

PROJECT

ROLLIEF: ONE-STEP WOUND CARE

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DATE

2/12/18

VENUE

IMPACT-A-THON 2018

Spread of Infection: Post-Disaster

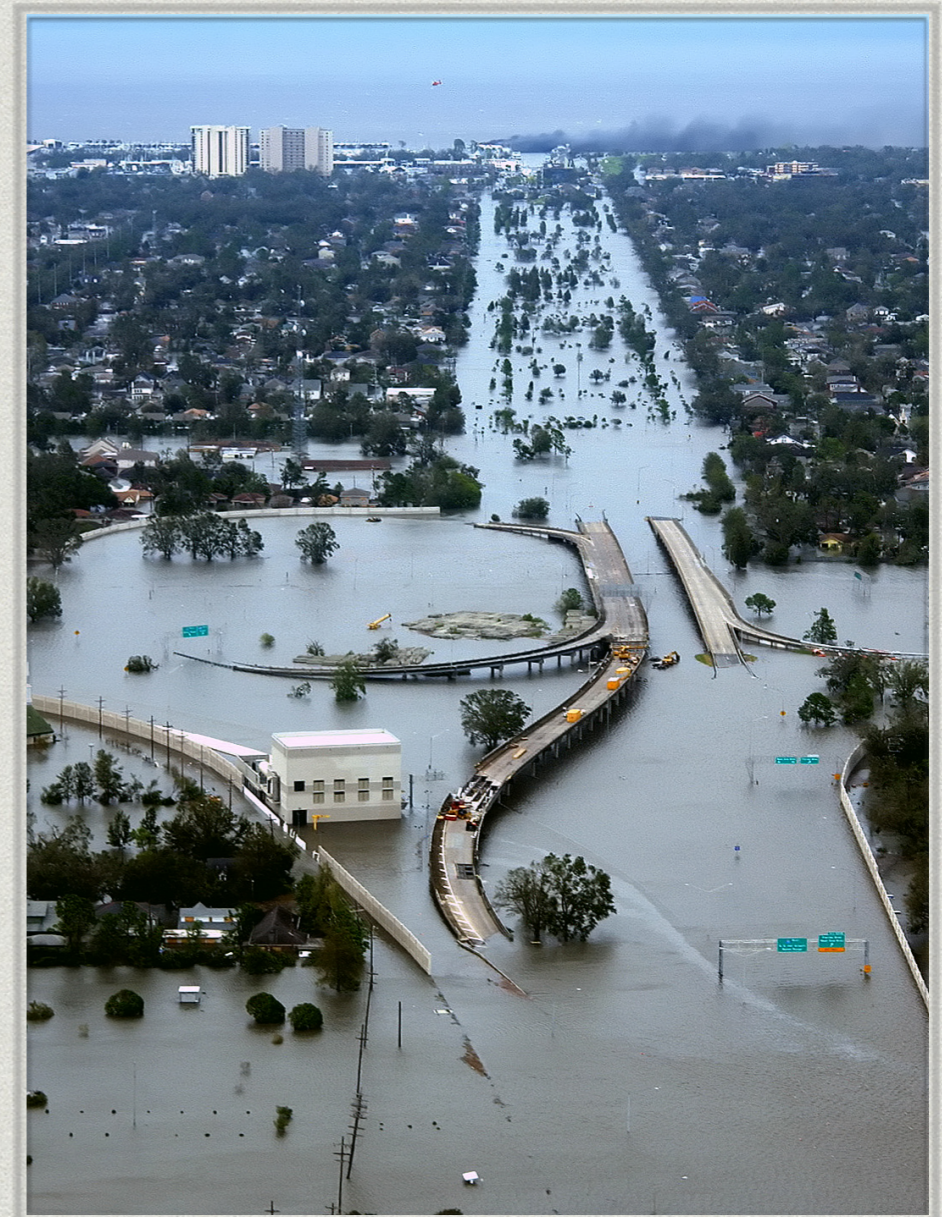
- * Spread of disease is exacerbated by overcrowding of survivors
- * Infectious diseases such as leptospirosis are often spread due to contamination of water and inability to work in sterile conditions
- * In populations where vaccination rates are low, tetanus becomes a serious public health concern for those that are injured; fungal infections are also a concern
- * Clinical management protocols are in place but must be ensured at every contact point between patients and health services, making it difficult for patients to care for their own wounds

“Epidemics after Natural Disasters - Volume 13, Number 1-January 2007 - Emerging Infectious Disease journal - CDC.” Centers for Disease Control and Prevention, Centers for Disease Control and Prevention, 28 June 2010, wwwnc.cdc.gov/eid/article/13/1/06-0779_article

Kouadio, et al. Infectious diseases following natural disasters: prevention and control measures. United Nations University International Institute for Global Health, 2012, i.unu.edu/media/unu.edu/publication/20293/koffis-publication-2012.pdf.

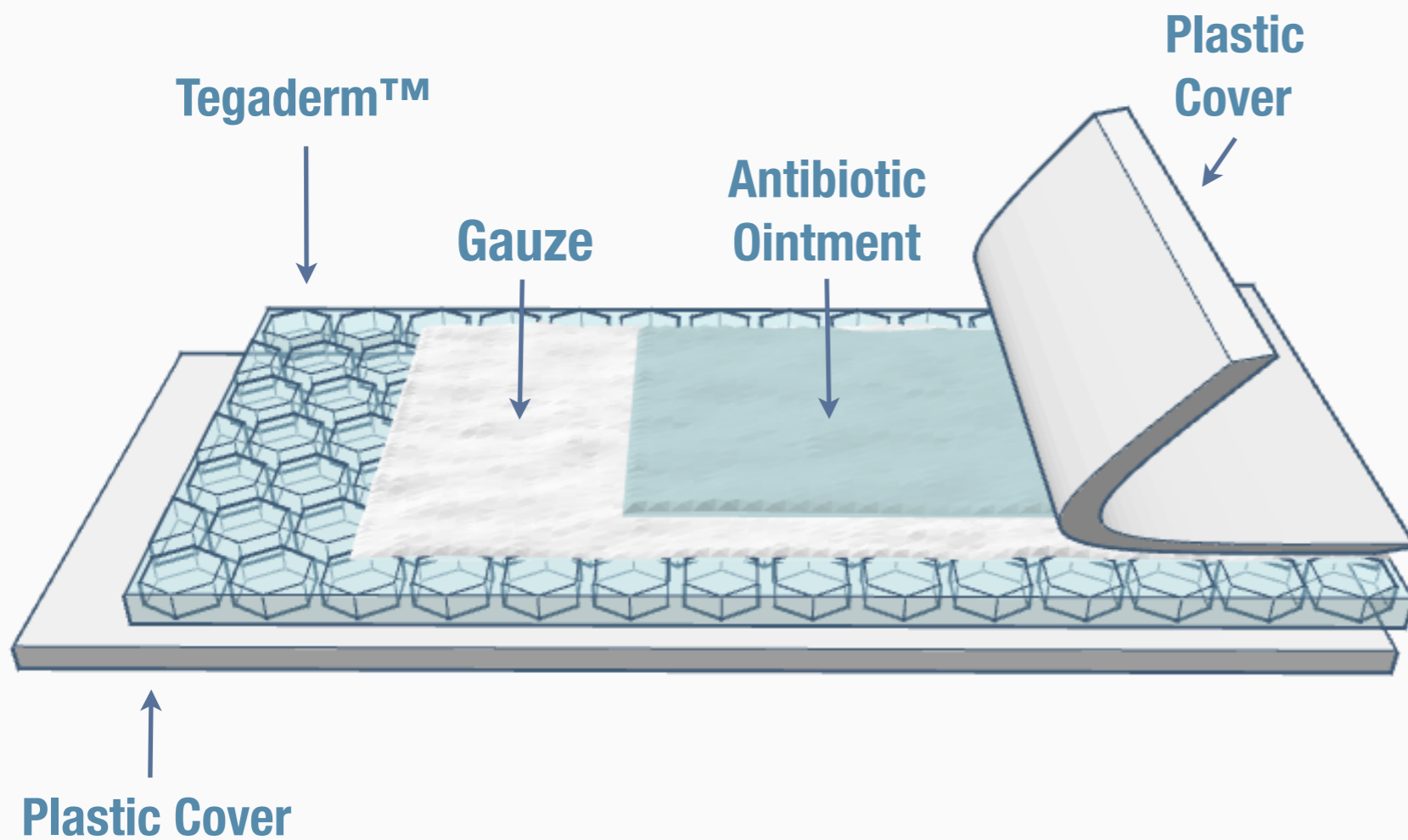
Infection Epidemics

Country	Natural Disaster	Year	Infectious Epidemic
USA (Joplin, MO)	Tornado	2011	Cutaneous Mucormycosis
Japan	Earthquake	2011	Norovirus, influenza
Pakistan	Earthquake	2005	Hepatitis E, tetanus
Indonesia	Tsunami	2004	Hepatitis A and E, tetanus
Taiwan	Typhoon	2001	Leptospirosis
China	Typhoon	2001	Leptospirosis
Thailand	Flood	2000	Leptospirosis
India (Mumbai)	Flood	2000	Leptospirosis



Current Methods

- * The Center for Disease Control recommends the following steps for treating wounds in disaster situations:
 - * Wash hands thoroughly, if possible
 - * Keep open wounds clean and cover with waterproof bandage (to reduce chance of infection)
 - * Leave uncleaned wounds open, because wounds that aren't cleaned correctly can trap bacteria and cause infection
 - * Check the wound every 24 hours



[Layers of Rollief Bandage]



[3D Printed Tape Holder]

THE DESIGN

Design Process

- * Sealed bandage dispenser to prevent infection
- * Inspired by everyday objects
- * Tegaderm™: first aid tape that is water proof and assists wound healing
- * Loose ends of bandage- CAD designed a first aid tape holder
- * Turned gauze 90 degrees for cutting ease



Our Improvements

- * Our goal was to design an easy application bandage to relieve wounds and prevent infection in disaster situations
- * Tape dispenser model allows application to self or another for a wound of any size
- * Sterile packaging and antibiotics included

