

The impact of the foot and mouth outbreak on mental health and well-being in Wales

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The views expressed in this report are those of the authors and do not necessarily reflect those of the Welsh Assembly Government.

Copies of the interview schedules, the measurement tools and associated survey letters are available on the Institute of Rural Health web-site [www.rural-health.ac.uk].

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1. Introduction

- 1.1 This report presents the results of work commissioned by the Welsh Assembly Government into the impact on the mental health and well-being of people in Wales as a result of the foot and mouth disease (FMD) outbreak. The study was undertaken as part of the Assembly Government's programme to develop and test the use of health-impact assessment as an approach that can help to identify the connections between policy areas.
- 1.2 The first case of the disease was recorded on Anglesey on 27 February 2001 and following that date a further 117 cases were confirmed in Wales. Most cases were located in Powys (78 cases) with Monmouthshire (20 cases) and Anglesey (13 cases) also badly affected (details of the outbreak, subsequent management of the disease and the impact on the economy in Wales are detailed elsewhere ^{i, ii, iii}).
- 1.3 There is a paucity of literature on the human health impacts of foot and mouth disease from previous outbreaks in the UK. Most concentrate on the physical health impacts of the disease ^(iv). However, a small body of international literature exists which explores the total health impact of disasters and social crises. This literature reinforces the importance of examining the psychological effects of the outbreak on the population of Wales ^(v, vi). Consequently the aim of this study was to *characterise the nature and magnitude of the mental health impact of the foot and mouth situation*.

Broad outline of hazards to mental health from the foot and mouth disease outbreak

- 1.4 An initial scoping study was undertaken in Wales during Spring 2001 by the Institute of Rural Health (IRH) which aimed to outline broadly the possible health impacts that the outbreak was having on the people in Wales ^(vii). This initial study identified that the foot and mouth situation was having an impact on people's mental health which would continue for some time, possibly as long as two years.
- 1.5 It emerged that there are three groups in whom the psychological impact was most likely to be felt and that these should be the target groups for any future study. These were:
 - i) Agricultural businesses – farmers, their spouses and children, farm workers
 - ii) Other rural businesses – hoteliers, café and restaurant owners, individuals whose business requires access to agricultural land or markets, for example agricultural contractors
 - iii) Service providers – veterinary surgeons, farming union officials, slaughtermen, individuals involved in the clean-up operation, auctioneers, Defra, NAWAD and trading standards officials.

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- 1.6 The potential hazards varied slightly for each group. For individuals in agricultural businesses, hazards were related to emotional stress, and included bereavement over the loss of animals, concern over the welfare of animals, loss of control over their farm, financial worries (long and short-term), isolation and lack of activity. Hazards for the other rural businesses were largely related to stress over finance and debt, while for service providers hazards were related to long working hours and emotionally charged meetings with those affected by the outbreak.
 - 1.7 Despite the slight variation in potential hazards, the symptoms identified in the initial scoping study were broadly similar across the three groups and also reflect those noted in the literature examining psychological responses to disasters. Symptoms included tearfulness, lack of sleep, lack of appetite, increased anger, irritability and a general feeling of being down.
 - 1.8 The findings in the initial scoping study in Wales also tie in with findings emerging from elsewhere in the UK. A study in Cumbria by the Cumbria Stress Information Network examined the response made by agencies to the needs of those affected by the crisis ^(viii). Two key messages from that report supported findings from the scoping study in Wales. First, in Cumbria they felt that *'the crisis is nowhere near ending as far as the impact on the community is concerned'* and second *'there was a very high proportion of those in helping professions who have been directly affected by the crisis,'* meaning that staff were trying to support others at a time when they themselves had to cope with difficult personal circumstances.
 - 1.9 A rapid health impact assessment of foot and mouth disease in Devon ^(ix) identified significant impacts on mental health, the social structure in the community and on services. The report highlighted a potential increase in anxiety, stress, acute/chronic depression and suicide in the farming community, although it commented that levels could not be quantified at that stage. The study also noted the potential emergence of post-traumatic stress disorder among slaughtermen, and of special concerns for children. Again, the long-term mental health impact was raised as a concern.
 - 1.10 This broad agreement between the initial scoping study in Wales and other emerging studies in the UK on the groups of individuals at risk from the foot and mouth disease outbreak has validated the aims and selection of target groups for this study.

2. Methodology

Health impact assessment

- 2.1 The Welsh Assembly Government is committed to developing the use of health impact assessment to assist the development of an integrated approach to policies and programmes to reach a better understanding of the issues and developments that affect people's health and well-being. Health impact assessment has been defined in many ways. One of the most useful is the World Health Organisation (WHO) definition:

A combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of the population, and the distribution of these effects within the population ^(x).

- 2.2 This study follows the health impact assessment approach as laid out in a report by the National Assembly for Wales ^(xi) and summarised in Table 1 below.

Table 1. Stages used in this Health Impact Assessment

Stage	Nature of work	Status
1. Screening	Preliminary assessment to determine if the situation poses health questions	Completed through anecdotal evidence and internal Welsh Assembly Government discussion (March 2001)
2. Scoping	Process to outline broadly the possible hazards and benefits	Initial scoping study completed by IRH (8th May 2001)
3. Risk Assessment	Characterising the nature and magnitude of harmful and beneficial factors	This report (to be completed by 31st March 2002)
4. Decision Making	Consideration of the report to inform future decisions	Future work for the Welsh Assembly Government
5. Implementation and monitoring	Action to implement decisions and to observe the consequences	Future work for Welsh Assembly Government

- 2.3 It can be seen from Table 1 that this study forms the risk-assessment stage of the health impact assessment model. This study was a concurrent risk assessment conducted over a six month time period (1 October 2001 to 31 March 2002 inclusive) in which aspects of the management of the outbreak were still in operation. It was undertaken in a relatively short time due to the importance of minimising recall bias in the target groups.



Study areas

2.4 Two areas were selected for this risk assessment: Anglesey and Montgomeryshire (northern Powys). Both areas had been considerably affected by the outbreak. On Anglesey, although there were fewer cases of the disease than in Montgomeryshire, many farms were affected by a mass livestock cull of contiguous farms. In Montgomeryshire, there were infected, contiguously culled and restricted farms. Consequently, the two target areas for this study contained farms from across all categories of farm businesses affected by the outbreak. Importantly for this study, the target areas were homogenous in terms of key factors (social, agricultural and health service factors). This meant that data for the two study areas can be combined in the data analysis.

Research questions

- 2.5** The following research questions were defined for this study in order to cover issues that could relate directly or indirectly to the impact on people's mental health as a result of the outbreak of foot and mouth disease:
- i.** What is the current foot and mouth status of Anglesey (Ynys Môn) and Montgomeryshire?
 - ii.** What has been the profile of demand on statutory and voluntary services in the two study areas in the 12 months prior to and during the foot and mouth situation?
 - iii.** Have statutory and voluntary services in Anglesey and Montgomeryshire altered or developed their services to meet the needs of individuals and communities affected by the outbreak of foot and mouth disease?
 - iv.** What are the experiences and perceptions held by the selected target groups of the management of the situation created by foot and mouth disease in the two study areas?
 - v.** What is the nature of the impact of the foot and mouth outbreak on the mental health and well-being of the target groups?
 - vi.** What is the magnitude of the impact of the outbreak of foot and mouth disease on the mental health and well-being on the target groups?
 - vii.** What is the level of anxiety and depression in the target groups?
 - viii.** What sources of help and information are used by target groups?
 - ix.** What are the likely medium and long-term health impacts following the outbreak of foot and mouth disease?



Study design

2.6 The study followed five main stages as follows:

Stage 1: Setting the context

2.7 Background research has been undertaken on the impact of the outbreak of foot and mouth disease on the support agencies in Wales. This provided detailed information on the level of 'need' for support as expressed through the utilisation of services. Information was collated in two ways:

1. Secondary data from agencies in Wales on the uptake of services as a result of the outbreak (for example NHS Direct and the Wales Rural Stress Helpline).
2. A postal survey to gather information on the impact of the disease on workload in primary care in Anglesey and Powys. An initial survey was conducted by IRH in Powys over Easter 2001 during the initial phases of the outbreak. This postal survey was repeated in January 2002 in Powys and Anglesey to provide comparative data for this report. Questionnaires were sent to each practice in Anglesey and Powys and responses invited from all members of the primary care team. The survey was not statistically representative of all practice staff in Anglesey and Powys and therefore statistical significance for the results does not apply. However the data provided background information about the perceived impact on primary care.

Stage 2: Interviews with the target groups

2.8 Interviews with the target groups took place over a 16-week period from mid November 2001 to early February 2002. For the purposes of the analysis, 90 interviews were required in total, consisting of 30 interviews in each of the three target groups across the two study areas of Anglesey and Montgomeryshire (that is 15 interviews in each target group in each study area – 45 interviews in total in each area). The rationale for the selection of 30 within each group was on the basis that the binominal distributions will be approximately normal for sample sizes greater than 25. Two local researchers undertook the field work for this study, one located in Anglesey and another in Powys.



Sampling of interviewees

- 2.9** A database was set up for each study area, with contact names, addresses and phone numbers for potential interviewees in each target group. Contact details were obtained as follows:
- i)** Agricultural businesses: A list of infected farms for each of the target areas was available from the Welsh Assembly Government website and entered onto the study database. The list was mapped on Ordnance Survey maps and contiguous farms identified through tracing farm names in Yellow Pages and Telephone Directories. Directories were also used to identify farms that were in restricted areas but not culled.
 - ii)** Other rural businesses: Information was obtained from the National Association of Citizen's Advice Bureaux to give an overview of the types of businesses affected by the outbreak and seeking help. This typology has been used to sample businesses from Directories in the two study areas.
 - iii)** Service providers: Contact details for service providers from the categories of agencies involved in managing the outbreak identified in the initial scoping study were also included on the database.

Recruitment of interviewees

- 2.10** A random selection of people from the database was sent an introductory letter and an information sheet about the study. A follow-up call was then made by the local researcher to gain verbal consent for an interview and to arrange an appointment. This process was repeated until the required number of interviews had been achieved. Interviews were conducted at the homes, business premises or offices of the interviewees.
- 2.11** Seventy-eight people declined to be interviewed – 45 from the Anglesey area and 33 from Montgomeryshire. Refusals from 37 non-agricultural businesses represented the largest group. Of those, ten did not wish to participate, nine did not respond, eight felt that they had not been affected and seven felt they were too busy or had more important issues of ill health and death within the family. Twenty-four members of agricultural businesses declined to be interviewed, of whom 13 did not wish to participate, citing reasons of not wanting the attention, not wanting to discuss the topic, and being too upset. The reason cited most frequently by nine of the 17 service providers who declined an interview was that they were too busy.
- 2.12** The people who excluded themselves from the farming community were in some cases too distressed to participate and it was considered unethical to insist on an interview. Those from the non-agricultural businesses were in some cases not directly influenced by the foot and mouth outbreak.



The Interview

2.13 The interviews were conducted in Welsh or English as appropriate and interviews were taped if permission had been given. The interview consisted of a semi-structured interview schedule, which was administered by the local researcher and aimed at gathering a range of qualitative information on the interviewees' experiences of the outbreak. After the interview, the interviewee was asked to fill in two separate validated questionnaires (SF36 and Hospital Anxiety and Depression Scale) to measure different aspects of health, anxiety and depression. The length of interviews varied from 15 minutes to three hours with the average interview lasting one hour.

SF36 measure

2.14 The SF36 is a non-disease-specific generic measure that assesses physical and mental health experienced over the previous four weeks. It is an internationally used tool and a wealth of comparative data exists. Importantly for this study, the SF36 was used for the Welsh Health Survey and therefore reference data exist for the Welsh population. It provides a reliable general measure of the physical and mental health status of the interviewee. A measure of physical health is important due to the relationship it has with mental health. A key message from the initial scoping study was that mental-health problems can lead to physical health problems or vice versa over time, therefore the SF36 will provide important information on this aspect.

Hospital Anxiety and Depression Scale (HAD)

2.15 A review of appropriate tools for measuring psychiatric morbidity in farmers ^(xii) has highlighted the relevance of the HAD due to good results for reliability and validity and because it has been used in a study examining missed psychiatric morbidity in farmers ^(xiii). An additional benefit in relation to its combined use with the SF36 is that the HAD measures depression and anxiety independently from physical illness. Therefore the HAD will provide information to disentangle mental from physical illness. For analysis, the following cut-offs were used: 0-7 normal; 8-10 mild; 11-14 moderate; 15-21 severe.

Stage 3: Data analysis and report writing

2.16 Data were anonymised and kept according to data protection legislation. Data from the SF36 and HAD has been analysed using Statistical Package for the Social Sciences (SPSS). Exact tests and Chi-square tests of independence and goodness of fit tests of reliability have been employed alongside summary statistics to investigate variability between different target groups and their deviations from national norms. Cronbach Alpha Co-efficients were used to examine the internal reliability of responses to the SF36 to the various questions.

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- 2.17 Data from the interviews (from hand written notes and tapes) were transcribed and analysed using a qualitative analysis package (QSR Nvivo). Inter-rater reliability checks were carried out to test for internal rigour in the analysis of the data.

Stage 4: Preparation final draft report

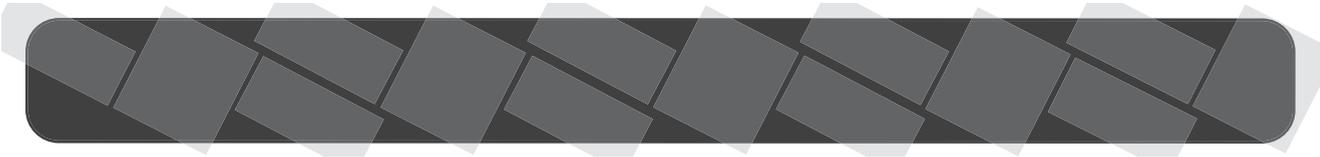
- 2.18 A final draft report was considered by an advisory panel, and their comments were taken into account in the preparation of the final report submitted to the Welsh Assembly Government.

Stage 5: Peer review

- 2.19 Given that the study was undertaken as part of the Assembly Government's programme to develop and test the use of the health impact assessment, the draft report was submitted for peer review. This process extended considerably the time taken to finalise the report.

Ethical considerations

- 2.20 It was recognised at the conception of this study that interviewing individuals about experiences related to the disease outbreak might cause distress. To minimise the risk of any detrimental effects as a direct result of this study the following steps were taken:
- Informed consent was obtained from individuals prior to interview
 - No children were recruited to the study
 - The two local researchers have backgrounds in mental health nursing and community psychiatric nursing and were prepared to discuss any arising health concerns with interviewees, and were also prepared to suggest suitable sources of advice (for example the GP)
 - The language needs of Welsh-speaking interviewees were accommodated therefore reducing any potential stress associated with expressing emotions or feelings through a second language.
- 2.21 Ethical approval was granted from Dyfed Powys and North West Wales Local Research Ethical Committees for this study.
- 2.22 There were also considerations related to the impact on the local researchers of carrying out interviews, which could have been upsetting. Debriefing support was available to both local researchers at all times by telephone from other members of the research team, in addition to regular audio conferences at which experiences were shared. Co-counselling and ethical supervision was not considered to be necessary, but would have been made available if the need had arisen.



3. The impact on services

- 3.1 The following section presents and discusses data gathered from a range of agencies to provide more detail on the level of expressed need as a direct result of the foot and mouth disease outbreak.

The impact on primary care

- 3.2 The initial scoping study suggested that at the time (Spring 2001) individuals were seeking help from agencies that could provide practical advice and solutions for their situation. For example, financial advice was sought from the Citizens' Advice Bureaux and grants from the ARC Addington Fund (a charitable grant-giving organisation under the Arthur Rank Centre¹). The mental health impact had filtered through only a small degree to primary care (and even less to mental-health services).
- 3.3 The initial postal survey to primary care providers in Powys, conducted over Easter 2001, received 59 responses and found that the majority of respondents felt their workload had stayed the same. Some respondents noted an increase in the number of requests for appointments (11.9 per cent), travel difficulties in carrying out work (23.7 per cent); patients seeking general information by phone (33.9 per cent) and in the demand for repeat prescriptions (10.2 per cent).
- 3.4 The follow-up survey undertaken for this study had a response of 45 (21 from Anglesey and 24 from Powys). The survey asked primary care providers in Anglesey what the impact on workload was for the same period from the start of the outbreak to Easter 2001. A far greater impact was felt by respondents in comparison to the Powys sample, with 56.5 per cent noting an increase in travel difficulties in carrying out work and 69.6 per cent having an increased workload due to patients seeking general information by phone. Table 2 shows a comparison of the data for Anglesey and Powys in workload up to Easter 2001 and after the Easter period.
- 3.5 Caution must be taken in comparing the results, in that there may be recall bias in the Anglesey sample (the data for Powys were collected over Easter 2001, while the data for Anglesey were collected as part of this study). Nevertheless they show a large difference in the impact on workload experienced. A greater proportion of respondents in Anglesey stated that there were more infected farms (78 per cent) and culled farms (69.5 per cent) in their practice areas than in Powys (57.7 per cent and 65.3 per cent respectively) consequently there could have been a greater need for input from primary care among the practice population in Anglesey.

¹The Arthur Rank Centre is an ecumenical partnership between the churches, the Royal Agricultural Society of England and the Rank Foundation. It is the hub of Christian concern for the well-being of rural people. www.arthurrankcentre.org.uk

Table 2. Proportion of service providers noting an increase in workload before and after Easter 2001

Aspect of workload increase	Powys		Anglesey	
	before	after	before	after
Number of requests for appointments	7 (11.9%)	5 (19.2%)	6 (26%)	5 (21.7%)
Number of requests for visits	1 (1.7%)	2 (7.7%)	2 (8.6%)	1 (4.3%)
Travel difficulties in carrying out work	14 (23.7%)	12 (46.2%)	13 (56.5%)	7 (30.4%)
Patients seeking general information by phone	16 (27.1%)	10 (38.5%)	16 (69.6%)	6 (26.1%)
Patients requiring emotional support by phone	20 (33.9%)	8 (30.8%)	9 (39.1%)	3 (13%)
Demand for repeat prescriptions	6 (10.2%)	6 (23.1%)	7 (30.4%)	2 (8.7%)

3.6 Interestingly, the impact on workload became greater with time for Powys and less in Anglesey after Easter. This is possibly related to the number and profile of infected cases that occurred over time in the two counties. There were 13 cases in Anglesey, the majority (10) of which were recorded prior to Easter 2001. In Powys of the 78 total cases, 35 cases were recorded post-Easter 2001. This therefore potentially explains the increase in the impact on primary care workload in Powys after this time in comparison to Anglesey. It would be pertinent to assess the continued impact on workload in primary care as a result of long-term problems related to foot and mouth disease.

3.7 The greatest impact on both counties after Easter related to travel difficulties in carrying out work. One GP in Powys explained this by reporting

'The main increase was in telephone support and referral to help agencies. Travel difficulties were simply in terms of having to park distances from farm gates, disinfect boots and walk to the farm.'

3.8 The situation also had a direct impact on the workload of primary care staff due to their own personal circumstances. For a Community Nurse in Anglesey

'My workload increased as two colleagues out of a team of three were unable to carry out home visits to farmers as they lived on farms themselves. This meant that for a period of approximately 4 to 6 weeks I worked every other weekend, this was stressful and affected my own family life.'

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- 3.9** The above statement highlights an important issue that staff working in rural areas are potentially affected by the same problems they are trying to alleviate.
- 3.10** Respondents gave some indication of the impact of the outbreak on the health of their patients. As a direct result of the outbreak, 18.5 per cent of respondents noted a change in prescription patterns or the management of patients.
- 3.11** Respondents were asked if they had introduced any new actions to support their patients affected by the foot and mouth outbreak. Only two respondents (4.4 per cent) said that they had done so, either through allowing patients to order repeat prescriptions over the phone or by increasing the amount of information on support groups and relevant agencies displayed in the waiting room. One GP in Powys responded stating

'Farmers and families battled on without any help from us.'

- 3.12** It appears from these data that the impact of the outbreak was for some patients expressed in terms of contact with primary care. Not only did work levels increase for certain primary care staff but personal circumstances (for example, living on a farm) meant increased difficulties and increased workloads for some. Primary care seemed to respond flexibly in relation to assisting patients with travel difficulties (either by taking queries or by allowing repeat prescriptions over the phone) and in identifying vulnerable families, but this was done in the normal way of working rather than through additional initiatives to support proactively the individuals affected by foot and mouth disease.

'...not a new initiative, but we had a supportive way of working' (Health Visitor, Powys).

The impact on other services

- 3.13** Data were sought from other agencies identified in the initial scoping study that had been supporting individuals affected by the outbreak. Unfortunately the data were less informative than had been anticipated, largely due to the inability to separate inquiries as a result of foot and mouth disease or to identify data relevant to Wales. The following is a summary of available data.

Wales Rural Stress Helpline

3.14 The Wales Rural Stress Helpline was set up by the Welsh Assembly Government as a direct response to the outbreak of foot and mouth disease. It provides an anonymous and confidential service giving advice to people on sources of information for their particular problem. Data were available from the Wales Rural Stress Helpline on the nature of calls received between 1 March 2001 and 28 February 2002. There were 532 calls in total with a steady increase being evident over time within this 12-month period. In the first quarter (1 March to 31 May 2001), 15.6 per cent of the calls were received with subsequent quarters recording 25.6 per cent, 26.3 per cent and 32.5 per cent of the 12-month total. It is difficult to attribute the increase in calls entirely to the foot and mouth disease outbreak as the helpline was formally launched in March 2001 and awareness is also likely to have increased with time. Data for the 532 calls are provided in over 60 sub-categories by subject. Of direct relevance to this study, it is known that of the 532 calls, 16 were categorised as being directly related to the foot and mouth situation with a further 57 related to rural problems, 33 related to farming problems, 19 related to stress and 6 related to suicide. The remaining 401 calls were categorised under a variety of other headings which could also have included calls which were indirectly related to the foot and mouth outbreak, so it was difficult to draw conclusions about the impact of the outbreak on the service. However, there appears to be a need for support related to rural and farming issues which is expressed in calls to this helpline.

ARC Addington Fund

3.15 The Addington Fund was originally set up in response to Swine Fever in East Anglia in 2000. When the outbreak of foot and mouth disease started the fund was re-activated under the administration of the Arthur Rank Centre to bring about *'the relief of poverty suffered by those employed in the agricultural and kindred industries brought about by the effects of the foot and mouth disease epidemic'*. Consequently grants are available not only to farmers but also to those in rural communities whose living depends on farming, for example contract sheep shearers, blacksmiths, hauliers. Data on the total number of grants for Great Britain, Wales and Powys (from reactivation of the fund to 8th March 2002) are available in Table 3.

Table 3. Detail on grants made by ARC Addington Fund

	Great Britain	Wales	Powys
Total number of enquiries	21,915	5,006	2,065
Number of grants	21,764	4,974	2,058
Number pending	151	32	7
Value of grants	£9,968,835	£2,319,214	£969,909
Average value of grant	£458	£466	£471

- 3.16** Wales received 22.8 per cent of all grants given in the UK, and Powys received 41 per cent of grants given in Wales. The higher proportion of grants given in Powys reflects the greater extent to which Powys was affected by the disease in Wales. Grants are made to help with costs such as veterinary bills and animal fodder and are assessed on an individual basis. The average value of grants is slightly higher in Wales and in Powys than in Great Britain.

Royal Agricultural Benevolent Institution

- 3.17** The Royal Agricultural Benevolent Institution supports retired and working farmers with costs such as household bills, the costs of home help, or to 'top up' care-home fees. The original emergency fund exists to meet temporary and unforeseen crises, but does not meet business debts. The Foot and Mouth fund was set up in 2001 and as of February 2002 had paid out more than £9,000,000 across the UK.
- 3.18** Table 4 shows the increase in payments in all areas of Wales in the 12 months after the initial outbreak of foot and mouth disease. The greatest increase has been in Powys and Gwynedd, the two areas most affected by the outbreak.

Table 4. Grants made in Wales 12 months prior to and after outbreak of foot and mouth disease.

	To year end Feb 2001		To year end Feb 2002	
	All payments	FMD payments	All payments	FMD payments
Gwynedd	32 880	0	581 533	545 460
Denbigh/Flint	25 599	0	388 400	361 307
Dyfed	261 401	0	643 915	427 754
Powys	73 498	0	783 290	713 453
Glamorgan	6 821	0	44 977	39 016
Gwent	14 582	0	117 202	105 493
Total	414 783	0	2 559 218	2 192 485

(Montgomeryshire figures are in the total for Powys, and Anglesey figures are in the total for Gwynedd)



Powys Rural Support Network

3.19 Powys Rural Support Network was set up as a direct response by local people to the outbreak of the disease in the county. It is run from two offices, Newtown and Builth Wells, and provides a listening and signposting service. The single helpline number was launched in July 2001, but until that date phone calls were taken at a variety of locations. Data on the uptake of calls were not routinely collected from the opening of the helpline as many of the calls were taken by volunteers at their place of work or at home. The following is an overview of the calls that have been logged routinely.

Table 5. Logged calls by Powys Rural Support Network

Month	Number of calls logged
May 2001	11
June 2001	10
July 2001	30
August 2001	13
September 2001	14
October 2001	12
November 2001	6
December 2001	4
January 2002	8
February 2002	3

3.20 The data show a continued reduction in phone calls since the height of the outbreak. This could reflect a reduction in need over time but it could also be confounded by a reduction in the media attention and profile of helplines over time.



NHS Direct

3.21 NHS Direct, a telephone advisory service, was not in operation across the whole of Wales at the start of the outbreak of foot and mouth. In addition, data were not easily available by geographical area and so there were limited statistics for examining the impact of situation on uptake of NHS Direct.

Rural Emergency Citizen's Advice Bureau (CAB)

3.22 The Rural Emergency CAB was set up in direct response to the need for a nationally run money-advice service for the rural business community during the outbreak. In the initial three months (to 20 June 2001) there were 1,346 enquiries averaging 89 per week. Unfortunately, there was no breakdown of data by country and therefore no data for Wales. The type of advice sought reflected that noted in the initial scoping study ^(vii) with inquiries about benefits, debt, employment, housing and other legal issues ^(xiv).

Summary

3.23 Organisations such as the Rural Stress Information Network and the Samaritans do not collect data on the area of residence of callers because of issues of confidentiality, so no data for Wales are available. Other statutory agencies such as Social Services could not provide specific data on the impact on their services. However, Social Services in Anglesey reported that although there was no significant increase in demand for services the situation did affect the delivery of services such as home care and day services in rural areas.

3.24 It must be commented that data on the utilisation of services only measure expressed need and so are of limited value in measuring the magnitude of the health impacts of the outbreak of the disease. Concern was expressed in the initial scoping study that there are many individuals who have not sought help from any professional agencies and are either relying on informal networks of family and friends for support or are coping alone. The data can illustrate the impact on the workload of the agencies themselves (itself a cause for concern identified in the initial scoping study) and also provide a profile of the kinds of issues being faced by individuals who are using their service.



4. The impact on the target groups – SF36 and HAD

4.1 During the interviews a range of quantitative data was gathered and is presented here. Of the 90 people interviewed, 58 were male and 32 were female. The majority of those interviewed were in the 45-64 year age group (Table 6).

Table 6. The age breakdown of the total sample

Age range	Numbered interviewed %
18-24	1 (1.1%)
25-44	31 (34.4%)
45-64	50 (55.6%)
>65	8 (8.9%)

The results from the SF36

4.2 Respondents completed the validated survey instrument SF36, which was constructed to measure eight of the most important health dimensions. Cronbach Alpha Co-efficients for the SF36 dimensions were found to be high, demonstrating the reliability of the responses (Table 7).

Table 7. Number of questions within each dimension of the SF36 and the Cronbach Alpha Co-efficients of the respondents

SF36 Dimensions	No of questions in each dimension	Cronbach Alpha Co-efficients
Physical Functioning	10	0.93
Role – Physical	4	0.87
Role – Mental	3	0.83
Social Functioning	2	0.75
Mental Health	5	0.78
Energy	4	0.86
Pain	2	0.88
Health Perception	5	0.85

4.3 The results for the sample in this survey have been compared with the samples from Anglesey and Powys from the Welsh Health Survey (WHS). It can be seen in Table 8 that there were significantly lower levels in the dimension of role emotional in both of the sample populations within Anglesey ($p=0.005$) and Powys ($p=0.018$) compared with the general population in the WHS. Even though non-significant, the levels in the population in Anglesey were also lower for general health and vitality.

Table 8. Comparison of the SF36 responses to the responses from the Welsh Health Survey for Anglesey and Powys

Dimension	Anglesey mean (sd) WHS	Anglesey study sample mean (sd)	P value	Powys mean (sd) WHS	Powys study sample mean (sd)	P value
Physical functioning	76.6 (31.6)	83.3 (23.8)	0.245	80.4 (27.8)	88.1 (19.7)	0.131
Role physical	74.8 (40.1)	67.8 (41.2)	0.364	76.7 (38.6)	69.3 (36.9)	0.319
Bodily pain	71.3 (28.7)	77.8 (26.4)	0.223	72.1 (27.0)	74.5 (29.7)	0.629
General health	70.5 (22.7)	63.0 (23.7)	0.09	69.3 (22.1)	70.1 (21.9)	0.847
Vitality	61.6 (21.1)	54.0 (23.7)	0.077	59.2 (22.2)	57.6 (20.2)	0.712
Social functioning	79.9 (27.5)	80.3 (26.3)	0.938	81.0 (26.5)	76.4 (25.7)	0.359
Role emotional	85.2 (32.2)	67.4 (42.9)	0.005*	82.4 (34.1)	66.7 (38.0)	0.018*
Mental health	74.9 (17.3)	72.4 (16.5)	0.444	74.3 (18.4)	72.8 (18.4)	0.670

* significantly different from their population counterpart

4.4 Table 9 presents the analysis of the SF36 but with the target groups separated shows that within the dimensions of physical functioning, social functioning and bodily pain it is the service-provider group that has significantly higher mean scores (therefore they have better health in these dimensions than the rest of the sample). However, for all three target groups the mean scores are significantly higher for the vitality and mental-health dimensions. Within all three groups the mean scores were significantly lower for the general health dimension compared to the Welsh Health Survey for North Wales.

Table 9. The eight dimensions of the SF36 – analysis by target group

					95% Confidence Interval for Mean	
	SF36	Category	Mean	Significance	Upper Bound	Lower Bound
Physical functioning	77.9	farm business	84.82	Not sig.	92.05	77.60
		other rural business	77.86	Not sig.	89.40	66.32
		service provider	93.97	P<0.05	98.88	89.05
Role physical	76.1	farm business	58.93	Not sig.	76.07	41.79
		other rural business	63.39	Not sig.	79.11	47.68
		service provider	81.03	Not sig.	92.59	69.48
Body pain	70.5	farm business	74.60	Not sig.	86.38	62.83
		other rural business	73.81	Not sig.	84.95	62.67
		service provider	83.52	P<0.05	92.17	74.88
Vitality	58.5	farm business	78.98	P<0.05	83.51	74.35
		other rural business	76.61	P<0.05	82.04	71.17
		service provider	80.86	P<0.05	85.35	76.37
General health	68.2	farm business	50.89	P<0.05	54.40	47.39
		other rural business	55.36	P<0.05	58.85	51.86
		service provider	52.93	P<0.05	56.40	49.46
Social functioning	78.7	farm business	70.98	Not sig.	80.68	61.28
		other rural business	76.34	Not sig.	87.40	65.28
		service provider	90.52	P<0.05	97.08	83.96
Role emotional	82.9	farm business	64.29	P<0.05	81.49	47.08
		other rural business	53.57	P<0.05	69.82	37.32
		service provider	85.06	Not sig.	95.55	74.57
Mental health	73.6	farm business	81.57	P<0.05	84.96	78.19
		other rural business	79.86	P<0.05	84.90	74.82
		service provider	85.38	P<0.05	88.02	82.74

4.5 Table 10 shows the breakdown by gender for each of the dimensions. For role physical, body pain, general health, social functioning and mental-health, there is no gender split with both males' and females' scores comparable to those of the general population. However, gender split could be found for physical functioning, vitality and role emotional. In the former, physical functioning, females in the area of Powys scored significantly higher than the local population ($p=0.041$). For vitality males scored significantly lower in Anglesey ($p=0.037$). In the latter, role emotional, both males ($p=0.041$) and females ($p=0.007$) from the Anglesey area scored significantly lower than their local population while only males ($p=0.002$) from the Powys area scored significantly lower than their local population.

Table 10. The eight dimensions of the SF36 proportionally adjusted analysis by gender

Dimension	Gender	Anglesey mean (sd)	Our Anglesey sample mean (sd)	P value	Powys mean (sd)	Our Powys sample mean (sd)	P value
Physical functioning	Male	79.8 (30.2)	81.9 (26.3)	0.730	83.0 (25.8)	84.6 (22.1)	0.774
	Female	73.7 (32.6)	86.4 (17.5)	0.173	77.9 (29.5)	94.1 (12.9)	0.041*
Role physical	Male	76.3 (39.2)	66.9 (41.5)	0.275	77.6 (37.8)	66.1 (37.4)	0.178
	Female	73.4 (40.9)	69.6 (41.8)	0.753	75.8 (39.4)	75.0 (36.5)	0.941
Bodily pain	Male	72.4 (29.1)	77.8 (27.6)	0.378	72.6 (26.9)	71.6 (31.1)	0.866
	Female	70.3 (28.3)	77.9 (24.6)	0.358	71.5 (27.1)	79.6 (27.4)	0.273
General health	Male	69.8 (23.1)	63.4 (24.2)	0.211	68.9 (22.6)	66.3 (20.0)	0.618
	Female	71.2 (22.2)	62.1 (23.3)	0.166	69.7 (21.7)	76.3 (24.0)	0.269
Vitality	Male	64.1 (20.6)	54.2 (24.2)	0.037*	61.7 (22.0)	55.7 (23.3)	0.244
	Female	59.3 (21.3)	53.6 (23.6)	0.368	56.8 (22.2)	60.9 (12.9)	0.508

Social functioning	Male	81.0 (27.2)	84.7 (24.5)	0.514	82.0 (26.3)	71.0 (27.0)	0.060
	Female	78.9 (27.7)	70.5 (28.4)	0.304	79.9 (26.7)	85.9 (20.9)	0.407
Role emotional	Male	86.0 (30.9)	72.0 (40.5)	0.041*	85.2 (31.6)	63.1 (39.9)	0.002*
	Female	84.3 (33.3)	57.1 (47.9)	0.007*	79.6 (36.3)	72.9 (34.9)	0.505
Mental health	Male	77.2 (16.8)	76.1 (13.9)	0.773	75.8 (18.0)	71.4 (21.6)	0.272
	Female	72.8 (17.5)	64.0 (19.0)	0.090	72.7 (18.7)	75.3 (11.0)	0.621

4.6 The results shown in table 11, analysed by age group, have been proportionally adjusted to the results from the WHS. Again, there is no significant split in either physical function, body pain, general health, vitality and mental health for different age groups from the general population in both areas. However, the 25-44 age group from the Powys area scored significantly lower than their local population in role physical. In case of social functioning, the 45-64 age-group scored significantly lower ($p=0.022$) than their local population, while the 65 and over age-group scored significantly higher ($p<0.001$) than their local population. Furthermore, in the case of role emotional, the 45-64 ($p=0.001$) age-group from both areas scored significantly lower than their local populations.

Table 11. The eight dimensions of the SF36 proportionally adjusted analysis by age group

Dimension	Age groups	Anglesey mean (sd)	Our Anglesey sample mean (sd)	P value	Powys mean (sd)	Our Powys sample mean (sd)	P value
Physical functioning	25-44	91.1 (20.4)	92.2 (16.2)	0.847	91.1 (17.5)	94.3 (11.2)	0.523
	45-64	76.2 (29.2)	82.5 (22.8)	0.362	81.9 (24.7)	89.5 (13.8)	0.147
	65 & over	49.7 (34.0)	60.0 (32.6)	0.479	56.4 (33.0)	25.0 (35.4)	0.196
Role physical	25-44	90.3 (27.0)	84.4 (28.7)	0.419	87.4 (29.4)	64.3 (42.4)	0.010*
	45-64	72.0 (41.2)	60.2 (43.4)	0.253	76.6 (38.5)	73.2 (32.6)	0.694
	65 & over	45.0 (45.9)	45.8 (51.0)	0.966	49.9 (45.4)	50.0 (70.7)	0.999



Bodily pain	25-44	81.8 (23.5)	87.4 (22.2)	0.380	78.8 (24.7)	74.0 (27.7)	0.503
	45-64	67.3 (29.1)	74.2 (27.3)	0.324	69.8 (26.6)	75.4 (30.7)	0.340
	65 & over	58.7 (30.0)	61.8 (27.3)	0.808	62.3 (27.3)	65.5 (48.8)	0.925
General health	25-44	76.8 (18.8)	70.0 (21.7)	0.198	74.4 (20.2)	72.2 (24.5)	0.709
	45-64	67.8 (24.0)	63.4 (22.9)	0.458	68.1 (21.7)	70.7 (18.6)	0.606
	65 & over	59.6 (23.2)	47.3 (27.1)	0.228	59.6 (22.7)	47.4 (46.0)	0.711
Vitality	25-44	64.4 (18.3)	60.9 (24.0)	0.511	60.7 (21.2)	59.6 (13.5)	0.871
	45-64	60.2 (22.4)	51.8 (22.7)	0.145	59.0 (23.2)	56.4 (22.1)	0.634
	65 & over	54.1 (22.7)	46.7 (27.3)	0.454	56.3 (22.0)	60.0 (42.4)	0.903
Social functioning	25-44	86.0 (22.6)	90.6 (14.1)	0.442	82.9 (25.3)	87.5 (18.3)	0.526
	45-64	79.0 (27.8)	73.3 (32.3)	0.402	82.2 (25.1)	69.2 (27.1)	0.022*
	65 & over	69.0 (32.7)	81.3 (22.0)	0.375	76.2 (29.6)	100.0 (0.0)	<0.001*
Role emotional	25-44	89.6 (27.9)	85.4 (32.1)	0.590	85.8 (30.4)	83.3 (28.5)	0.778
	45-64	84.5 (32.5)	56.1 (45.3)	0.001*	83.8 (32.8)	59.5 (38.9)	0.001*
	65 & over	77.3 (39.6)	66.7 (51.6)	0.535	75.9 (40.0)	50.0 (70.7)	0.606
Mental health	25-44	73.8 (16.9)	77.8 (12.4)	0.389	73.0 (18.3)	78.9 (9.6)	0.262
	45-64	75.0 (17.2)	68.9 (17.8)	0.149	74.3 (18.5)	70.6 (20.1)	0.378
	65 & over	74.5 (18.1)	76.7 (12.8)	0.777	77.3 (17.1)	60.0 (39.6)	0.538

The results from the Hospital Anxiety and Depression Scale (HAD)

4.7 The HAD has been used as a measure of the level of anxiety and depression in the study group. The Cronbach Alpha Co-efficients for internal reliability tests for the HAD results are at acceptable levels (Cronbach's Alpha = 0.8585 for Anxiety and = 0.6980 for Depression).

Depression scores

4.8 The data in Table 12 show that overall, 42 (47.8 per cent) of the respondents had either mild, moderate or severe depression. This was equally spread between the agricultural business and other rural business target groups (16 in each) with fewer in the service providers group (10).

Table 12. Depression Scores by Target group

Depression Score	Agricultural business	Other Rural business	Service providers	Total
Normal	13 (44.8%)	14 (46.7%)	19 (65.5%)	46 (52.3%)
Mild	10 (34.5%)	10 (33.3%)	7 (24.1%)	27 (30.7%)
Moderate	5 (17.2%)	4 (13.3%)	1 (3.4%)	10 (11.4%)
Severe	1 (3.4%)	2 (6.6%)	2 (6.8%)	5 (5.7%)
Total	29 (100%)	30 (100%)	29 (100%)	88 (100%)

4.9 Table 13 shows a slight gender difference with a slightly higher proportion of women (50 per cent) being depressed (mild, moderate or severe) and 46.6 per cent of males either mild, moderately or severely depressed. A non-significantly higher proportion of males is found in the more severe categories.

Table 13. Depression Score by Gender

Depression Score	Male	Female	Total
Normal	31 (53.4%)	15 (50%)	46 (52.3%)
Mild	16 (27.6%)	11 (36.7%)	27 (30.7%)
Moderate	7 (12.1%)	3 (10%)	10 (11.4%)
Severe	4 (6.9%)	1 (3.3%)	5 (5.7%)
Total	58 (100%)	30 (100%)	88 (100%)

4.10 It was found that 54.1 per cent of the 45-64 age group have had either mild, moderate or severe depression (table 14). This compares with 34.3 per cent in the younger age group and 62.5 per cent in the older age group. The relationship between age and depression is statistically 'significant' ($\chi^2 = 16.96, P=0.009$).

Table 14. Depression Score by age group

Depression Score	18-44	45-64	> 64	Total
Normal	21(65.6%)	22 (45.8%)	3 (37.5%)	46 (52.3%)
Mild	9 (28.1%)	17 (35.4%)	1 (12.5%)	27 (30.7%)
Moderate	1 (3.1%)	5 (10.4%)	4 (50%)	10 (11.4%)
Severe	1 (3.1%)	4 (8.3%)	0	5 (5.7%)
Total	32 (100%)	48 (100%)	8 (100%)	88 (100%)

Anxiety scores

4.11 Table 15 shows the anxiety scores by target group. It shows that 33 (37.5 per cent) have either mild, moderate or severe anxiety. Similar to the scores for depression, this is evenly distributed among the agricultural and other rural businesses (13 in each) with slightly fewer in the service-providers group (7).

Table 15. Anxiety Score by Target group

Anxiety Score	Agricultural business	Other Rural business	Service providers	Total
Normal	16 (55.2%)	17 (56.7%)	22 (75.9%)	55 (62.5%)
Mild	6 (20.7%)	7 (23.3%)	4 (13.8%)	17 (19.3%)
Moderate	5 (17.2%)	2 (6.7%)	2 (6.9%)	9 (10.2%)
Severe	2 (6.9%)	4 (13.3%)	1 (3.4%)	7 (7.95%)
Total	29 (100%)	30 (100%)	29 (100%)	88 (100%)

4.12 Table 16 shows the breakdown by gender. Again, there is a higher proportion of anxiety in females (46.6 per cent) than in males (32.7 per cent).

Table 16. Anxiety Score by Gender

Depression Score	Male	Female	Total
Normal	39 (67.2%)	16 (53.3%)	55 (62.5%)
Mild	10 (17.2%)	7 (23.3%)	17 (19.3%)
Moderate	5 (8.6%)	4 (13.3%)	9 (10.2%)
Severe	4 (6.9%)	3 (10%)	7 (7.95%)
Total	58 (100%)	30 (100%)	88 (100%)

4.13 Table 17 shows that the greatest proportion of anxiety is in the 45-64 age group (45.8 per cent), with 37.5 per cent of the over 64 age group showing anxiety and 25 per cent of the youngest age group showing anxiety.

Table 17 Anxiety Score by age group

Depression Score	18-44	45-64	> 64	Total
Normal	24 (75%)	26 (54.2%)	5 (62.5%)	55 (62.5%)
Mild	4 (12.5%)	11 (22.9%)	2 (25%)	17 (19.3%)
Moderate	2 (6.25%)	7 (14.6%)	0 (0%)	9 (10.2%)
Severe	2 (6.25%)	4 (8.3%)	1 (12.5%)	7 (7.95%)
Total	32 (100%)	48 (100%)	8 (100%)	88 (100%)

4.14 In summary, this analysis suggests that a high proportion (57 per cent) of the study sample is showing evidence of some degree of depression and/or anxiety.

Comparison with the general population

4.15 Table 18 shows data on psychiatric morbidity for adults in Wales from the Office of Population of Censuses and surveys (OPCS) which were conducted in 1993. The OPCS data utilised the Clinical Interview Schedule – Revised (CIS-R) which is based on the relevant symptoms of the disorder over the previous week. The method of inquiry for the HAD and CIS-R are by self-completion of a questionnaire. The CIS-R as with the HAD differentiates between the levels of depression (mild, moderate and severe) while it measures only for anxiety as a comprehensive recording for any generalised anxiety disorder. Morbidity reference data using the HAD are not available for the general population of Wales.

**Table 18 Psychiatric morbidity amongst adults in Wales
Rate per thousand in past week (Standard Error)**

	All Adults (16 to 64)	Male adults	Female adults
Mixed anxiety and depression disorder	70 (9)	32 (13)	106 (12)
Generalised anxiety disorder	40 (6)	26 (12)	54 (12)
Depressive episode	24 (8)	34 (13)	15 (8)

Source: OPCS Surveys of Psychiatric Morbidity in Great Britain, Report 1.

- 4.16 Caution must be taken in drawing direct comparisons between the data in Table 17 and the results of the HAD due to the different methodologies in collecting data. However, the OPCS data provide a context for the HAD data collected for this survey.
- 4.17 The data show a far lower level of anxiety and depression in the general population than is shown for the study sample using the HAD. A rate of 40 per 1000 for generalised anxiety disorder translates to 4 per cent of the general population. The HAD data for this sample identified mild, moderate or severe anxiety in 37.5 per cent of the respondents. Similarly, a depressive episode was present in 2.4 per cent of the general population over the previous week, while the HAD demonstrates a rate of 47.7 per cent for the sample. However, the OPCS prevalence figures doubled the odds of having most psychiatric disorders when the respondent was affected by unemployment and was economically inactive.
- 4.18 These data suggest that the HAD has identified a far greater degree of anxiety and depression in the study sample than would otherwise be expected according to baseline data for the general population.



5. The impact on the target groups – interview data

- 5.1 Fifty-two respondents (57.8 per cent) stated that they felt that the foot and mouth outbreak had affected their health as individuals. A breakdown of these results by study area demonstrated that the majority of respondents who felt their health had been affected were from the Montgomeryshire study sample. 45.6 per cent of the sample in Anglesey felt that their health had been affected, while 70.5 per cent of the sample in Montgomeryshire felt that their health had been affected. This is statistically significant (Fisher's Exact Test $p < 0.05$).
- 5.2 Although 52 people felt that at the time of the outbreak that their health had been affected, 22 still considered that it was having an impact on their health at the time of the survey. The respondents were asked to score their health prior to the disease outbreak and at the time of the interview, on a five-point scale from Very Poor to Excellent. Comparing the results from the two questions, analysis shows that self-reported health worsened over time and that this is statistically significant (Wilcoxon Signed Ranks Test $Z = -3.734, P < 0.001$).
- 5.3 Despite the worsening in reported health, the majority of the study sample did not request advice about their health. Only 21 (23.3 per cent) sought advice or information in relation to their health since the start of the situation. However, 38 (42.2 per cent) sought advice or information about their own general situation.
- 5.4 This emerging picture of the impact on health from the quantitative data is illustrated by a wealth of qualitative information that is presented here in three main sections.

Psychological impact

- 5.5 Thirty-two respondents made explicit reference to the psychological impact of the situation. This was mainly from respondents in the agricultural business target group (17) but also from the service providers (8) and the other rural businesses (7). This theme is split into eight sub-categories that are covered below.

Psychological impact of the cull

- 5.6 Comments encompass issues relating to the cull – either carrying out the cull, observing it, supporting others during the cull or being part of it in some way. The personal loss of



animals is a strong feature, particularly with children's pets, named pets or favourite animals. The emotion associated with the loss of all animals is conveyed in words such as 'distressing', 'horrendous', 'a nightmare' or 'a really dreadful day'. There are also many reports of crying and tears which were also evident during the interviews when some respondents wept repeatedly while recounting their experiences.

- 5.7** Many comments were made about the impact of the process on the animals themselves and in trying to make it less stressful. The time of the cull coincided in many situations with the lambing season and this was considered particularly distressing for those involved.

As a slaughterman I was on call, went to the farms with a bolt to kill the animals, and to help the vets to give a lethal injection to the baby lambs. It was distressing because it was the lambing season; you would see lambs being delivered and being shot straight away. (Service provider)

Horrendous day, it took a long time, very hard work, I helped with catching and killing. There were many things which stand out, there was a sheep which had started to lamb and she would not die, they had to inject her three times, she wanted to have her lamb. She would not die. There was a lamb which had just been born the day before, and it just stood there bleating, after the vet had gone with the anaesthetic we found the lamb curled up asleep, so the vet injected it with sedative but it took ages to die and I now wish that I had kept it. It was just a nightmare, you are now more aware of the psychological damage. (Contiguously culled farm)

- 5.8** Respondents also talked about the emotional ties they had with their animals, the emotional investment in rearing them and the fact that they were often viewed as family or pets.

It was a nightmare. Culled 200 sheep and 300 lambs, all pedigree from about twenty years, knew them all, half of them even had names. The sheep were part of my family. (Contiguously culled farm)

I would not have allowed them to kill my animals only that I knew that they had the infection. I had three types of pedigree which I had reared myself for generations. (Infected farm)

- 5.9** Farmers who had had their animals culled recalled the noise of the cull and the quiet afterwards:

A really dreadful day, everything was disinfected, there was 12 lorries carrying the carcasses, very noisy, will not forget the noise of the cows been thrown in the lorries. (Infected farm)

At night I couldn't sleep – there was a deadly hush, always want to go out at 10.30 to look at the cows, then it was like a morgue. My younger son kept asking 'Are you all right Dad?' (Infected farm)

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- 5.10** Farmers and service providers (particularly slaughtermen) are still affected by the memories of the cull and have flashbacks, or they comment that they can not get the images out of their minds.

Have flashbacks – and think what we went through – still happens – about when they came to shoot the animals – they were left for two days before they were burnt. We want to get away from the place. I wish I knew what I could do to put it behind me, and get rid of these horrible thoughts – time helps. (respondent starts to cry) (Culled farm).

At the time you just did it but when you got home then you had the time to think about it. Every night I'd come home and sit in the kitchen on my own and cry, you used to shoot so many and so quickly that the gun became too hot to handle, there was this continuous banging in your head, and at night in my bed I could still hear the shots being fired, My wife told me that I would be making jerking movements in my sleep. (Service provider)

- 5.11** A feature of many comments was the reference to tears or breaking down crying both then and currently:

Spent a lot of time crying and not sleeping. Was always close to tears, slightest mishaps would make me cry. (Farm spouse, restricted farm)

Killing the calves were awful, and even the slaughtermen who were used to killing were crying. (Infected farm)

I still cry for my animals – every week – time will be the healer. (Farm spouse, infected farm)

- 5.12** Comments were made by service providers about the process and nature of the cull, including the stress and distress from their own and the farmers' perspectives.

When you are used to slaughtering animals for food it is different than when you do it for mass slaughter. I had to kill some farmer's animals and they were my relations. It was not just slaughtering we were like social workers. We went to one farm and the farmer watched us kill his cattle, cows he had bred for 40 years, and when we killed the last one he broke down. We had to comfort him and I put my arm round him. Then he thanked us for doing such a good job – it's hard under those circumstances. (Service provider)

Dealing with the children in the farms was really heartbreaking – when we had to shoot lambs – not a nice job – some only a day old. The saddest thing we did, was when we went to a smallholding – had 2 cows, 12 sheep – all sheep had names – had to shoot Daisy first, Rosy second and so on. And they insisted on being there when we did it – that really hurt. Every day was a sad day – not a job to relish – so we had to get on with the job. (Service provider)



Motivation

- 5.13 Respondents from the agricultural businesses (5) and the other rural businesses (4) made comments about the lack of motivation associated with the impact of the outbreak. Comments related to a loss of motivation, a loss of heart to go on, a lack of concentration and low confidence. No comments were made by service providers about this issue.

Just did not do anything. Lost heart in the job. They broke my heart. When we did re-stock, it took effort to do things. (Infected farm)

Became less efficient, and forget things. Preoccupied – thinking about the different things you could be doing. Get bogged down by the minute things and forget about the big picture. (Other rural business)

I am usually a very placid person, but I've lost the heart to do things. I would not say that I am really ill from all that happened, but I lack in motivation, it's been such a roller-coastal of a year and I now feel very tired. (Other rural business)

Stress and long term impacts on well-being

- 5.14 Although reference to stress has been made in many of the comments discussed already (and the impact of stress on family life is discussed in the next section) explicit reference to stress was made by a number of respondents, particularly in relation to the long-term impact on health and well-being.

It will continue to affect my health until everything has been finished. The stress and worry is still there. (Infected farm)

- 5.15 A small number of respondents talked about the impact of the outbreak compounding existing problems on the farm or in their personal lives and that this made it more difficult to cope with the stress of the situation

I would have to put things into context the foot and mouth has not been as bad as having to deal with prior illness of the flock and my wife's illness, but saying that if I had not had the other problems maybe I could have dealt with the foot and mouth better. (Contiguously culled farm)



Frustration and anger

- 5.16** Comments related to frustration and anger were made by respondents in all target groups (12 respondents – three other rural businesses; four service providers and five agricultural businesses). For agricultural businesses the frustration related to the lack of information and difficulties in communicating with officials.

When very busy, and unable to get answers I became very short tempered and shouted a lot. The frustrations of not being able to get through to anyone, no answers being given, and having to deal with officials. The root of the frustration was being in debt. (Contiguously culled farm)

Been under a lot of stress. Been very fractious and temperamental – someone from National Assembly would not get back to me – phoned 10 times a day, wanted cleaning up done quicker. Don't know where we are. Getting more frustrating, because the amount of time out of base. (Service provider)

There is a lot of anger in me about it – I remember the 1967 outbreak – it was much better then, got over it. This time it's different – no guidelines, angry about how its been handled, there is no help. The more they push down on me the better for them – if I don't do this or that, I will be fined. Angry – because there were no guidelines, and it was a shambles – could not get any information from anyone – DEFRA, Llandrindod Wells or Cardiff, National Assembly. (Other rural business and farmer)

Loss of Control

- 5.17** A feeling of loss of control over events and within their home was expressed by agricultural businesses (seven); lack of control was also expressed by two service providers and four other rural businesses.

What can we say regarding the foot and mouth? Our lives were in other people's hands, we had no control. (Restricted farm)

The uncertainty of it all, a lack of control over what was happening, my whole life revolved around relying on other people, who appeared to know what they were doing, but did not! (Other rural business)

- 5.18** There was also a feeling of invasion of farms with teams brought in to do work, but the farmers had no control over the work they did.

Just did not feel you were in charge of your own home – [husband] asked 'who's farm is it' – stopped and think. (Spouse, culled farm)



Fear and uncertainty

- 5.19 Many respondents commented on the uncertainty of the situation and the stress this caused. For other respondents there was fear at the time and also currently about the risk of re-infection.

The disease was around us before we got it – when we got up in morning were afraid about what we might find. When it got close, we got very uptight about everything. We did not know what we would find if we got foot and mouth what it would look like. We got paranoid about if we would find it. It's the trauma of it all, it affects you inside. (Infected farm)

It was like – as if it was miles away. As it got closer, it was like a cancer coming closer. And we have got a pedigree herd, we had disinfectant everywhere and anywhere. Affected anywhere, it just coming and coming, and never thought about contiguous culling. Farmers supported everyone – a good network – but still a great fear. (Culled farm)

- 5.20 For the following respondent, there is still fear and uncertainty over the future:

Frightened that foot and mouth might come back. They've got to stop importing meat. There were rumours that there is going to be a mass slaughter in the spring because of welfare problems – not enough fodder. (Restricted farm)

Family and social life

- 5.21 The foot and mouth outbreak had an impact on family and social life across all three target groups. Respondents commented on the distress of the cull and the impact on children and family relationships; family and social support; the impact of business issues on relationships; and isolation.
- 5.22 Seventy-six (84.4 per cent) of those interviewed had children of whom 48 (63.2 per cent) felt that the foot and mouth outbreak had affected their children. This reported impact of the outbreak on children is statistically significant. ($\chi^2 = 5.26, p=0.02$) This is highly significant for the agricultural business target group (86 per cent of this target group reported an impact on their children).

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- 5.23** Twenty-three respondents commented on the distress caused by the cull and the effect on children and family relationships. Most of these comments were from agricultural businesses (15), with comments also from other rural businesses (5) and service providers (3). The impact on children was evident in many of the responses particularly where animals were seen as pets.

My daughter was the one that was the most upset, because she used to visit and feed them daily, she knew all the sheep, they were like all her pets. It all felt as if there had been a death in the family, we grieved. (Infected farm)

One son had a special cow on our land which he was very upset about having this one killed. He tried his best to save this, but it had to be killed with the others. (Infected farm)

- 5.24** Parents talked about the effect of the cull on their children attempting to protect, prepare or comfort their children in various ways, for example through involving them in the paperwork process or keeping their children away from the cull:

We prepared the children that we might have it, Son A (15) and Son B (18), helped gather the sheep and then came in and broke down in the house. I was sorting things out on the other farm. (Infected farm)

We stopped him going to school, for about six weeks, once foot and mouth came round here. It's bound to have affected [him] in some way – he will pile up his hay bales and animals (toys) as if they are going to be burned. (Culled farm)

- 5.25** Respondents also refer to the long-term impact on their children:

They were upset with the horrific pictures. TV did damage I think, but then again that was how it was. It was awful to see the dead animals lying for days. Those pictures – for the kids, will remain all their lives. (Restricted farm).

Son (9 years) still washes his feet – although no need now – said 'one of the saddest days of my life'. (Infected farm)

- 5.26** Ten respondents talked about feeling blame for having the disease or reporting it to the authorities or indeed the guilt of having taken part in the cull. Three respondents mentioned their children having been blamed or bullied as a result of either having the disease on their farm, or because their families were involved in the cull.

Groceries were left at end of the lane – like in prison. MAFF people allowed to come and go as they pleased. Made to feel like a criminal. When we got it, 16-18 farms were taken out, the culling had just come in. People were a bit off, I could sense it. Had not wanted to go out, even now. (Infected farm)



Children were a bit afraid to go out and back to school, because they were got at. (Infected farm)

The general tension in the air, caused (I think) my son's bullying – more vulnerable to extra pressures. (Service provider)

- 5.27** Fifteen respondents commented on family and social support and the importance of supporting each other during the situation and the impact it had on strengthening bonds within the family.

We supported each other, the situation was tense, but we were OK between us. (Other rural business)

Got closer together, appreciate the family more. Had to answer because of a new baby son. Shame really because the talking point has been about foot and mouth, rather than the baby. (Rural business)

- 5.28** Movement restrictions also kept families apart.

We are a large family, and usually we get all our support from the family, it's been like a death which usually everybody gives support, but in this instance nobody could come on the farm. (Infected farm)

Daughters were very worried, and helped by carrying the shopping to the end of the road. Phoning more than once every day. (Restricted farm)

- 5.29** The concern over the business had an adverse effect on family relationships. Fifteen respondents commented, mostly from the other rural businesses (seven respondents), but also from the service providers (five) and agricultural businesses (three). In many cases the impact on family life was related to arguments over finance or shouldering extra workload.

It put a lot of stress and pressure on family life. There was a lot of arguments between me and the wife, mainly to do with finance, because I was now unemployed, I had to spend my money on fuel for the car to do the slaughtering, some days this would mount up to about £30. My wife would also argue about the amount of hours that I was working. (Service provider)

- 5.30** The feeling of isolation in the physical and emotional sense as a result of the circumstances was noted by 47 respondents. This was mainly among the agricultural business target group (22 respondents) but also by rural business (13) and service providers (11).

- 5.31** Respondents involved in farming talked about the separation from their families due to the movement restrictions.

Got two daughters and two son-in-laws, four grandsons and they could not come and see me for 16 weeks, I really missed them. We are a family, all together when there is trouble – but we could not see them. (Infected farm)



The children and the wife had to stay with the in-laws for two weeks. The day that it was discovered on the farm, they were collected from school and could not return home for two weeks. (Infected farm)

- 5.32** Respondents also talked about the impact on their social lives and missing everyday contact with other people.

Farming is a lonely job – since the disease, we had no salesmen, no callers, also not going out – made even more lonely. Also if I did go out, then I felt guilty about going away from the homestead. (Farm spouse, restricted farm)

Nowhere to go, to talk to. Missed the market, meeting people. Went to a car auction in the Midlands to meet people. (Infected farm)

- 5.33** Respondents made comments related to their businesses and particularly to the compensation and how they felt this was impacting on stress.

Very stressful time, had to severely compromise, young lambs were not given a value due to their size but their value to me was irreplaceable. (Contiguously culled farm)

I think that it's been easier for the farms that have been slaughtered, for them they have been compensated and they can start again, but for the other farms there is more pressure on them. They are now under more stress. The price for animals is so poor at the moment. (Service provider)

I had two scares. I was informed that the cull was to go ahead in the neighbouring farm, and our sheep was also to be culled, two hours prior to the cull they changed their minds again. It was all about chopping and changing. The unfairness of it all in – how some farmers have done better and others like myself are much worst off following the foot and mouth disease. (Restricted farm)

- 5.34** For one respondent, business stopped because of the restrictions and although he was able to gain work for two to three weeks from DEFRA, this meant that he was then not able to claim any grants or benefits.

- 5.35** For one farmer, the impact on the business had a positive effect on his psychological health. Prior to foot and mouth outbreak, he was on antidepressants, and had been depressed for years. He had felt that since the BSE outbreak that farming had been going down and he made no profit from his work. He hated the isolation of working on the farm and it had always been his wife's wages that supported the family. When the foot and mouth broke out, he felt that he had to leave farming and took a three-day job, which he felt has 'saved him'. The rest of the time he spends on the farm and enjoys this time; he has also been able to come off the antidepressants.

Foot and mouth was the best thing that happened to me, if I was home all the time I would still be depressed.



Underlying factors impacting on mental health and well-being

- 5.36 Respondents also talked about their more general perceptions of the foot and mouth disease outbreak. An analysis of these underlying factors is important in understanding the aspects of the situation that have affected the mental health and well-being of the respondents.

Support issues

- 5.37 It is acknowledged that the farming community cares about the welfare of their animals. Therefore, the cull of its animals was a very stressful occasion for farming families, so they were grateful for an excellent and professional job done at the time. There were positive comments about having received good support from 27 of those interviewed of which 12 were from agricultural businesses, eight service providers and seven non-agricultural businesses.

There was a need for local people to carry it out. Farmers wanted people they knew, to kill their animals. They wanted their animals killed with care and with time. We made sure we killed each animal individually, dragged it out, made sure it was dead. Other slaughter people, just shot the animals and did not check if they were dead. The dead animals would just die on top of each other and the farmers got really upset about it, one farmer sent a gang of slaughterers away. Farmers thanked us for doing a good and caring job. (Service provider)

One good thing was that the army lads were very good. They did a good job, they were so willing, because it must have been hard on them. But you did appreciate it. (Contiguously culled farm)

Everyone was very good, MAFF, firebuilders, the slaughterers were excellent – we had the ones from Llanidloes. They asked us how we wished for it to be done – they were very good and tidy. (Infected farm)

Vets, valuers, people felt people in general excellent – doing their best, but on-top little organisation. When we queried something, people on the ground could not answer – nor could they get an answer from above. (Contiguously culled farm)

We had a brilliant vet, helped us all he could. (Restricted farm)

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- 5.38** There were, however, some negative feelings in relation to support with comments that there was a general lack of compassion, lack of consideration and lack of efficiency. In some circumstances there was particular concern about the lack of support or consideration for children. The use of military personnel also gave some respondents a cause for concern due to their lack of experience with animals and procedures to be performed. Fifty-four (60 percent) of the interviewees expressed the opinion that inadequate support was an issue during the time and following the initial phase of the foot and mouth outbreak. These comments were fairly evenly distributed between all three groups 19 from agricultural businesses, 18 service providers and 17 from rural businesses.

Children will never forget. Everything is worse when a child. No support for children. Talked about. Would have liked – some contact from school would have helped. (Contiguously culled farm)

Slaughterman was cocky – did not consider the children – came in the house, coat was covered in blood, laughing, he did what he pleased. (Infected farm)

The slaughterman said he would not shoot until the sons were in the house – then he did shoot before we got in the house. (Infected farm).

Communication and information

- 5.39** Some people interviewed expressed dissatisfaction at the availability of information and communication at different levels. The interviewees expressed dissatisfaction that the television as a source of information appeared to present the most up-to-date information, which those people in positions within the organisations who were supposed to have that knowledge, did not have.

People found it difficult to get information from MAFF, they could not make decisions locally, information got lost. If it happened again, we need someone more local to make decisions with authority. (Contiguously culled farm)

- 5.40** Throughout the interviews numerous experiences were cited of inconsistent and unreliable information that had been given on issues of culling, closure of land to the general public and information to the general population. The difficulties in obtaining reliable information were underlying factors in the impact on the mental health of the study group, which suggests that information should be thorough, consistent and evidence-based.

That there was so much confusion regarding closing the footpaths, and there is still some confusion there regarding re-opening them, it needs a better system in dealing with these things, that's what affected the tourism. (Rural business)

We were once told by MAFF that they were coming the next day but they did not come. I needed to know when they were coming because I had arranged for a vet to come and slaughter my lambs. (Contiguously culled farm)

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- 5.41 A general feeling among interviewees was that there was no clear leadership and management from the earliest stage in the foot and mouth crisis, and this had an impact on the officials and staff who were trying to address issues in the community and the continued spread of infection.

I'd phone that Welsh Office (DEFRA). Things were changing so quickly, I'm sure that they did not know themselves. We'd phone for blood results, but they would take about three to four weeks, someone nearby had a positive result, not knowing, made it hard to know where you stood. (Contiguously culled farm)

Communication was very poor – one office would not speak to another office – no answers came quickly. (Infected farm)

- 5.42 Concerns over the lines of decision-making and the lack of communication during this episode of infection due to foot and mouth disease were raised by a number of respondents as factors that contributed to the impact on mental health and well-being. One official felt that the excessive strain he had been put under was mostly due to the lack of decision-making by other officials. There was the recognition and realisation by this official, that despite all the effort that he as an individual made, at times all he could do was to listen, wanting to help but unable to.

There was inappropriate responses given from high officials, and once I had lost all the sheep in the culling I became so disillusioned with how politicians would deal with this. (Contiguously culled farm)

Impact on physical health

- 5.43 Twenty-five respondents commented on the impact on physical health of which 10 were from non-agricultural businesses, eight were service providers and seven were from agricultural businesses. Comments were broad and related to the impact on existing illness but also the contribution to new illnesses. Two respondents stated that they were drinking more alcohol and a further two stated that they had been/were eating more and had put on weight. Otherwise illnesses ranged from heart problems to migraine, four people reported chest problems (all varying) and some subsequently suggested that the smoke and fumes from the pyres might have caused them.
- 5.44 For some respondents the impact on physical health was to aggravate existing health problems.

My health was poor. But stress affected immune system and wiped me off my feet for four months. (Contiguously culled farm)

As a diabetic, blood glucose levels were higher. It was due to stress and also did not have the time to have managed it as I should. (Service provider)



Got high blood pressure. Under control before, had to keep going in to have it checked. Went sky high after they went (animals) for about a week. (Infected farm)

Made the arthritis worse – and my mind, in a way it has made it worse – my mind is bitter and confused. (Rural business)

I'd wake up during the night and it was on my mind, even in my sleep. An old problem of mine is migraine which returned and was much worse. (Service provider)

- 5.45** For other respondents the impact on physical health was new and directly linked to the outbreak.

My hearing went with all the gun shots – and still could be a bit deaf. (Service provider)

I was constantly sprayed with the lorry with the disinfectant, this used to make me feel very ill at the time. I wonder if it had a contribution to my illness. (Service provider)

Stress, worrying all the time, could not see a future, lost everything at the same time, my wife and my business. Could not sleep, could not eat, spent all day with my thoughts and smoked. Severe problems with chest and bowels, then had septicaemia, family called to the hospital they did not think that I was going to live. (Rural business)

Physical manifestations

- 5.46** Thirty respondents made comments about the physical manifestations of the impact of the outbreak. These comments were from all three target groups (nine agricultural businesses; 11 service providers and 10 other rural businesses). The initial scoping study highlighted the fact that long-term stress and mental ill-health can lead to physical health problems. The following responses signify that this has been the case in relation to foot and mouth disease. Many comments related to sleep deprivation and tiredness from across the three target groups.

Not able to sleep more than about four hours a night, then feeling really tired. Feel mentally strained due to all the pressure and the paperwork. GP has prescribed tranquillisers because I can't sleep. (Non-restricted farm)

Sleepless nights, waking up in the night, worrying how we will cope. I had a very long fuse, it's been getting shorter. I've put it down to stress. (Rural business)



It was stress, could not have coped for much longer. If we had foot and mouth, would not have started up again. Spent a lot of time crying and not sleeping. Was always close to tears, slightest mishaps would make me cry. Could not sleep – the sheep were stuck in a shed (600) and could not take them across the road. The animals were suffering. We could not take sheep to vet, and a month before, we could. (Restricted farm)

I did feel on high alert, did not sleep much from Feb-Aug. Thinking what I had to do the next day, making notes. Then had a holiday in August. Could not sleep for first three nights then I found had to sleep a lot – could not wake up. Now find I am tired. (Service provider)

My levels of stress went up, coped with it well, but just affected my sleep, and concentration, could not relax, worried about what I had done – and what I would have to do. The consequences on the farmers. I also felt fatigued, working for so long. (Service provider)

Don't sleep as well – worry about money – and put on one stone overweight – because I am just bored. (Rural business)

Stress related to other minor ailments

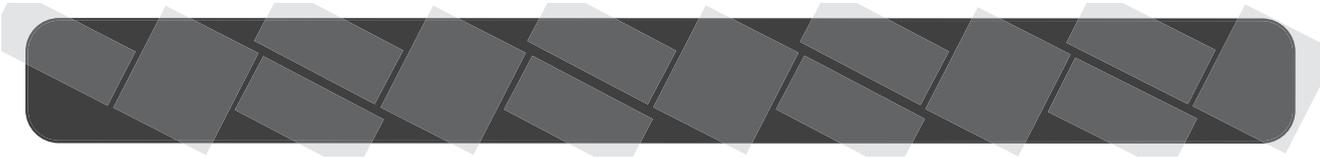
- 5.47** Many respondents commented on stress-related sleep deprivation and also other impacts on health such as minor ailments, flu and colds.

Stress, which resulted in colds and flues all the time. Tiredness, and when I was asleep I would be dreaming about the animals. (Service provider)

I'm not sure if it was due to the stress, but, I have a continual lump in my throat, and then I had another one on my leg, I did have surgery for it but the lump in my throat is still there. This has developed after the foot and mouth, within this year. It could be stress, because I know that stress can cause these types of symptoms. Towards the end of last year I did feel that I had had enough of working here. I've only been back to work since last week. (Rural business)

Lost a stone in weight. Depressed and stressed. I cried for hours and days on end. (Infected farm)

General fatigue – there have been times that I have been under a lot of stress and don't know what the effect will be. (Service provider)



6. Discussion of findings and conclusions

- 6.1 This study has provided a wealth of information on the impact of the outbreak on the lives of the people interviewed for this study. To draw the results together, this section will be structured around the nine research questions outlined at the outset of this study.

What is the current foot and mouth status of the two study areas?

- 6.2 Anglesey and Montgomeryshire remain free of foot and mouth disease, as does the rest of the UK.

What has been the profile of demand on statutory and voluntary services?

- 6.3 The scoping study identified a range of agencies involved in offering support to individuals and communities affected by the outbreak. In some circumstances it has been difficult to disaggregate the secondary data on utilisation of services to show the impact on the service as a direct result of the situation. This suggests the need for flexibility in data-recording mechanisms to allow the measurement of the impact of any future incident. Where data are available, they show that services have been meeting a need in relation to the situation. This is particularly the case for the RABI and the ARC Addington Fund which have provided practical support in the form of financial grants. The initial scoping study highlighted the fact that these grants have been seen as a 'lifeline' for many individuals in Wales and that demand has been high due to severe short-term and long-term financial difficulties. This finding has been borne out in these results which show a large demand for financial support over the last 12 months with subsequent high financial outlay.
- 6.4 The impact on advice agencies and helplines can also be quantified and it appears that they have been meeting the needs of some individuals affected by the foot and mouth disease outbreak. The number of people using these services appeared to be small, which raises the concern that individuals were not seeking emotional support or advice. This concern was expressed in the initial scoping study and also emerges in the qualitative interview data. The quantitative data from the interviews also showed a low proportion of the respondents seeking either general or health advice in relation to the outbreak.
- 6.5 Similarly, the postal survey of primary care providers and the picture from Social Services suggested that there was only a small increase in demand for services as a result of the disease outbreak. The impact on the workloads for these statutory services was largely as a direct result of movement restrictions that affected not only their clients but also their own way of working, and staff who lived on farms.

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- 6.6 Although the data show an increase in demand for services, this appears largely to be felt by the voluntary sector, especially where financial assistance can be given. It must be stressed, however, that the contacts made are the potential 'tip of the iceberg' and that there is evidence of a larger group of individuals who also have not sought assistance. This points to a potential role for service providers to be more proactive both during and after any future situation as well as providing outreach services, particularly from people with an understanding of the nature of farming and the emotional bond between a farmer and his/her animals. The method of effectively communicating information to communities should be investigated further.

Have statutory and voluntary services in the two study areas altered or developed their services as a result of the foot and mouth disease outbreak?

- 6.7 The impact of the situation on the rural community was considerable. Movement restrictions not only had an impact on voluntary and statutory services but also on their actual and potential clients. Past research into mental health among farming and rural communities has highlighted a high level of suicide and a low uptake of support services due to perceptions of stigma and lack of confidentiality. This context led to the setting up of a number of support initiatives for the rural community affected by the disease outbreak. They included the Powys Rural Support Network and the Rural Emergency CAB. The All Wales Rural Stress Helpline was also set up at the start of the outbreak. These helplines made efforts to advertise their existence and the confidential nature of their services.
- 6.8 The RABI and Addington Fund also recruited additional volunteers and geared their grants to aid those affected by the situation. Millions of pounds of grants were provided by these organisations to farming and agricultural-dependent businesses across Wales. The postal survey with primary care providers showed that although few practices explicitly developed new initiatives to help their patients, a more supportive and flexible way of working was adopted, for example taking orders for repeat prescriptions over the telephone and making information available in the waiting rooms.

What are the experiences and perceptions held by the target groups of the management of the foot and mouth disease situation in the two study areas?

- 6.9 As highlighted earlier in the report, issues resulting from the management of the foot and mouth situation were identified as underlying factors for health impacts. Decisions taken had both a direct and an indirect impact on the health and well-being of those affected by the foot and mouth outbreak. Therefore it is important to set in context and understand the perceptions that people had of the management of the situation. However, it is acknowledged that it was outside the scope and remit of this study to be able to reach conclusions on the effectiveness or otherwise of the management policies.

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- 6.10** A wealth of information about the perceptions of the target groups on this issue emerged in the interviews. There were both positive and negative views. A large proportion of the sample felt that support had been inadequate and that accurate and up-to-date information was difficult to obtain. There were general feelings of frustration, loss of control, fear and uncertainty. Many felt that those in charge and those they had personal contact with did not have the relevant information nor were they sufficiently informed. There were many instances of respondents having inconsistent messages from various agencies and these perceptions increased stress and frustration in the target groups.
- 6.11** Some respondents perceived that some officials had been inconsiderate and behaved inappropriately, occasionally in front of children. It is clear that procedures should be in place to ensure that children do not witness the cull if they do not wish. In addition to negative perceptions there were also positive responses to the management of the situation. These included the support received and the professional way in which jobs were carried out. This was particularly true where local officials were involved as respondents felt they were more understanding and had greater empathy.
- 6.12** Although there have been several previous incidents of conditions in animals that have required isolation and slaughter, such as the previous outbreak in the 1960s of foot and mouth disease, bovine spongiform encephalitis (BSE) and the nuclear fallout from Chernobyl, some respondents were surprised that a strategy for the management of emergencies did not seem to be in place. This view is reflected in the negative comments in relation to support issues and communication, with a perception that some officials had a lack of understanding of the farming community and that the latter was excluded from the decision-making process. This illustrates the importance attached by respondents to a clear system of communication and support. The findings of this study highlight the importance to mental health and well-being of a clear strategy for the management of disasters in rural Wales with collaboration across the UK and with clear and transparent lines of accountability at all levels. This could be addressed by appropriate training for service providers that would in turn enable them to support and inform patients/clients within the community. However, poor communication and lack of access to information also caused distress to the service providers.
- 6.13** Many relied on the media for information, but felt that situations had been sensationalised. Some messages might not have been conveyed as expected by the service providers and this highlights the need for training of service providers in preparing, dealing with, and delivering information to the media and press. Some people relied on the internet for information and this might be considered by service providers in the future as a means of controlling the dissemination of information. There was an acknowledged lack of broadband coverage across Wales but it was envisaged that access should shortly be available to all general practices. This could then be utilised in future situations. However, the information should not be compartmentalised into professional areas or agencies; all staff should have access to the same information, including press coverage.



What is the nature of the impact of foot and mouth disease on the mental health and well-being of the target groups?

- 6.14** The SF36 and the HAD measures have highlighted four particular areas in which the health of the study sample is affected: general health, emotional health, depression and anxiety. More detail is provided on these issues through the qualitative information. Symptoms described by the respondents included sleeplessness, tearfulness, lack of motivation, minor ailments associated with stress, deterioration in more significant health problems, stress, frustration and anger. Many respondents recorded these symptoms in the past at the height of the outbreak, but there is also a continuing occurrence. These symptoms were recorded in individuals from across all three target groups.
- 6.15** Distress was still prevalent when respondents recalled the cull of animals (this is felt by farmers and service providers). This distress was evident in some interviews when respondents would break down in tears. Particular emotions related to the loss of animals with which there was a bond and also in the cull of newborn lambs.
- 6.16** Many respondents talked directly about stress and the impact it had on their relationships within the family. Only one respondent made a reference to suicide and commented that he could understand how some individuals might contemplate it.
- 6.17** An important and worrying finding is also the prevalence of 'flashbacks' and the fact that individuals were not able to put events out of their minds. This was still continuing for some individuals at the time of the study. This suggests an impact that would not necessarily be identified through measures such as the SF36 or the HAD and also suggests the presence of post-traumatic stress disorder, largely among the service providers. This highlights the importance of adequate support, in particular the opportunity to debrief and to receive counselling. Training is also needed by service providers who are dealing with the practical aspects of the situation but who might also have to support other distressed individuals.

What is the magnitude of the impact of foot and mouth disease on the mental health and well-being of the target groups?

- 6.18** The SF36 was used as a direct measure of the impact of the situation on both physical and mental health. The results showed that the study sample as a whole was significantly worse than the general population for both general health and emotional health, although it was significantly better for mental health, physical health, vitality and body pain. This is an interesting finding and suggests that the impact of the situation is not specifically on mental health but on the emotional well-being and general health of the respondents. The quantitative data from the interviews also demonstrated that a high proportion of the sample felt that their health had been affected by the disease and a comparison of reported health prior to the outbreak and at the time of the survey demonstrated that it had worsened over time.

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- 6.19** It appears that of the three target groups, the service providers reported better health than the other two groups. In the SF36 analysis the service providers consistently scored higher than the other two groups except in general health.
- 6.20** An important finding was the indications of the impact of the outbreak on children. This reached statistical significance with 53.3 per cent of respondents saying that it had affected their children. The qualitative data from the interviews threw much light on this statistic with problems of distress at the cull, loss of pets, inappropriate behaviour of service providers, separation from parents and occasionally, bullying by other children. Due to ethical considerations this study did not have direct contact with any children, but it is an important area for future research. The findings highlight the importance of support for children, particularly through schools, with special attention to the risk of bullying and the after-effects of the trauma of the cull. This raises the issue of advice and training for education providers, governors and staff in schools, to enable them to support children in their care who could be affected by this type of situation in the future.
- 6.21** The results strongly suggest that the outbreak has had an impact on the health and well-being of the three target groups. The fact that the SF36 and the HAD record the health over 'the previous four weeks' shows that this impact has continued for some time after the height of the outbreak and could also continue for some time into the future.

What is the level of anxiety and depression in the target groups?

- 6.22** The HAD has been used as a direct measure of anxiety and depression in the target groups. A high level of both anxiety and depression has been identified across the study sample demonstrating that 57 per cent of the sample had either anxiety or depression or both. There were higher levels of depression (47.7 per cent of the total sample) than anxiety (37.5 per cent) of the sample. Levels for both depression and anxiety were highest in the agricultural business and other rural business target groups. Both were also evident in the service-providers group but to a slightly lesser extent.

What sources of help and information are used by target groups?

- 6.23** Relatively little comment was made by respondents about sources of external help and information that they used. Quantitative data from the interviews shows that only a small proportion actively sought advice or assistance of either a general or health-related nature. This confirms previous research findings suggesting that the farming and rural community have a culture of self-reliance and are reluctant to seek help. These findings suggest that agencies could be more proactive in targeting appropriate information to rural communities and that sensitive outreach work could be more appropriate.



What are the likely medium and long-term health impacts following the outbreak of foot and mouth disease?

- 6.24** The quantitative data from the interviews shows that self-reported health at the time of the interview was worse than prior to the outbreak. In addition the SF36 and the HAD demonstrate a significant level of poorer general health, emotional health, depression and anxiety. This research has provided evidence of the short and medium-term health impact of the situation. Qualitative data has shown a continued level of stress and physical ill-health and there is also evidence of continued trauma as a result of the cull. There is strong evidence, therefore, that the long-term health impact will remain in the study sample as a result of the foot and mouth disease outbreak. The impact on children is also likely to be medium-to-long-term. Health impacts of concern for the future are stress, depression, anxiety and post-traumatic stress disorder. Poorer physical health is also likely to be associated with these mental health issues. The evidence for medium-and-long-term health impacts suggests the need for continued availability of counselling to all three target groups and also to children.
- 6.25** There is a need for a follow-up study to investigate the longer-term impact on the mental and physical well-being of the population, especially the effect on children.



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