugge (1980) reports that a health diary was first used in the Baltimore Morbidity Survey, 1938–1943, and argues that diaries report symptoms and disabilities more completely than do other methods and also minimize common errors characteristic of retrospective studies. A major advantage of diary studies is that they bring the task of data collection into the person's own everyday world (Elliot, 1997; Verbrugge, 1980; Zimmerman & Wieder, 1977). Meth (2003) emphasized how diaries offer "longitudinal personal insight into day-to-day processes … provide rich detail on the everyday context of health and illness" (p. 198). They also offer the opportunity to study change over time and provide insight—in a very direct manner—into people's actual experiences and how they perceive them (Hayes, 2000).

A frequently cited disadvantage of unstructured diaries is that they leave respondents free to write whatever and how much they like and that each may therefore focus on different aspects of the experience (Breakwell & Wood, 1995). This potential problem may be overcome by following the "diary-interview" approach suggested by Zimmerman and Wieder (1977), where all diaries are followed up by regular interviews to clarify and expand specific aspects of the diary. A variation on this approach was adopted for the Lancaster study, which also provided for ongoing contact between the researchers and diarists. Indeed some diarists stayed in touch with the research team and have been involved in a number of follow-up events and evidence-giving events with local authorities. The identities of panel members remain strictly confidential; however, some chose to "go public" after the research ended.

The free-text component of the diaries allowed respondents to function as both observers and informants, effectively becoming ethnographers of their own lives. In this, the project was influenced by the work of the Mass Observation movement

started in 1930s Britain. (Today, the University of Sussex maintains the Mass Observation archive.)

Arguably, the more structure the researcher provides in the form of explicit questions, the easier it might be to compare data from different respondents, but the less likely it will be that the data will fully reflect what the person experiences (Hayes, 2000). Over the diary-keeping period, respondents grew more confident and less self-conscious about sharing their diaries, as they found and developed their own voices and became more accustomed to regular interaction with the project. Researchers made monthly visits to members' homes to collect the diaries, offer the small, agreed payment in recognition of their time commitment, and discuss any queries. The resulting free-text entries therefore combine accounts ranging from everyday contingencies such as doing the shopping to distressingly graphic recollections:

> Taking my daughter and her friend home (from a show in Carlisle). It was the same evening that her father's pedigree sheep were being taken to the voluntary cull. By mistake, I took them through a closed road, the sign having fallen down to the side of the grass. In the dark we went past a burning pyre only yards from the hedge separating the road and the field. We could see the charred, rigid bodies of the cows and the sparks from the fire and the smell permeating the air and the silence of the two young girls. … (Community nurse: diary, June 2003)

In all, 3,071 weekly diaries were contributed over 18 months (handwritten and transcribed from December 2001), as well as 70 in-depth interviews (recorded and transcribed) and 12 panel group discussions (recorded and transcribed). The raw data and some supporting materials from this study have now been archived by the Economic and Social Data Service (UK Data Archive, 2006). The result is an archive that documents the social cost of FMD eradication and of enduring a disaster characterized by bereavement, fear, guilt, loss of confidence, nightmares, flashbacks, intrusive thoughts, heroic struggles with biosecurity, and the distress of witnessing the suffering of livestock. The following longer extract and many others can be heard by connecting to the project Web site (Health and Social Consequences of the 2001 Foot and Mouth Epidemic in North Cumbria, 2007). Here, a respondent speaks of the logistical and moral pressures in being "conscripted" to work on disposal of pain and distress and relationships damaged by the crisis:

> D. went for a meeting with the Brigadier on the Sunday and he said, "I want this I want that and I want that, how long will it take you to get it up and running? I don't care what it costs. Just do it." And D. says, "Hold on a minute" and he says, "I'll talk to you, but you can't just say you want this and that." And he says, "Right let's sit down and let's sort it out." So we phoned every haulier in Cumbria we knew on the Monday. We phoned farmers, markets, wherever, to try for contacts for staff. We phoned recruitment agencies and we had a meeting at Penrith on Monday night with all the hauliers

to see if they were in agreement with it, if they would help do it. We were basically pushed into it. We didn't really want to get involved with it but we were basically pushed into it because being the biggest haulier, in basically in Europe, they come straight to us and basically, pushed us in and says, "You'll do it." At the end of the day, the government and army can go back home to London. [But] they're our friends, customers, relatives. We're still here. We have still got to try and make a living when all those fellas have gone home. When you were going into a farm and taking their lives away, you're not so keen on coming back, which was the most difficult part of it. Never in a short space of time, in 5 weeks, it wasn't a long time, I've never heard as many grown men cry as what they did in that time. A lifetime's work gone within 2 or 3 hours. We had an old man at Aspatria. He was absolutely brokenhearted when we phoned him and there was three, I think it was three or four wagons went and he said, "Make sure they come half an hour earlier and I'll get their dinners before they load the sheep." And he fed them and when the sheep was loaded, he took them into the house and gave them a cup of tea before they went. Because they were the same way, they knew it was a lifetime's work. (Respondent: Agricultural related, haulage)

DATA ANALYSIS

Analysis of the material using the constant comparison method from multiple readings of the diaries and interviews (Glaser, 1992) resulted in the development

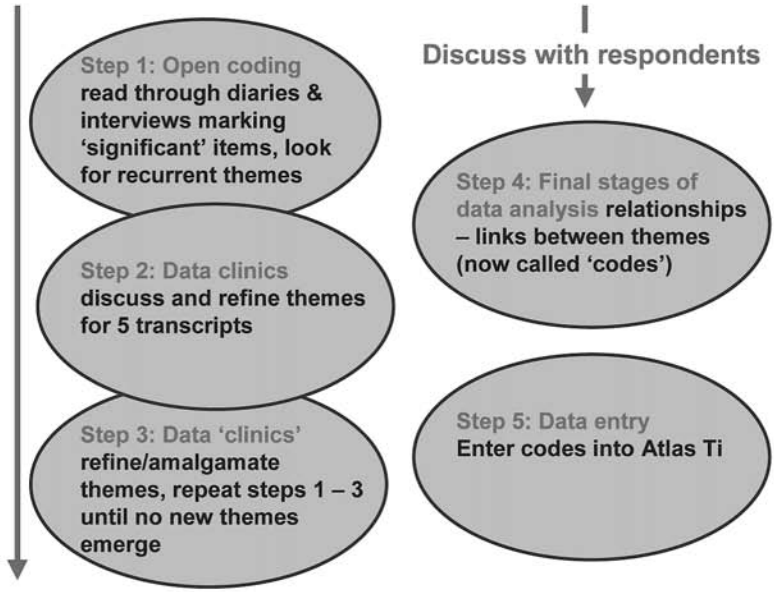

FIGURE 2 Process of analysis.

of four analytic themes under which supporting material was grouped (Figure 2). Altered Lifescapes is the term developed to represent the cluster of responses concerning the disturbed relationship between health and place; the changed significance of everyday places and taken-for-granted spaces in respondents' lives. Such places were radically altered during the FMD crisis. Trauma and Recovery is used to group the large body of data referring to distress, anguish, horror, retraumatization, endurance, and sources of support articulated by respondents. Our definition of trauma within this context encompasses both the events and how those events were experienced by individuals and communities. Trauma is associated with the inability to fight or flee, being trapped in the stressful environment and unable to take control over one's place relative to events. Trauma has particular characteristics in disaster settings (Erikson, 1991, 1994). The analytical theme Trust in Governance reflects the data relating to chaos, loss of personal security, and powerlessness in the face of conflicting advice. Knowledges in Context illustrates the body of material concerning a gap between different kinds of knowledge: proximal knowledge derived from local experience and centralized or distal knowledge. For example, organizational directives were perceived to be stripped of context, unable to adapt to what was happening on the ground and unable to mobilize stocks of local expertise. This manifested itself most devastatingly with the contiguous cull policy and the way in which it ignored local knowledge—agricultural "common sense" (Bickerstaff, Simmons, & Pidgeon, 2006).

Anderson (2002) notes how the implementation of the contiguous cull was guided by computerized mathematical modeling carried out by the FMD Science Group, a process elsewhere referred to as "carnage by computer" (Campbell & Lee, 2003). Yet, as Woolhouse (2003) remarks, "An understanding of dynamics of the global (FMD) epidemic is not a substitute for local decision making" (p. 128). Accordingly, both during and after the outbreak, the appropriateness of using global models to inform local decisions was criticized (Picado et al., 2007). One of the most important effects of this modeling was an overestimate of the significance of local spread, resulting in an unjustified high number of premises being preemptively culled in some areas (Picado et al.). This theme also includes loss of irreplaceable experience for local people, where families had "FMD babies" or had to miss key events and rites of passage such as family weddings and funerals.

Analysis revealed immediate and long-term health effects and wider immediate and longer term social effects. As this article is concerned with how the crisis affected animal-human relationships and also with changes in the sense of identity experienced by those caught up in the disaster, we focus here on Trauma and Recovery and Altered Lifescapes. In earlier articles, we have considered trauma and narrative analysis (Bailey, Convery, Baxter, & Mort, 2004), the emotional geographies of

FMD (Convery, Bailey, Mort, & Baxter, 2005), "citizen epidemiologies" and public health policy (Bailey, Baxter, Mort, & Convery, 2006), archiving qualitative research (Bailey, Convery, Baxter, & Mort, 2006), and the role of frontline workers in disaster situations (Convery, Mort, Bailey, & Baxter, 2007). The process of working on the data to move from initial (open) codes to analytical themes is closely detailed in the project's final report (Institute for Health Research, 2007). However, first we begin with some examples of the human cost of the disaster.

INITIAL VIEWS ABOUT THE HUMAN COST OF THE CRISIS

In the early stages of the outbreaks, most of the attention about human effects concentrated on the possibility of zoonosis. Workers and farmers were closely exposed during slaughter and disposal, and there were moves to reassure the public: "Let me stress that foot and mouth doesn't cause a problem in humans" (Patty Scharko, Extension Veterinarian, UK Livestock Disease & Diagnostic Laboratory, personal communication, April 5, 2001).

Once these fears had subsided, there were concerns about the health effects from the large numbers of pyres being built, first on farms and later on larger sites close to centers of population:

> Well, there was five pyres all burning at the same [time] within a quarter mile radius of Longtown … I got up one morning and the smell in the house was terrible, and I thought it was foggy outside. I opened the back door thinking to let the smell out and it was worse. It was smoke swirling around the houses. Because it was a calm morning, you would think it was thick dense fog. And it was stinking, it was horrible and we had that for 3 or 4 weeks, because they used the wrong coal on the pyres. They were building the pyres wrong. They weren't burning properly and some of them pyres burned for 6 and 7 weeks. (Respondent interview: Agriculture related, haulage)

The border town of Longtown in North Cumbria was in a state of siege following the discovery that many of the disease outbreaks could be traced back to the town's auction mart. Approximately 70% of farms in Cumbria were "culled out," resulting in a huge disposal backlog. Plans in April 2001 to build a huge "metapyre" outside Longtown that would burn for weeks in order to dispose of the huge numbers of culled stock prompted an angry public meeting covered by the local newspaper. "People power stops the pyre: Longtown fury halts huge fire that would have burned all summer" (*Carlisle News and Star*, April 12, 2001).

Burning as a means of disposal was abandoned in the United Kingdom after this pivotal meeting, resulting in large-scale burial and incineration at rendering plants

as the remaining options. However, amid all these debates and arguments, the social and affective nature of what was happening remained largely invisible:

> Heaps of carcasses have laid about for up to a week after slaughter, open to birds and vermin. To see your life's work lying dead in your yards and fields is something no one can imagine until you see it for yourself. (Respondent: Farmer [culled], interview, 2002)

This farmer encapsulates many of the key aspects of these themes. First he speaks of "life's work," a point often missed in the official inquiries and in how the crisis was understood by the urban and political classes at the time. Life's work refers to the intimate knowledge built up over successive generations of breeding stock, a closeness with the livestock in which animal/human lives are lived in a mutual space—and stock lines often follow familial histories:

> H: But we both had, er, cow families from when we …
>
> M: Before we were married, like really eh, from both our parents' farms, you see when we started we sort of got something with each parent so unfortunately those are the bloodlines you cannot replace at all you see.
>
> H: I was given one when I was seven. …(Respondent and Partner: Farming, interview, 2002)

"Life's work" lies dead in "your yards and fields." Here a sense of place and time is mutually constructed between the livestock, the herd that belongs in that place yet has been slaughtered, and the physical spaces on the farm, rendering that place a site of bereavement. Of course, although the slaughtering of livestock is part of farming lifescapes, few farmers and livestock handlers would volunteer to be at the interface between live animal and food. The abattoir would normally provide spatial distancing and some emotional detachment. The scale of killing during the 2001 crisis transgressed this emotional geography of farm as the appropriate place of livestock management and abattoir as the appropriate place of livestock death (Convery et al., 2005). The nature of the livestock/human/place/time relationship is also an emotional one, and its fracturing is profoundly shocking and unimaginable. The blow of seeing this graphic destruction of life's work creates a division between those who have been there and those who have not.

This sense of a chasm opening up between the insider and the outsider is well known in disaster studies (Erikson, 2003). The diaries and interviews in the Lancaster study—and later the archiving project that followed—came to serve as a conduit between different ways of understanding the impact of the disaster.

Having the opportunity to tell their stories and have their experiences recognized served, in some way, to reduce the gulf that had opened up between those who suffered some of the worst horrors of 2001 and those who had not.

> That first week or so (after culling) when I was sitting ploughing, and doing jobs sitting on the tractor, just sitting there thinking about it all there were many a time I had to wipe tears off my eyes, I can tell you. The more you talk about it, the less it hurts. That is what I feel is happening. (Respondent: Farmer [culled], group meeting, December 2001)

FMD also served to reinforce rural identity, particularly in the context of a perceived urban and remote central government. For example, Bickerstaff et al. (2006) note a shared sense of place that "reinforces within local culture the unequal political–economic relationships of centre and periphery … a common structure of feeling is reaffirmed and sharpened under conditions of domination, such as those associated with the government handling of the FMD crisis" (p. 855).

ALTERED LIFESCAPES

The term "lifescape" refers in this study to the complexity of the spatial, emotional, and ethical dimensions of the relationship between landscape, livestock, farming, and rural communities. The mass slaughter—often of healthy animals taken out under the contiguous cull, "dangerous contact" rationales or simply misdiagnosed—was all the more horrific because of its being out of place and out of time (Convery et al., 2005). Indeed, Campbell and Lee (2003) state that one in three diagnoses appears to have been incorrect.

In describing the sensory overload of their experiences during the crisis, many respondents talked in apocalyptic terms, using images of war: "bizarre," "unbelievable," "surreal," "crazy," "mad," "chaos," "nightmare" occurred repeatedly in both diaries and interviews.

> Every farm you went to there was no hard and true way to do things … like you go to a slaughterhouse everything's set up. … You can't make it on a farm eh, not when you're expected to go 2 minutes, set up, ready, you just can't do it eh? … I dunno. It just sort of got to me like. You used to go to farms and grown men used to come and cry like. What do you say? I used to know a lot of them, well I still do, what do you say to them like? You just … sort of "I'm sorry." That's all you could do. (Respondent: Slaughterman, interview, February 2002)

After the United Kingdom was declared "FMD free" there began the invisible and heroic process of rebuilding "life's work:"

> Those farmers who survived FMD do not realise what it is like as restocked cows do not know their way to the fields, and just follow the leader. (Respondent: Woman farmer, diary, July 2003)

TRAUMA AND RECOVERY

The experience of having "life's work" destroyed was deeply traumatic both for those on the receiving end and—in a variety of ways also overlooked by official inquiries—for many of those frontline workers heavily involved in carrying out the slaughter and disposal.

Although many of these workers were local people whose livelihood had been severely curtailed by the FMD control strategies and who had practical knowledge of handling livestock, others were conscripted or seconded from a huge range of different occupations and parts of the world with very little prior training or preparation:

> They were literally taking anybody on but some people had no knowledge of livestock whatsoever … because, as far as they were concerned, we would be standing, in full waterproofs with a clipboard, at a gate directing traffic basically, licensing folk in and out, er, making sure they were disinfected properly, er, basically getting in the bloody road! (Respondent: Frontline worker, interview, February 2002)

> … the first farm I went on, and we were involved with people and animals, and this is a farmer whose, all his stock was in the process of being killed, his cattle have already been slaughtered, and I ended up with four other people, including the slaughterman rounding, rounding up black-faced sheep, in a field and pen them. Er, and there was a young Spanish vet, there, a young girl, and she was, she was in tears. Her remit was to preserve and enhance life, and that kind of brought it all back, and that was just, it was a kind of surreal experience. (Respondent: Seconded government agency field officer, diary, February 2002)

> I was supposed to be at the farm gate handing out licenses, but I was soon helping the vet hold down animals for slaughter, it was like that for the rest of the time … it's taken me months to fit back into my job, I still don't feel like I have properly. (Respondent: Field officer for DEFRA, interview, February 2002)

Deaville and Jones (2001, p. 7), commenting on the sustained mass killing experienced by many frontline workers, question if training or experience could provide adequate preparation for such work. Here a DEFRA field officer and a farmer emphasize the scale and nature of the mass culls and the incongruity of the work:

> It was the scale of the slaughter and the quality of stock being killed that saddened me … I did manage to lamb a few sheep while on a slaughter job, everyone thought I had gone mad when I told them, as they were all going to be killed later that day, but why should their last few hours have to be in pain? They were all killed later and the young lambs were injected straight into the heart. (Respondent, DEFRA field officer, interview, 2002)

> [It] was just like a conveyor belt really … there was about thirty cows due to calve in the next month, and they were all in two calving sheds, and they were just done where they stood, and dragged out. And there was a calf, and the slaughtermen had to draw straws on who shot the calf and they were absolutely devastated. (Respondent: Farmer, interview, February 2002)

FINDINGS AND RECOMMENDATIONS

Life after the epidemic was characterized by distress, feelings of bereavement, loss of trust in authority and systems of control, a sense of the undermining of the value of local knowledge, and—most important—fears about a new disaster. Many of these effects were reported throughout the 18-month diary-keeping period that followed the end of the epidemic. The scale of the disaster both within and beyond farming was greater than has been understood by policymakers. The Lancaster study showed the profoundly interdependent nature of human-animal, of farming and related industries, and of the rural economy itself. The study also made visible an important feature of traumatic experience: that the longer the exposure (in the 2001 FMD crisis, 8 months of outbreaks and 12 months of severe restrictions), the more lasting and complex the effects. For those who lost stock, the process of restocking has been a contradictory experience, bringing both renewal and sadness at the loss of often irreplaceable bloodlines. Respondents have spoken of injuries and a "loss of confidence" in handling the new cattle:

1. Calving difficulties increased because the "wrong bull" had been used;
2. Veterinarians commented on an increase in caesarean deliveries; and
3. Other calving difficulties and animal health problems such as bovine tuberculosis resulted from the import of new stock from other areas of the country (Convery et al., 2005).

> Saw a patient who was injured by a cow calving. It was new stock, having lost everything to FMD. It changed her. After 2 weeks in hospital with surgery, it will take her 6 months to physically fully recover. I don't think she'll ever have the same confidence—at present she doesn't want to calf again. …(Respondent: Community nurse, diary, March 2003)

The following study recommendations and their underpinning evidence have been detailed elsewhere (Mort et al., 2004).

1. Joint service/agency reviews of what counts as a disaster;
2. Closer working between health services and voluntary organizations;
3. Debriefing time and peer support for frontline disaster workers;
4. Agencies seconding frontline workers to record carefully the skills and expertise acquired and ensure ways to call on this in future;
5. Increased community involvement in disposal site management;
6. More flexible rural health outreach work in times of crisis;
7. Nonpathological approach to traumatic experience: people are not sick but do need help; and
8. Wider, more flexible access to regeneration funding.

That an FMD epidemic of the scale of 2001 could happen again in a developed country is a deeply worrying prospect, but it is to be hoped that contingency plans are evolving along with enhanced understanding of the human—as well as financial—cost.

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