



Public Health
England



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Medication supply for people evacuated during disasters

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Why is bringing medication important?

- After emergencies:
 - Health facilities are damaged
 - Infrastructure interrupted→Continuity of routine healthcare is challenging.
- Disruption of care can cause:
 - Exacerbation of chronic conditions
 - Acute secondary conditions
 - Withdrawal syndrome
- Medication refill can be a burden on relief teams

After the Great East Japan Earthquake..

- Severe damage to hospitals
 - Disruption of infrastructure
 - High prevalence of chronic disease due to rapidly ageing population
- Many “drug refugees”



Lost transportation



Damaged hospitals



Prescription needs

Project Questions

- Are people being evacuated at greater risk if not prepared for their usual day to day medical care?
- Should there be initiatives such as educating people about personal medication stockpiles?
- Should evacuees bring their own medication, could this reduce health risks?

Objectives

- To identify the extent and implications of medication loss
- To identify the burden of prescription refill
- To make recommendations on effective preparedness

Methods

Systematic literature review

- Databases
 - Medline, Embase, PsycINFO, Maternity and Infant Care, HMIC
- Search Terms (Table)
- Period: Jan 2003-Sep 2013
- Inclusion criteria
 - (i) evacuees' actions of bringing prescription medications
 - (ii) burden of prescription refills within relief activities
 - (iii) disruption of medications.
- Exclusion criteria
 - (i) abstracts for conferences or dissertations
 - (ii) chapters of books
 - (iii) articles written in a language other than English

Search Terms (MeSH terms)

Disasters
Disaster medicine
Disaster planning
Emergencies
Emergency shelter
Relief work
Chronic disease
Community-based participatory research
"Delivery of health care"
Drug prescriptions
Drug utilization
"Health services needs and demand"
Health services accessibility
Medication adherence
Needs assessment
"Patient acceptance of health care"
Patient compliance
Pharmaceutical preparations
Prescriptions
Prescription drugs

Search Strategy

Identification

Records identified through database
(n = 5,382)

Records after
duplicates removed
(n = 3,730)

Screening

Records screened by title
(n = 3,730)

Records apparently irrelevant
and excluded for filling exclusion criteria
(n = 2,919)

Eligibility

Records assessed by
abstracts for eligibility
(n = 811)

Abstracts excluded,
for not filling inclusion criteria
(n = 513)

Included by Secondary screening
(n = 66)

Included

Full-text articles assessed
for eligibility
(n = 364)

Full-text articles excluded,
for not filling inclusion criteria
(n = 294)

Articles included in qualitative synthesis
(n = 70)

Result 1. Medication loss (29 articles)

- 32¹-48.4% ² of the patients evacuated without prescription medications.
- Some brought only 3 days of prescriptions.
- Specific condition types studied included:
 - Diabetes
 - Hypertension
 - HIV infection
 - Dialysis (hemodialysis, peritoneal dialysis)
 - Home oxygen therapy (HOT)

1. Brodie M et al 2006. Am J Public Health, 96, 1402-8

2. Greenough PG et al. Ann Emerg Med, 51, 426-32.

Result 2. Burden of prescription refill (22 articles)

- 44% of evacuees¹ and 80% of patients² at shelters required prescription refill
- Prescription refill was the 4th most common health and health-related issue³
- Prescriptions included:
 - Dentures
 - Spectacles
 - Pain relief



1. Pierce JR 2007. J Public Health Manag Pract, 13, 441-6
2. Irvin CB & Atas JG. 2007. Prehosp Disaster Med, 22, 220-3
3. Post DE et al. 2008. Am J Disas Med 3, 253-64.

Result 3. Medication is not limited to pills

- **Routine medications**
- **Medical records**
 - List of medications
 - Medication logs (e.g. chemotherapy)
 - Laboratory data (e.g. Tuberculosis test results)
 - Allergy information
- **Devices for specific care**
 - Devices for insulin delivery (e.g. needles, glucose-sensor)
 - CPAP machines
 - Power generator / automobile with inverter
 - Oxygen cylinders/concentrators
 - Canned nutritional supplements for the tube feedings
- **Devices for daily life**
 - Spectacles
 - Hearing aids
 - Canes, Walkers, Wheel chairs
 - Dentures
- **Emergency medications e.g. potassium-binding resin**
- **Others**
 - Personal identifier for those who cannot speak
 - Medication opening devices for those with hand disabilities

Possible Solutions

△ Just having a personal stockpile did not affect the probability of medication loss¹

○ Bring the personal stockpile **at all times**

- Make an emergency pack²
- Pack **full range of** medications and medical devices

Other possible solutions

For patients to understand the impact of medication loss

Help patients make a personalised emergency kit



1. Tomio (2010). *Prehosp Disaster Med*, 25, 42-50.

2. American Red Cross (2013). <http://www.redcross.org/prepare/location/home-family/get-kit>

Recommendation

Every community member has a role in preventing medication loss



Actions to spread our findings & recommendation

What we have done

- Quoted our poster in the Evidence Aid message for the Philippines.¹
- Sent our paper to the UK Cabinet Office and the Civil Contingencies Secretariat as well as the UK Emergency Planning College.
- Spread our paper by mailing list for Japanese pharmacists
- Present it at academic conferences
- Send the paper to key persons of disaster risk reduction: e.g. WHO/CDC and other public health staff

Planning to..

- Spread it by mail magazines

1. <http://www.evidenceaid.org/resources-following-typhoon-haiyan-in-the-philippines/>

Further research required

- Assessment of health impact of medication loss
- Evaluation of programmes for preparedness
- Surveillance on who were the most vulnerable with regard to medication loss

Conclusion

- Bringing medication is the major key to:
 - Continuity of care
 - Emergency risk reduction for health
- Older people are the most vulnerable and at higher risk
- Preparedness actions include:
 - Having a personal stockpile
 - Making an emergency kit
 - Personally keeping a list of a full range of items
 - Periodically reviewing emergency plans
- All stakeholders should be involved