EMPOWERING EMERGENCY PREPAREDNESS, RESPONSE, RECOVERY, AND RESILIENCE ACROSS MARYLAND COMMUNITIES

JADMIN MOSTEL
JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH
MARYLAND DEPARTMENT OF HEALTH, OFFICE OF PREPAREDNESS AND RESPONSE
1. Project Introduction & Overview
1. Medical advances lead to an aging population

2. Increased transition to individuals living at home with chronic conditions and durable medical equipment (DME)

3. Disaster events result in power outages

4. Increased burden on healthcare facilities

5. Increased morbidity and mortality for community members reliant on electricity-dependent medical equipment

6. How can emergency responders better prepare for and respond to this at-risk population?
THE NUMBERS

• 2003 NYC blackout: 37 hospitalizations and 65 emergency department visits within 2 days solely for patients presenting with respiratory device failure

• At least 2.5 million Medicare beneficiaries depend on DME

• New Tool: Health and Human Services (HHS) emPOWER data

• To-date: HHS emPOWER data used in 43 states, 5 territories, 3 cities, and in medical capacities (i.e. hospitals, local health officials, and emergency medical settings)
2. Methods & Approach
WHAT IS HEALTH AND HUMAN SERVICES (HHS) EMPOWER DATA?

- Medicare beneficiary data
- List of durable medical equipment (DME)
- Deidentified/identified
- Monthly spreadsheet
- The need to visualize
| Zip Code | County | State Code | State | County Code | State FIPS Code | County FIPS Code | # Medicare Beneficiaries in Zip Code | # Benefit Addresses (Excludes P.O. Boxes and Unknowns) | # In-Hospital Services [tanks] | # O2 services [tanks] | # Home Health (3 months) | # Hospice (6 months) | # At-Home Hospice (6 months) | # Electricity Devices and DME | # Cardiac Devices (5 years) | # Ventilators (13 months) | # BIPAPs (13 months) | # O2 Concentrator (36 months) | # Enteral Feeding (13 months) | # IV Infusion Pumps (13 months) | # Suction Pumps (13 months) | # At-Home ESRD Dialysis or Scooters (13 months) | # Motorized Wheelchair or Scooters (13 months) | # Electric Beds (13 months) |
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3. Findings
FINDINGS OVERVIEW

- Review of other states
  - Visualize jurisdictional counts
- Use of ESRI ArcMap
  - Identify environmental hazards associated with at-risk jurisdictions
- CDC Social Vulnerability Index (SVI)
  - Operate emergency procedures accounting for at-risk jurisdictions
- Deidentified vs. Identified Data
Primarily simulation-based

Assessed data accuracy in New Orleans (LA), Fairfax County (VA), Broome County (NY), and Arizona

Power restoration priorities, evacuation strategies, door-to-door check-is, geographical estimates of vulnerable individuals, in-house support, targeted medical aid
1. Visualize Jurisdictional Counts
2. Identify Environmental Hazards Associated with At-Risk Jurisdictions
3. Operate Emergency Procedures Accounting for At-Risk Jurisdictions
IMPORTANT CONSIDERATIONS

What is the emergency?

What type of medical equipment does the individual require?

What are the power needs for medical equipment?

Does the individual have other risk factors as evidenced by the CDC social vulnerability index?

Will the HHS emPOWER data be on an identified or de-identified level?
**Identified vs. Deidentified Data**

**Identified Data:**
- Evacuation
- Door-to-door check-in post disaster
- Direct delivery of power services (generator, batteries)
- Prepare individuals pre-disaster to reduce risk of morbidity/mortality

**Deidentified Data:**
- Prioritize power restoration
- Inform generator establishment by jurisdiction
- Prioritize road clearing
- Prepare local hospitals for DME-dependent individuals
4. Limitations
Deidentified data: 1-11 as 11
Individuals with DME not on Medicare
Individuals taken off Medicare while still on DME
Time to process identified data request
Reliance on ArcMap knowledge
5. Practice Implications & Lessons Learned
HHS emPOWER data and ArcMap: guide emergency response activities pre and post disaster

Key limitation: restrictions to deidentified data

Communicate with at-risk individuals and local health facilities pre disaster

Educational materials: learn about risks during emergency events, flood zones, DME-dependent, evacuation routes, etc.

Future uses: emergency responders equipped with batteries, medical equipment integrate a GPS signaling when battery levels reach below a threshold
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7. References


