

Flood impacts on healthcare facilities and disaster preparedness – A systematic review

Yared Abayneh Abebe, Maria Pregnolato and Sebastiaan N. Jonkman

GFP Annual Meeting 2025 | Budapest, Hungary | 15 to 17 September 2025

Introduction

- **Floods** pose significant threats to human health, including fatalities, damage to **healthcare facilities (HCFs)**, and disruptions to health services.
- We systematically reviewed scientific articles:
 - What are the **critical impacts of floods** on HCFs?
 - What are the **risk management measures** implemented by HCFs?



Memorial Medical Center – August 2005, New Orleans, USA
Source: Nurseslabs



Flooded nursing home – July 2021, NL
Source: Sevagram



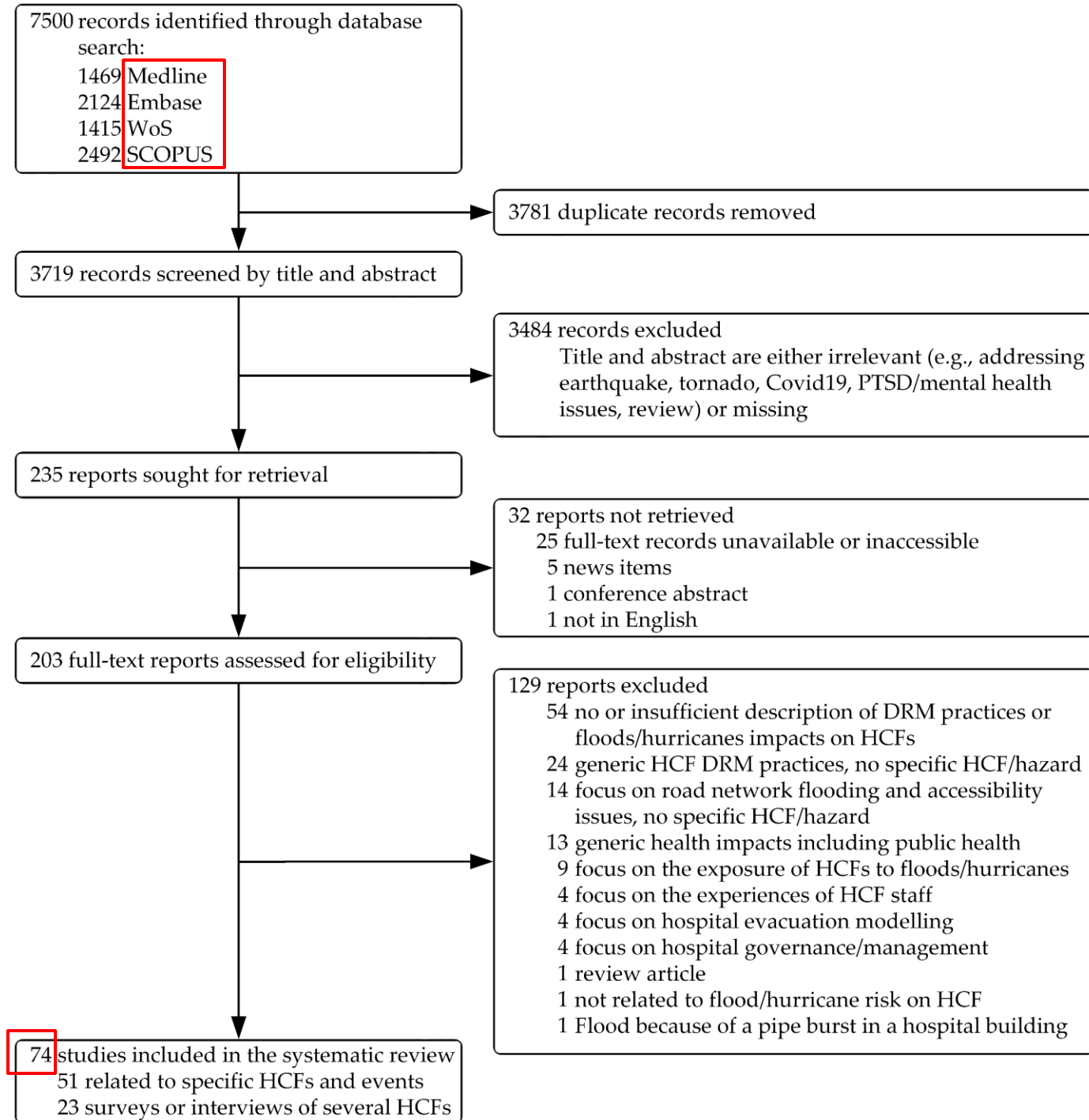
Radiology practice – July 2021, DE
Source: Rheinisches Ärzteblatt

Search strategy

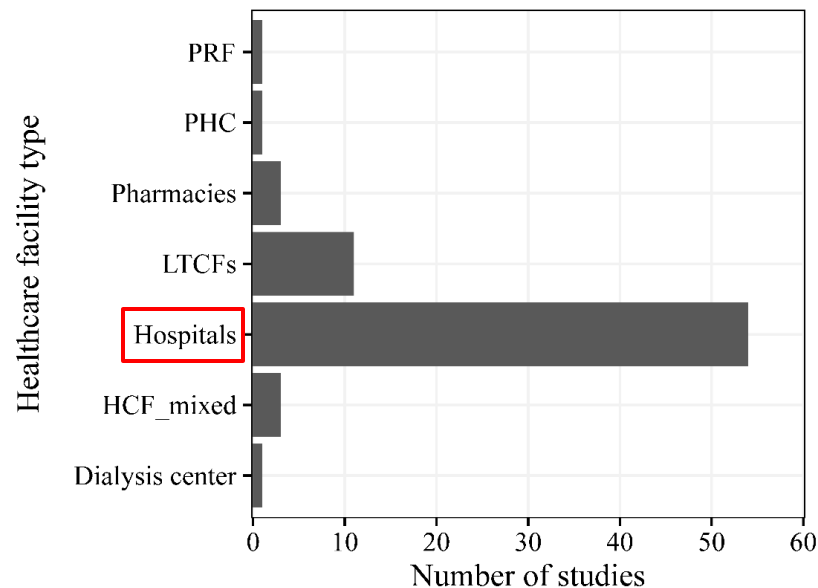
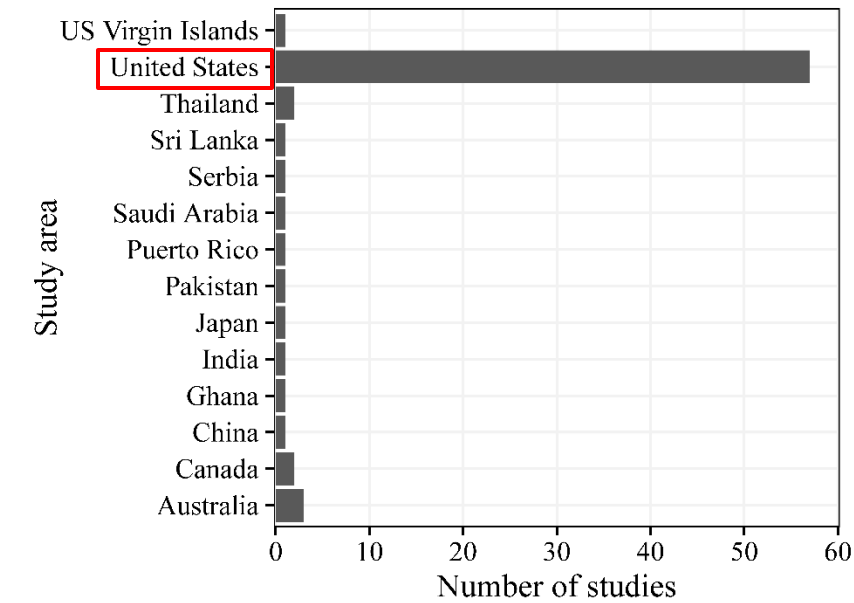
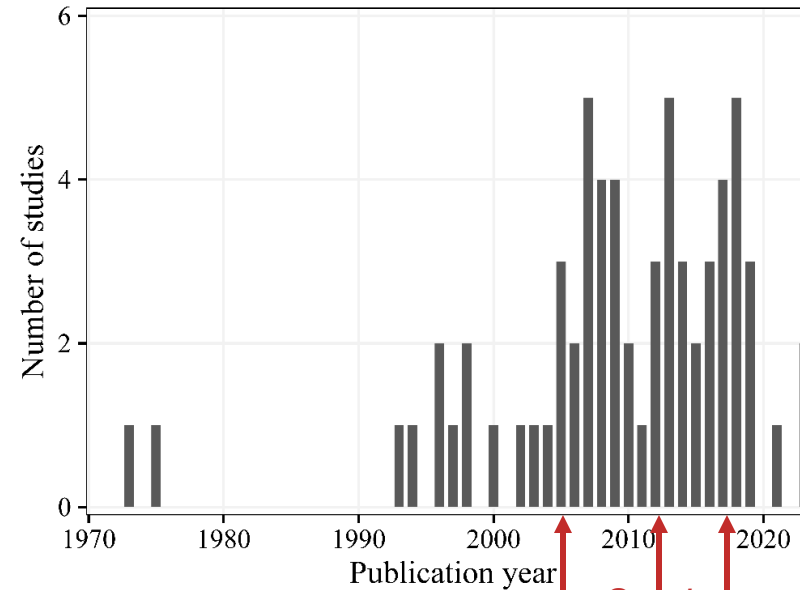
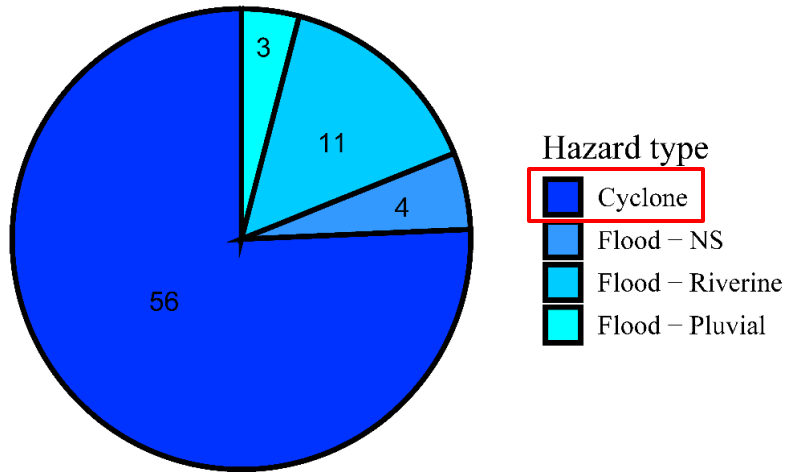
- **Publication Year** –
up to 20 November 2023
- Exclude by **Language** –
non-English records

Hazard	Healthcare facilities	Disaster risk management
Flood	Health(care) facility	Preparedness
Cyclone	Hospital	Planning
Hurricane	Nursing home	Mitigation
Typhoon	Care home	Recovery
Tropical Storm	Assisted living facility	Response
	Pharmacy	Adaptation
	Clinic	Resilience

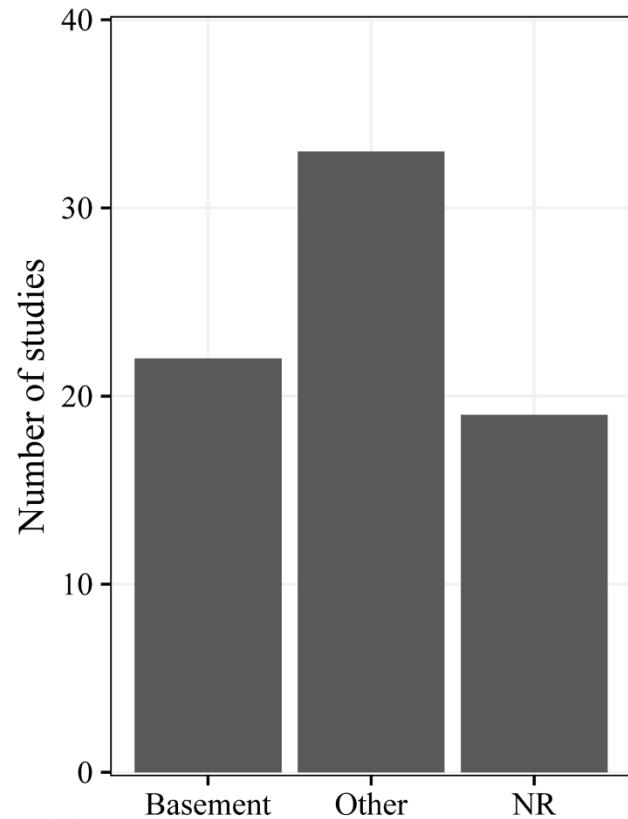
Results



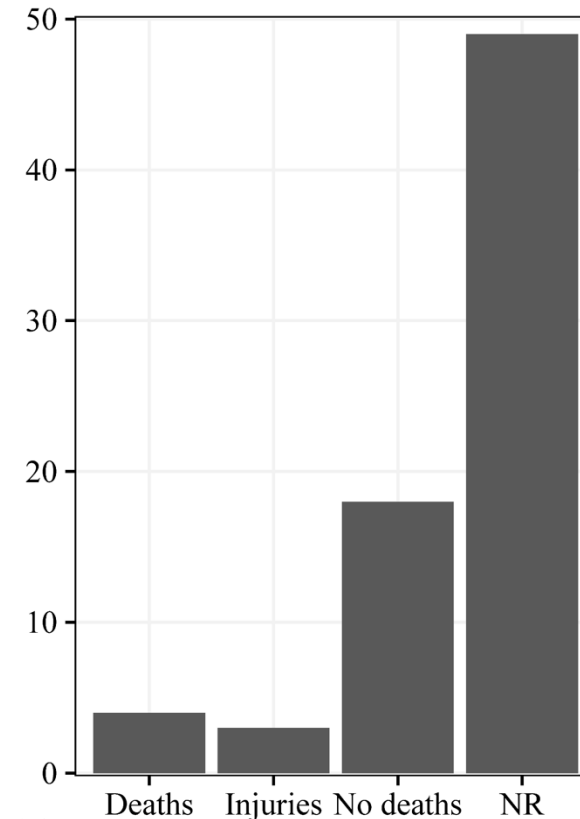
Result - characteristics of included studies



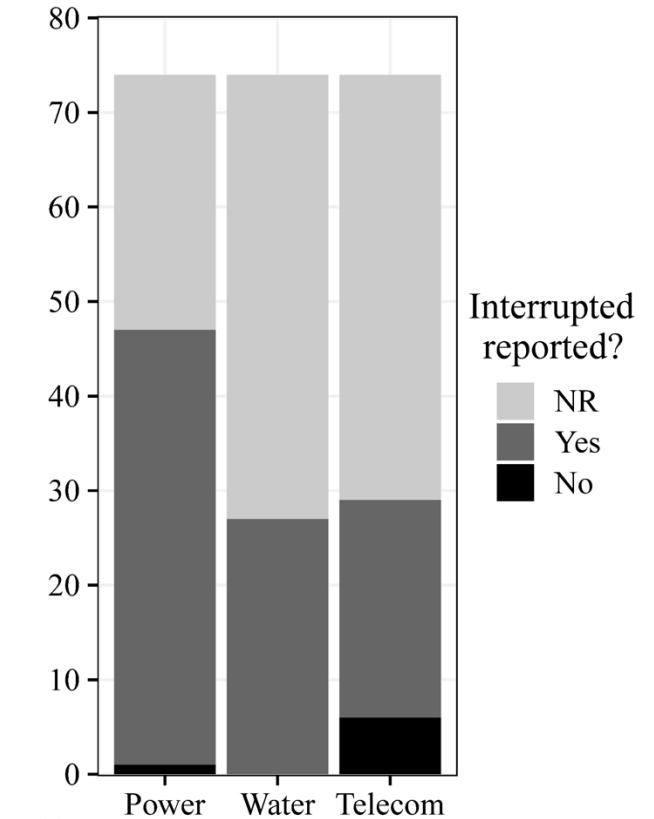
Result – reported impacts



(a) Direct/indirect damage on facilities

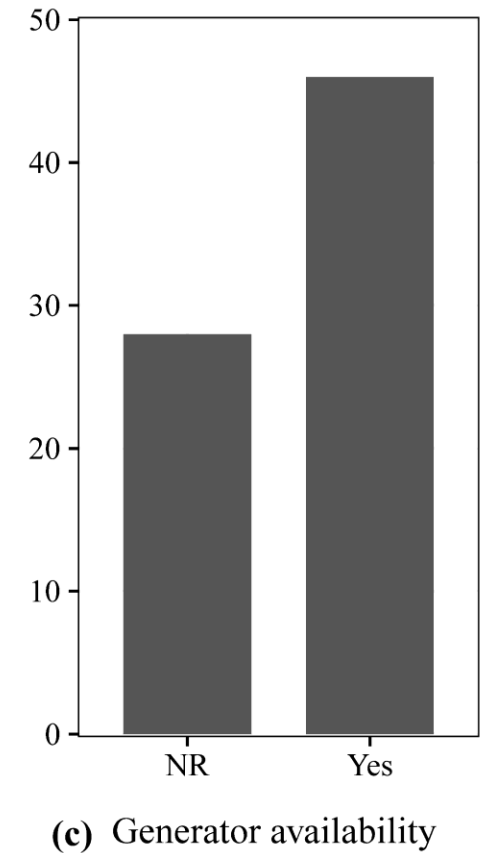
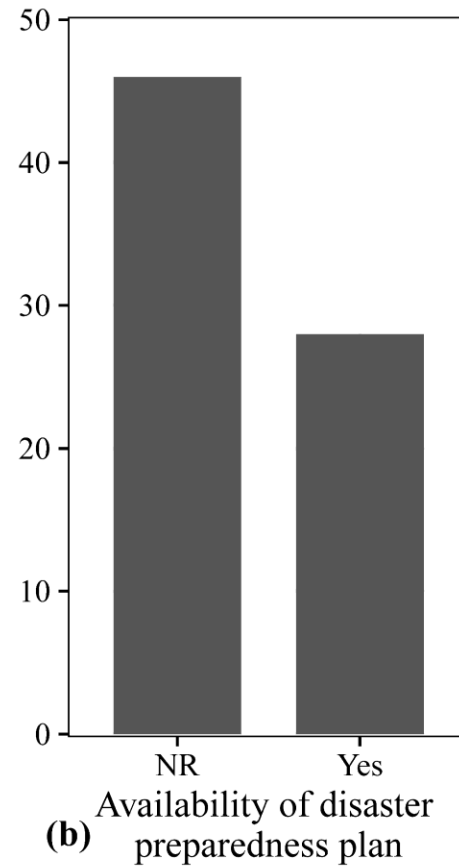
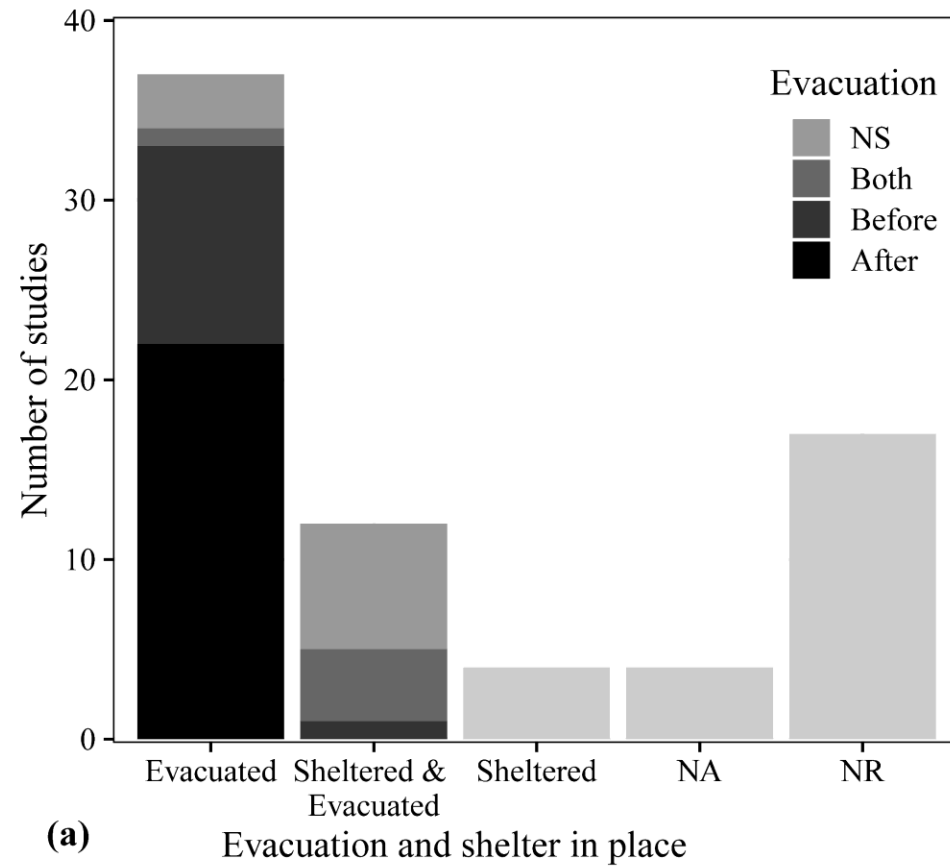


(b) Deaths/injuries



(c) Interrupted utilities

Result – risk reduction measures



Conclusions

- Inconsistencies in the flood preparedness of HCFs - **protocols and standards**
- Flood preparedness is a multifaceted process involving various factors - organize **large-scale emergency drills**
- HCF **building codes** can help ensure the safe design, use and adaptation of the facilities
- More publications from **flood-prone countries** and on **non-hospital facilities** are needed to strengthen global evidence



Flood impacts on healthcare facilities and disaster preparedness – A systematic review

Yared Abayneh Abebe ^{a b} , Maria Pregnolato ^{a b}, Sebastiaan N. Jonkman ^{a b c d}

Show more

Add to Mendeley Share Cite

<https://doi.org/10.1016/j.ijdr.2025.105340>

[Get rights and content](#)

[Under a Creative Commons license](#)

Open access



Thank you!