



Infectious Waste Management in Ministry of Public Health Hospitals by Private Transport Sector : Case Study Hospitals in the Northeast of Thailand

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Outline of the presentation

- ☺ Problems statement and justifications.
- ☺ Objective.
- ☺ Material and Method.
- ☺ Results.
- ☺ Conclusions and Recommendations



Problems statement and justification

Goble statements of IW

• Volume of infectious waste

- ☺ US produced 8 kg/bed /day.
- ☺ Jordan produced 0.29 to 1.36 kg/bed /day.
- ☺ Iran produced 4.45 kg/bed /day.
- ☺ Korea produced 0.48 kg/bed /day.

Abu Qdais, et al, 2006

Problems statement and justification

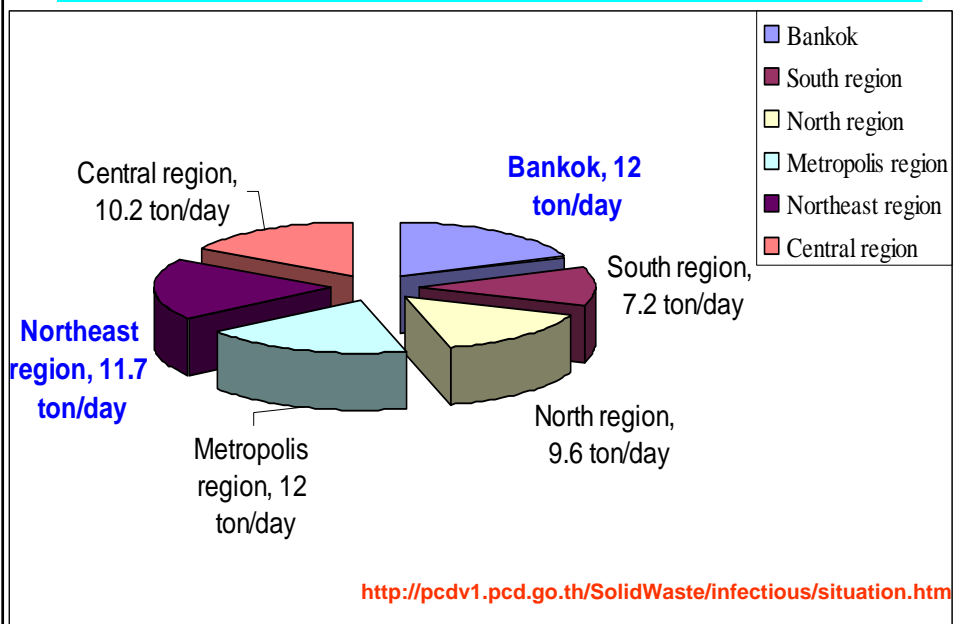
Thai statements of IW

Volume of infectious waste :

- ☺ 0.4 kg./bed /day in regional hospital
- ☺ 0.3 kg./bed /day in provincial hospital
- ☺ 0.58 kg./bed /day in community hospital

Suporn, et al, 2006

Amount Infectious Waste in the Region Thailand



Situation of Hospitals in the Northeast of Thailand

- **Ministry of Public Health hospitals in the northeast units of 281 hospitals**
 - ❖ **3 regional hospitals**
 - ❖ **17 provincial hospitals**
 - ❖ **261 community hospitals**

Suporn, et al, 2006



Problems statement and justification

Risks of IW

Both direct and indirect of IW attach by:

- ☹ Direct contact between the individual
- ☹ Indirect the contaminated waste, especially in situations in which the pathogen may enter the organism

WHO, 1999



Problems statement and justification

Exposures of IW

- ☺ Hospital patients
- ☺ Health care workers
- ☺ Visitors to health-care establishments
- ☺ Workers in support services allied to health-care establishments
- ☺ Environment
- ☺ Collect IW worker



Problems statement and justification

Cause of ill health

- **Worldwide**

- ☺ 8-16 millions of hepatitis B,
- ☺ 2.3 to 4.7 millions of hepatitis C
- ☺ 8,000 to 160,000 with HIV infectious

- **In USA**

Exposures with needles and syringe.

- ☺ 17,700 to 22,000 of nurses and healthcare workers
- ☺ 28,000 to 48,000 of hospital cleaners
- ☺ 500 to 7,300 of scavengers offsite hospital

www.who.int



Problems statement and justification

Economic Loss

- **High expenditure of IW disposal :**

- ☺ India spent US\$ 3,000-4,000 per ton.
- ☺ Spain spent €1,000,000 per ton.
- ☺ Thailand spent 43,000 to 270,000 Baht a month in public hospital.

Ministry of Public Health, 2002

Problems statement and justification

Environment risk

- Release of waste to :
 - ☺ Ground-water.
 - ☺ Surface water.
 - ☺ Air.



Problems statement and justification

Situation of IW in Thailand

The IWM in Thailand can categorize into 4 methods:

1. Onsite Hospital.

The hospitals that could manage the whole process of the disposal by themselves for example segregating, gathering, transporting and incinerating.

2. Local Administrative.

The hospitals that could manage some of the process of the disposal, just only segregating, gathering, and then transporting the waste to the Local Administrative Authority Incinerator.

Sukon et al, 2007

Problems statement and justification

Situation of IW in Thailand

The IWM in Thailand can categorize into 4 methods:

3. Other hospital.

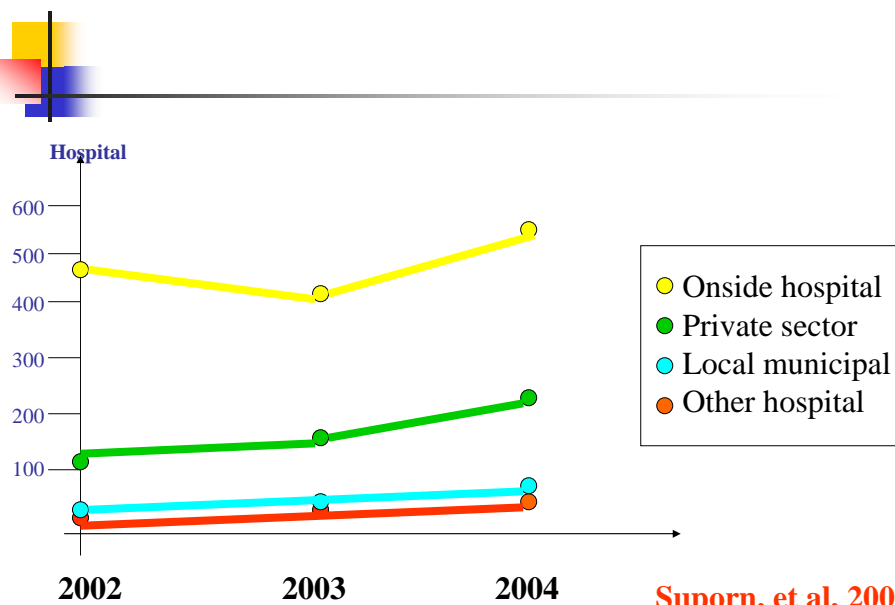
The hospitals that could manage some of the process of the disposal , just only segregating, gathering, but had the another hospitals dispose the waste.

4. The Private sector disposal.

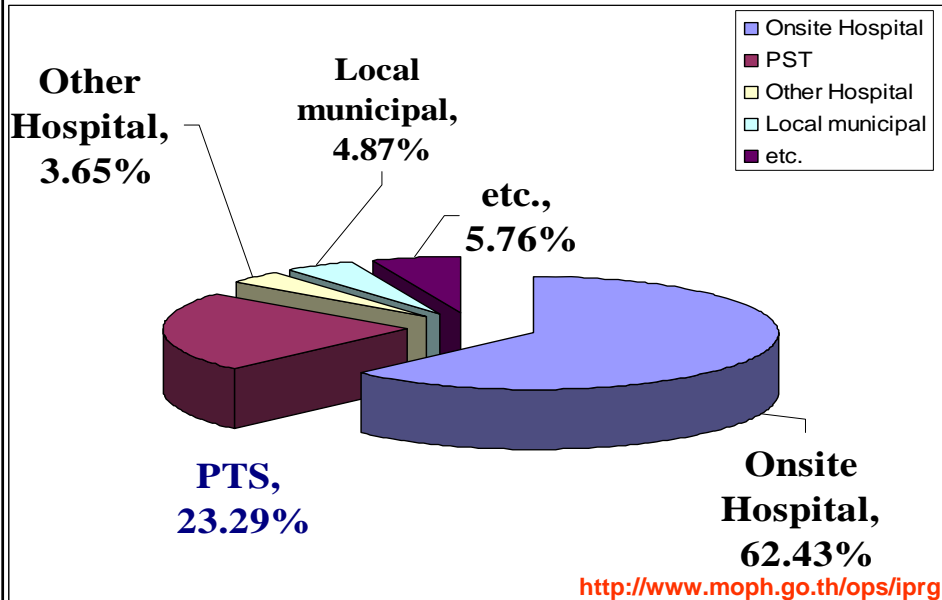
The hospitals that could manage some of the process of the disposal , just only segregating, gathering, but had the private sector dispose the waste.

Sukon et al, 2007

The IW disposal in public hospital in Thailand 2002-2004



The IW disposal in public hospital in Thailand 2004



Objective

To determine problems and obstacles of the hospital's IWM by PTS.



Material and Method

Study design

A cross-sectional study design :

- The qualitative method including







Material and Method

Population of this study are:

The 12 MoPH hospitals that employed the PTS was select

- 3 regional hospitals
- 4 provincial hospitals
- 5 community hospitals

The 3 PTSs

Material and Method

Sample size estimation

The sample size estimation will be drawing within the purposive samplings who meet the inclusion criteria.

- ☺ The representative population from the IW source
- ☺ The head and transportation's employees the PTS

Results

MoPH- Hospitals

- **The planning and policy**
most of hospital have
planning and policy but
the practice were not
regular and completed.



Results



- Lack of knowledge and awareness of IWM



Results

- The transport IW in hospitals.
 - Lack of route for IW transported separate from garbage.



Results

- Lack of IW standard vehicle for transportation.



Results

- Lack of knowledge, awareness and personal protection equipment.



Results

- For the IW storage.
The structure and the building were low standard from MoPH.



Results

- no air-condition and control temperature under 10°C



Results

- The ferment and strong smell were found.



Results

- The PTS
 - ❖ lack of knowledge and awareness especially the danger from pressed crashed the infectious container bags raising.



Results

- The PTS employees no personal protection equipment.



Results

- The vehicles of PTS were low standard from MoPH.



Results

- **The IW manifest system**
 - no standard
 - weight loss was the main example for IW disposal.



Conclusions

- ❖ They have no standard guide line for work and transport.
- ❖ The policy of managed the IW were not clear.
- ❖ The problem started with the separated, handling, storage and stocked still has developed.
- ❖ The PTS should develop and provide standard equipments and vehicle with rule by MoPH and train the PTS worker before working was necessary.



Recommendation for hospital

- **built policy and planning for practice and control examine and evaluation system for reduce the number of IW.**
- **increase more knowledge for IWM**
- **well quality check for PTS before make a permit**
- **reduce the volume of the IW**



Recommendation for PTS

- **provide the IWM know-how of the standards of environmental sanitation.**
- **monitoring and control sector for the IW disposal standards**



Recommendation for National policy

- **build scope of transport**
- **clearly IW manifest system**
- **including the development of official and organization for set standard for working or procedure.**



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