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## Limitations of the study

At the time of the study, community staff were aware of further changes in service such as transformation into care pathways later in the year. Staff opinions might have been influenced by this. However, we employed theoretical sampling and did reach saturation of themes, which should increase transferability of the results.

The research team also works in the Trust and was affected by the changes like the participants. In order to minimise observer bias, measures were taken to standardise interviewing techniques and interpretation of statements.

## Implications for further research

It remains to be formally tested whether or not separate hospital and community services provide better psychiatric care than sectorised services.<sup>9</sup> Parameters that can be examined at a later stage might include number and frequency of re-admissions, bed occupancy, patient and carer satisfaction, number of critical incidents, satisfaction and stress level of ward and community staff, and recruitment and retention rate of staff.

## Concluding remarks

Despite various concerns regarding the change, the need for cohesive working and a patient-centred approach regardless of service design was voiced.

'We have seen changes before, I am sure we can make this work, it doesn't really matter what system we work in . . . at the end of the day this is all about team work and caring for patients.' (Senior nurse)

## Acknowledgements

We thank all the staff members who participated in this study. We are also grateful to Dr Jesus Perez, Associate

Clinical Director and Consultant Psychiatrist, and to Maggie Evans, Academic Unit of Primary Health Care, University of Bristol, for their valuable comments on the manuscript.

## Declaration of interest

None.

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*Psychiatric Bulletin* (2009), **33**, 332–336. doi: 10.1192/pb.bp.108.021261

JOSEPH HAYES, JULIAN MASON, FAY BROWN AND REBECCA MATHER

## Floods in 2007 and older adult services: lessons learnt

### AIMS AND METHOD

To review the clinical and managerial impact of flooding on a community mental health team (CMHT) for older adults by prospectively recording all flooding related events met by the CMHT.

### RESULTS

Of 348 individuals known to the CMHT, 87 lived in flood affected areas. In nine patients symptoms deteriorated. There were two new

referrals as a direct consequence of the flooding. Flood effects can be grouped into: new mental illness, management problems, CMHT workload, and secondary benefits.

### CLINICAL IMPLICATIONS

The immediate and delayed problems caused by flooding to the elderly with mental illness and dementia include unmasking cognitive impairment and provoking

exacerbations in depressive and anxiety disorders. Personal evacuation plans should be used when moving individuals with marked cognitive impairment to avoid difficulties with identification. Overcrowding of care homes used to temporarily accommodate additional residents can contribute to behavioural changes and psychological symptoms in those with pre-existing dementia.



It is well recognised that flooding has negative effects on mental health, particularly in people with pre-existing mental illness.<sup>1–3</sup> In this report we discuss the problems encountered by a community mental health team (CMHT) for older adults in West Oxfordshire when the population they serve suffered significant floods.

In July 2007, the heaviest rainfall for 60 years caused immediate flooding. This was followed by swelling of the rivers which then overran pre-existing flood defences. Over 200 elderly people were led to safety from nursing homes and a smaller number from private properties. An unknown number were displaced at very short notice because water damage rendered their properties uninhabitable.<sup>4</sup>

Four main factors, relevant to the Oxfordshire floods, are recognised to cause psychological disturbance: immediate threat to life, displacement, damage to property and increased social isolation.<sup>5</sup> Worldwide, this list would also include bereavement, destruction of whole communities and water-borne disease due to loss of a clean water supply.<sup>1</sup>

In this brief report we aim to describe the problems encountered by the CMHT following local floods and review what lessons can be learnt, with reference to the relevant studies.

## Method

During the floods and in their aftermath the impact on patients and CMHT operations were discussed at several sequential multidisciplinary team meetings and the findings were recorded in the minutes.

## Results

The experiences of the team are summarised below. They can be grouped into recognition of new mental illness, management problems, the impact on CMHT workload, and cases where there was a benefit from the flooding.

### Impact of flood on patients known to CMHT and those newly referred

Of 348 individuals known to the CMHT at the time of the flood, 87 (36 male and 51 female; Table 1) lived in 'flood affected' areas where significant flood waters reached at least as far as their residence.<sup>4</sup> From county council data, 24 were in at least 'moderate danger' for their personal safety;<sup>4</sup> 7 had to be evacuated from their homes and 6 from nursing homes; 8 patients suffered significant flood damage to their property.

Apart from the impact on patients already known to the CMHT, two new individuals were referred as a direct consequence of the flooding.

### Emergence of new clinical symptoms

Overall, 11 clinical problems were triggered by the floods (Table 2), in ten females and one male, age range 73–90

**Table 1. Details of 87 patients who lived in flood affected areas**

	Patients, <i>n</i>	Deterioration in mental health after flood, <i>n</i>
Diagnosis		
Mixed dementia	24	3
Alzheimer's disease	22	0
Vascular dementia	8	0
Depression	23	4
Depression /anxiety	3	1
Schizophrenia	2	0
Mild cognitive impairment	4	0
Paranoid personality disorder	1	1
Difficulty as consequence of flood		
Evacuated from nursing home	6	1
'Moderate danger' to personal safety <sup>1</sup>	24	5
Evacuated from private residence	7	4
Damage to property	8	6

1. West Oxfordshire County Council. *Parish/Town Flood Reports – Flood Reviews*. West Oxfordshire District Council, 2008.

years (mean 82). The delay in presentation of the symptoms ranged from immediate to 9 months.

It became obvious for one person during a rescue and subsequent care in new accommodation that they had a previously undiagnosed moderated mixed dementia. They had had no noticeable problems until they were found standing waist deep in flood water, unable to react appropriately. From the records, and results of appropriate investigations, there was no evidence to suggest that the cognitive decline had been caused by hypothermia or near drowning. One person with dementia developed problems with behavioural difficulties and depression requiring admission. This followed three moves to escape flooding. A third person with dementia suffered worsening of psychotic symptoms in response to displacement and relative overcrowding in a temporary nursing home. Five people with depression, one person with mixed depression and anxiety, and one with paranoid personality disorder suffered from new depressive symptoms, with the flood being the only recognisable trigger. Only one person was diagnosed with depression without a previous psychiatric history – symptoms emerged after 9 months of living in temporary accommodation waiting for repairs to the flooded property.

Although no cases of post-traumatic stress disorder due to these floods were noted, one person's depression worsened due to recurrence of flashbacks from childhood traumatic evacuation experiences.

### Management difficulties in individuals with displaced dementia

The temporary closure of three nursing homes caused overcrowding in those that had to accommodate the

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papers**Table 2. Flood induced difficulties and the clinical problems triggered in 11 individuals**

Pre-flood diagnosis	Clinical problem triggered by flood	Delay from flood to presentation	Flood damage	Social isolation	Personal safety threat	Displacement
Paranoid personality disorder	Agitated depression, preoccupation with recent flood and continuing perceived risk	2 months	Nil	Lived alone with loss of recreational and social outlets as most of village flooded	No	No
Chronic mixed anxiety and depression	Acute deterioration in symptoms	1 week	Yes	Lived alone	Moderate danger	Yes (communal emergency accommodation in public building)
No mental illness	Depressive episode	9 months	Yes	Lived alone	Moderate danger	Yes (lived in holiday accommodation for over 12 months)
Recurrent depression	Flashbacks to previous evacuation experiences	1 month	Yes	No	Moderate danger	Yes
Recurrent depression	Acute deterioration in symptoms	1 week	Nil	Lived alone	Moderate danger	No
Recurrent depression	Acute deterioration in symptoms	2 weeks	Yes	Lived alone	Moderate danger	No
Recurrent depression	Acute deterioration in symptoms	1 week	Yes	No	No	No
Recurrent depression	Chronic deterioration in symptoms while waiting for damage to be repaired	9 months	Yes	No	No	No
Mixed dementia	Depressive symptoms and behavioural problems requiring admission	3 months	Yes	Lived alone	Moderate danger	Yes (moved three times as subsequent accommodation flooded after each move)
Moderate mixed dementia (undiagnosed before flood)	Standing in flood water not knowing how to respond appropriately	Immediate	Yes	Lived alone	Serious danger, no understanding of threat	Yes (in new temporary accommodation cognitive difficulties immediately apparent)
Mixed dementia and psychotic depression Yes (moved into a temporary nursing home)	Worsening of psychotic symptoms	2 months	No	No	Moderate	danger

displaced people. Some displaced elderly people had to be moved three times because the nursing home they were moved to flooded shortly after they arrived. Staff in a nursing home that had to accommodate extra residents at short notice commented on worsening behaviour in people with dementia due to the overcrowding. This was most noticeable in the communal areas that had to cater for so many more people. Six of the CMHT's patients were evacuated from nursing homes; in one of those patients, symptoms deteriorated markedly.

The inability of people with dementia to remember their full names and identify their own property and medication was an important issue to address for their successful evacuation from a flooded nursing home to new accommodation. Care staff from the nursing home, familiar with their clients, tended to overestimate their ability to remember their names. At each stage of

evacuation – leaving the flooded building, boarding transport, staying in a holding area and eventually arriving in new accommodation – great care had to be taken by the professionals to identify each individual correctly as they moved from the care of one team to the next.

### Impact on work of CMHT staff

The collapse of one bridge due to greatly increased volume of water affected the journey times for domiciliary visits to certain villages. For 2 days most such visits were cancelled without any noticeable consequences.

The social worker allocated to the team was co-opted to the emergency displacement committee and had to supervise the safe transfer of the elderly people from nursing homes.



## Benefit from displacement

Two people with dementia had been living in wholly inadequate properties before the floods. They had persistently refused to move, despite the best attempts of family and professionals to persuade them to move to more suitable accommodation. The flooding precipitated their move to nursing homes. They settled well in their new surroundings and their mental and physical health subsequently improved.

## Discussion

There are different forms of flooding.<sup>1–5</sup> The most severe involve flash flooding and landslides and are most commonly associated with post-traumatic stress disorder in survivors.<sup>6</sup> The psychological impact of these types of floods is comparable to that of earthquakes, volcanoes and tsunamis.<sup>1,2,5–7</sup> The type of flooding that affected Oxfordshire is referred to as 'water soaking' and triggers quite a different set of problems with delayed psychological symptoms because of damage to property, social isolation and displacement of individuals.<sup>8–10</sup>

The risk of individuals suffering from anxiety or depressive symptoms following an episode of flooding is greatly increased by pre-existing symptoms of depression, living alone and having limited social networks.<sup>11</sup> Reports have described delayed depressive and anxiety symptoms being triggered in response to later heavy rain or rising water levels.<sup>12</sup> Conversely, a study from Colorado, USA, has shown that the elderly who are psychologically healthy may be more resilient when confronted with flooding for a second or third time. This may be caused by an inoculation effect from previous experiences producing psychological resistance to fresh floods.<sup>13</sup>

Displacement has been well recognised as a trigger for psychological symptoms.<sup>14</sup> The longer someone has lived in a particular place as well as their age are risk factors for developing symptoms, most noticeably anxiety and depression, as a result of displacement.<sup>7</sup>

Following floods in Brisbane, Australia, there was evidence that elderly people may develop depression as a result of social isolation caused by flooding even though they are personally safe and have not suffered any damage to property.<sup>15</sup> The loss of community spirit as a direct consequence of flooding has recognisable effects on the mental state of survivors.<sup>16</sup>

Damage to property is frequently underappreciated by the public as a cause of distress. Instead, the media and the public focus on the threat to life and displacement of populations. Common foci of frustration following a flood are the loss of irreplaceable emotional items, the cost of repairs to someone's home, and the delay before homes become habitable again. The level of symptoms and the reported stress and anxiety correlate with the cost of the damage and the sense of loss.<sup>16</sup> Women have been found to be more affected by such material losses as they have greater emotional investment in the home and feel a greater responsibility to restore the household to normal.<sup>9,10</sup>

Although not observed among the problems confronting the CMHT, deterioration in physical health has been noted among elderly victims of flooding that is not explained by injury or infectious disease.<sup>7</sup> The Flood Hazard Research Centre survey reported that the experience of flooding as a traumatic event is more commonly observed in females and those in poor physical health.<sup>9,10</sup>

Rotherham Primary Care Trust stressed the importance of personal evacuation plans for residents of nursing homes.<sup>17</sup> This should include the provision of photographic identification that would accompany any person with cognitive impairment who, during a crisis, could have difficulty identifying themselves to new professionals.

## Conclusions

Our brief report highlights that CMHTs should be alert to the impact of flooding on the elderly with mental illness and dementia – particularly in the days and weeks after the water levels have receded but the repairs to the flood damage are awaited. It is important to be on the lookout for undiagnosed dementia and exacerbations in depressive and anxiety disorders that may appear after several months. Our experience is consistent with previous reports that women are more likely to be negatively affected by the consequences of flooding.

The Environment Agency predicts that the risk of flooding has increased due to changes in weather patterns. It estimates that there are 1028 care homes in the UK that are at risk from flooding.<sup>18</sup> Special provision through personal evacuation plans should be made to correctly identify people with marked cognitive impairment when they need to be moved at very short notice. Overcrowding of care homes used to temporarily accommodate additional residents can contribute to behavioural difficulties and psychological symptoms in those with pre-existing dementia.

Finally, we must emphasise that we have only discussed here those factors that came to the attention of the CMHT – many elderly people suffer in silence or are managed solely by general practitioners.

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Psychiatric Bulletin (2009), **33**, 336–340. doi: 10.1192/pb.bp.108.021154

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## Adherence to substitute opioid prescribing: survey of inner-London drug services

### AIMS AND METHOD

To investigate non-adherence to substitute opioid treatment, using a cross-sectional study design, with 630 patients from three London community drug services. Adherence was measured as the number of doses collected from the pharmacy as a proportion of the total number of doses stipulated on the prescription during a 28-day period and was

further investigated through laboratory urine drug screens.

### RESULTS

Overall, 30.5% ( $n = 191$ ) of individuals failed to pick up at least one dose of medication from the pharmacy over 1 month, but only 1.6% ( $n = 10$ ) missed 50% or more of their doses. Non-adherence was associated with supervised consumption, more

frequent pick-up, shorter duration of treatment, younger age, a lower dose of methadone and a recent urinalysis result positive for opiates.

### CLINICAL IMPLICATIONS

Treatment services need to monitor levels of adherence to treatment and develop strategies to improve it so that treatment can be optimised effectively.

There is widespread agreement that poor adherence to treatment leads to poorer clinical outcomes in chronic medical conditions.<sup>1</sup> Typical adherence rates for prescribed medications are about 50%,<sup>2</sup> with rates found in the treatment of alcohol and opiate dependence being comparable to those for diabetes, hypertension and asthma.<sup>3</sup> Objective measures of adherence, such as collection of medication at the pharmacy, cannot confirm medication consumption or consumption of the right dose at the right time. More objective tests such as urinalysis can be tampered with.<sup>4</sup> Plasma drug levels may be difficult to interpret owing to varying inter-individual rates of metabolism and drug–drug interactions.<sup>5</sup> Subjective measures such as patient self-report are subject to recall bias and untruthfulness, and patients and physicians may have a different concept of what constitutes a ‘missed dose’.<sup>6</sup> Of wider concern is the risk of unused methadone being diverted onto the black market,<sup>7</sup> and the increased risk of it being taken by non-tolerant individuals with fatal results.<sup>8</sup>

The new *Drug Misuse and Dependence – UK Guidelines on Clinical Management* place a strong emphasis on optimising treatment,<sup>9</sup> but if individuals are not taking their medication as prescribed there is a risk

that it will be less effective. Currently there is a lack of data on adherence to substitute opioid prescribing. The aims of this study were to quantify one aspect of non-adherence, the extent to which patients miss picking up doses of prescribed opioid medication, and to investigate the factors associated with it.

### Method

The inner-London boroughs of Camden and Islington have a combined population of 397 000 – a diverse community with areas of significant deprivation alongside areas of relative affluence. Camden and Islington have a high proportion of people using drugs who are recorded as being in treatment.<sup>10</sup> Substance misuse prescribing services are provided through a network of National Health Service (NHS) clinics, which are consultant-led, multidisciplinary teams offering a range of specialist treatment services, including maintenance opioid prescribing, detoxification, a crack cocaine programme, primary care services, care management and criminal justice interventions. The three treatment services included in the study each cover different geographic