

Amputee Rehabilitation after Disasters

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Phases of Amputee Rehabilitation

1

Peri-operative

commences when a patient has been initially evaluated in the clinical setting and has either undergone an amputation or the decision has been made that amputation is required

2

Pre-prosthetic

to prepare the patient and his or her residual limb

3

Prosthetic training

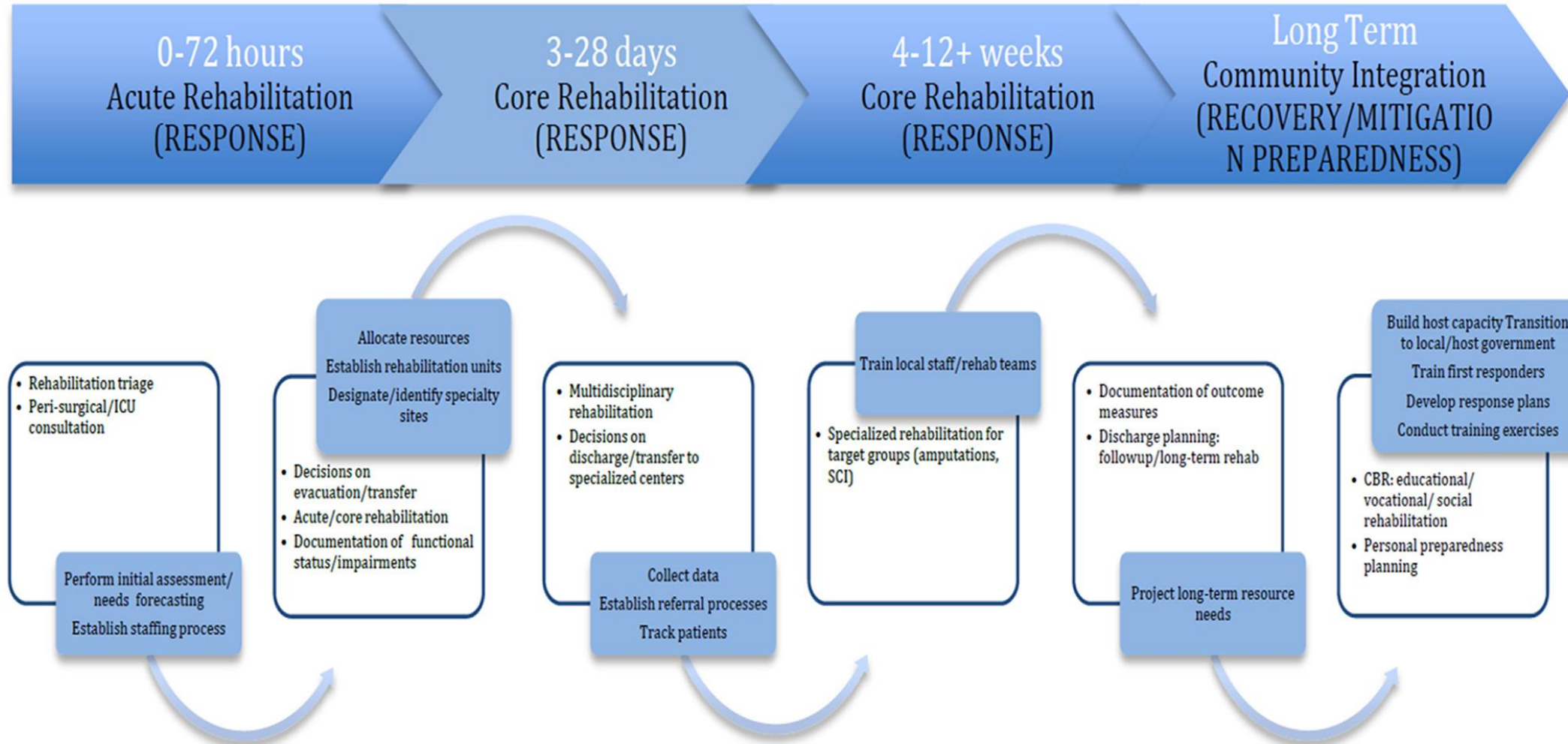
is determined to be an appropriate candidate to proceed to prosthesis fitting

4

Lifelong care

begins upon completion of the prosthetic training phase and continues throughout the remainder of the patient's life.

Medical Rehabilitation in Natural Disasters: A Review



Consensus Statements Regarding the Multidisciplinary Care of Limb Amputation Patients in Disasters or Humanitarian Emergencies: Report of the 2011 Humanitarian Action Summit Surgical Working Group on Amputations Following Disasters or Conflict

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Functional Outcomes

[BMJ Open](#). 2022; 12(8): e057158.

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Original research

Long-term effectiveness of rehabilitation services delivery for Wenchuan earthquake survivors with impairments over a 4-year period: a prospective cohort study

[Jan Reinhardt](#),^{#1,2,3,4,5} [Xia Zhang](#),^{#6} [Shi Chen](#),¹ [Jianan Li](#),⁴ [Mouwang Zhou](#),^{✉6} and [Fary Khan](#)⁷

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Journal Article



**Disaster Medicine and
Public Health**

Quality of Life in Lower-Limb Amputees 10 Years After the 2008 Sichuan Earthquake: A Cross-Sectional Study

Published online by Cambridge University Press: **16 August 2021**

[Qian Wang](#), [Caiyun Chen](#), [Sheng Zhang](#), [Yimin Tang](#), [Hongxia Wang](#), [Xue Zhou](#) and [Man-sang Wong](#)

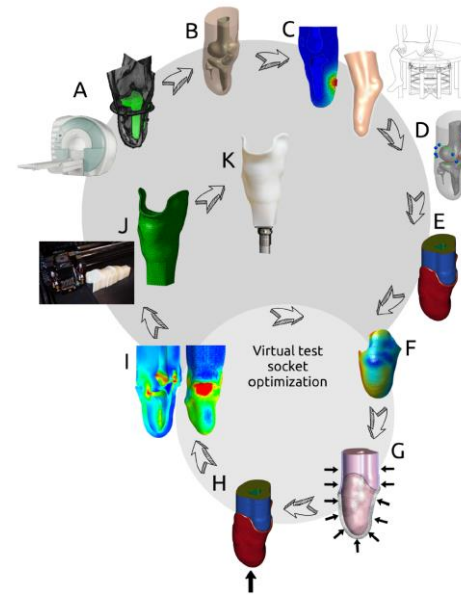
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Article

[Figures](#)

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A NEW LINER/SOCKET FABRICATION TECHNOLOGY



A CT scan of the residuum is performed (A) to obtain patient-specific external residuum shape and bone geometry (B). Mechanical tissue properties are estimated to create a biomechanical model of the residuum (C). Socket cut lines are computationally generated (D) based on anatomical landmarks. Socket and liner geometries are offset from the skin surface and merged with the residuum model (E). Socket and liner donning is simulated using spatially-varying fitting pressures (F) causing the liner and socket to mold to the soft tissue (G). This design is then evaluated under simulated full-body weight loading (H) and estimated loads on the skin calculated (I). This process (F-I) is iterated modifying initial fitting pressures computationally to minimize pressures and ensure high degree of uniformity under loading conditions. The optimal design is then exported for 3D printing (J) to be used for socket fabrication (K) and test socket evaluation.



https://www.google.com/search?q=hololens&sca_esv=39a203f7e53a9de7&sca_upv=1&hl=en&tbm=isch&source=hp&biw=1280&bih=593&ei=PWowZvOdKOqg5NoPs40UiAQ&iflsig=ANes7DEAAAAZjB4TYTnzLSreDsmvJ8-Xb1jfPuxgs2S&oq=hololens&gs_lp=EgNpbWciCGhvbG9sZW5zKgIIADIIEAAyAQYsQMyBRAAGIAEMgUQABiABDIFEAAyAQyBRAAGIAEMgUQABiABDIFEAAyAQyBRAAGIAEMgUQABiABDIFEAAyARI_BpQAFjFDnAAeACQAQCAYYCoAHKCKoBBTUuMS4yuAEByAEA-AEBigILZ3dzLXdpei1pbWeYAgigAuklwglOEAAyAQYsQMYgwEYigXCAgQQABgDmAMAKgcFNS4xLjKgB4QI&scient=img#imgrc=LITaz415dTwpDm

HoloLens Study Paradigm

The **HoloLens** device is an augmented reality headset developed and manufactured by Microsoft.

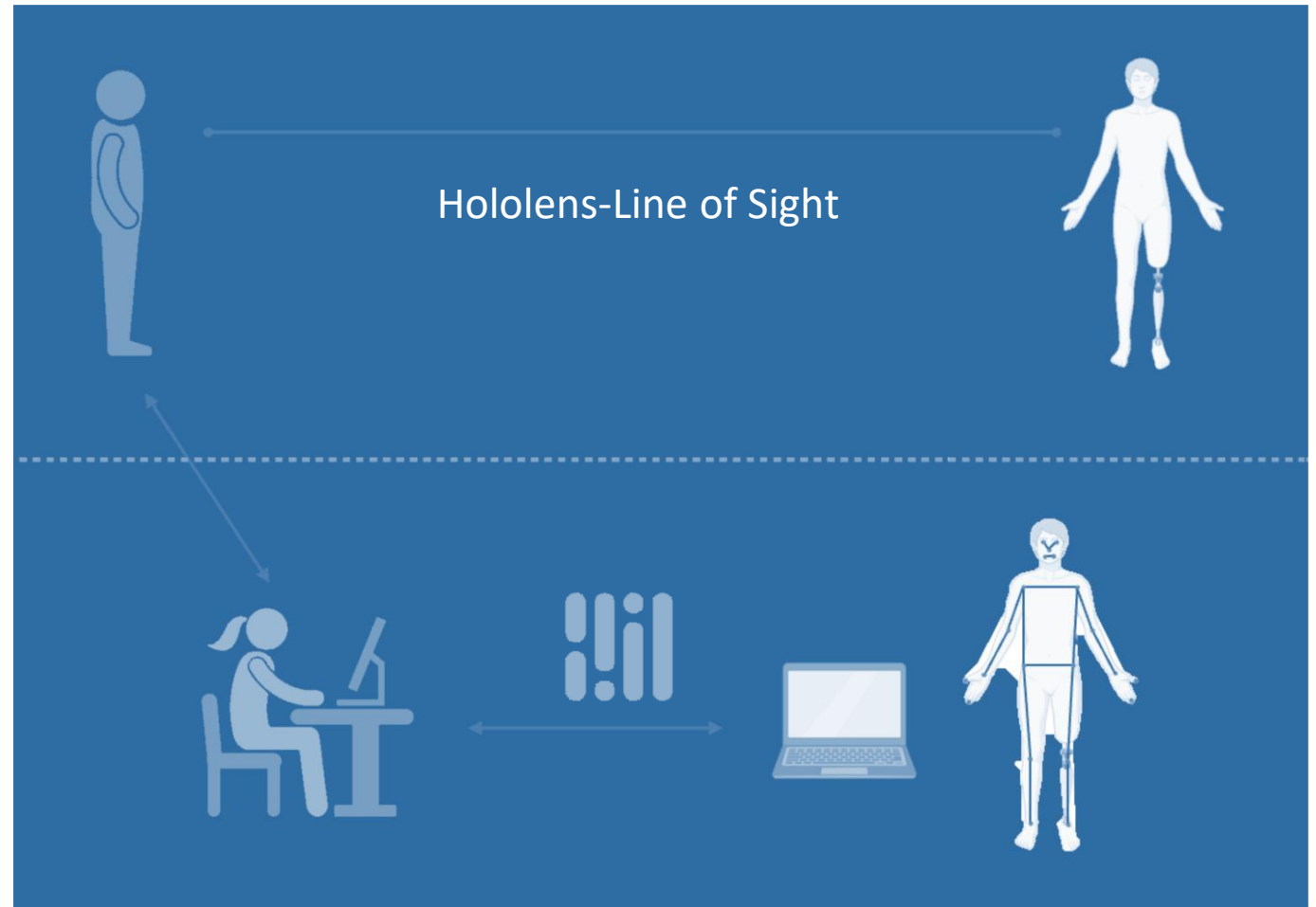
HoloLens allows clinicians to share a real-time view with experts remotely and stay hands-free with Dynamics365 Remote Assist mobile.

Forward facing camera and augmented reality lenses allows for Microsoft Teams calls during patient encounters.

MediaPipe is an open-source framework from Google that allows for real-time, simultaneous perception of human pose, face landmarks and hand tracking.

Detects landmarks of human bodies and can be used to identify key body locations, analyze posture, and categorize movements.

Uses machine learning (ML) models that work with input images or video and outputs body pose landmarks in image coordinates and in 3-dimensional world coordinates.

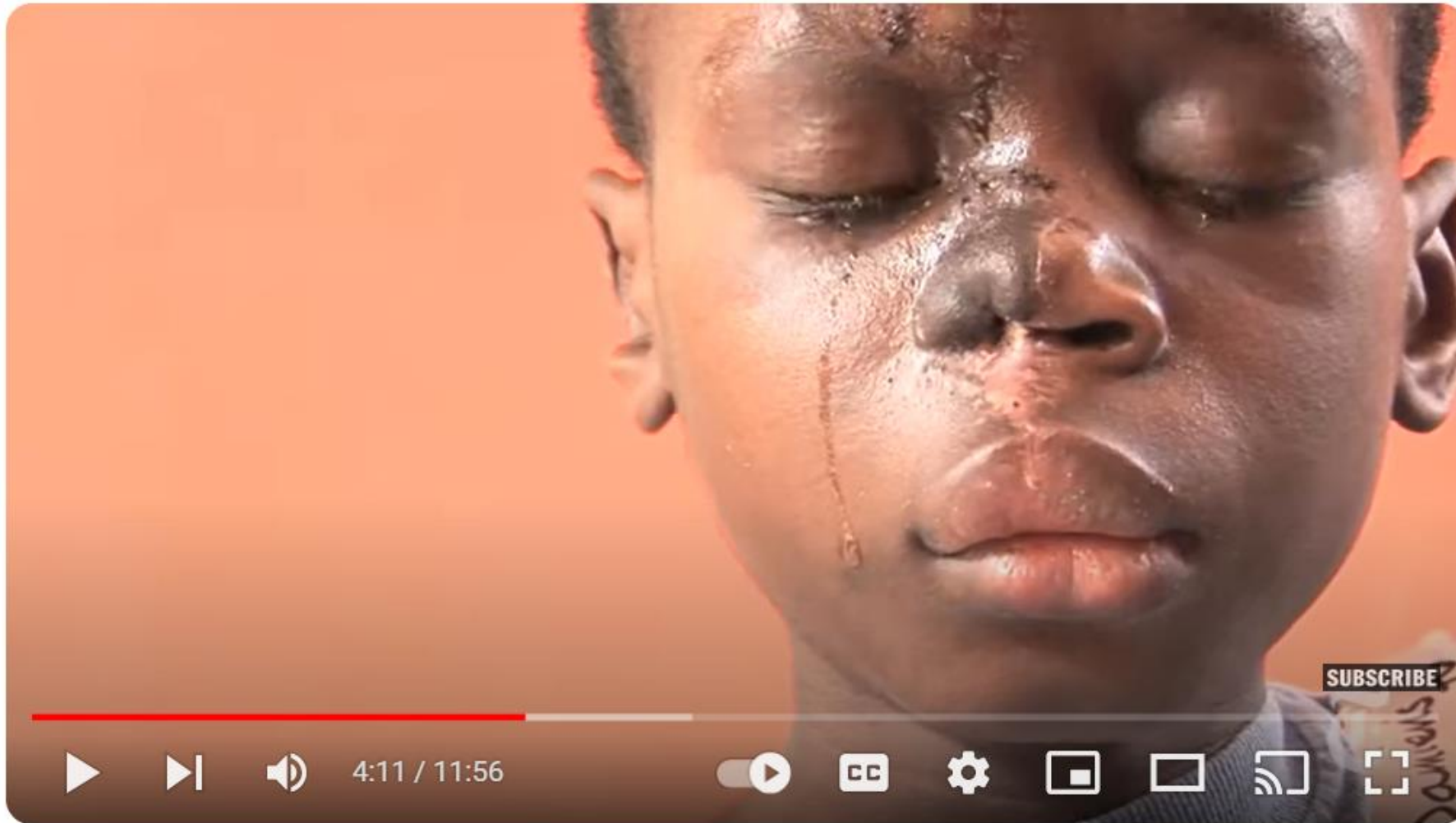


Goals for Pilot Study

- **Goal 1:** Validate the study paradigm as a feasible, low-cost platform for augmented virtual care.
- **Goal 2:** Perform a remote gait assessments between two facilities.
- **Goal 3:** Provide HoloLens and Microsoft Teams accounts to international-based teams for augmentation of virtual care.



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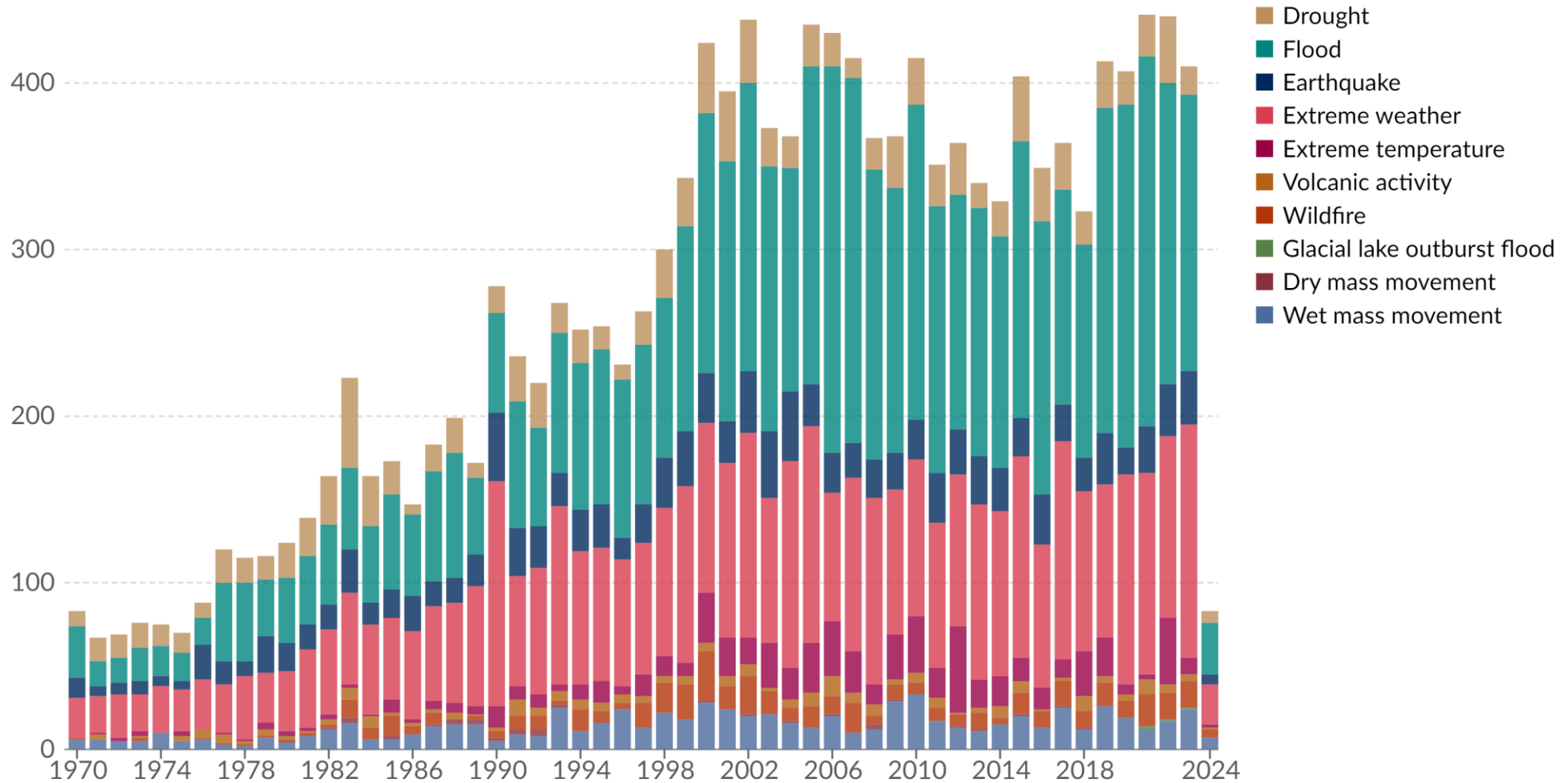


https://www.youtube.com/watch?v=cdaGIUU7_j0



Global reported natural disasters by type, 1970 to 2024

The annual reported number of natural disasters, categorised by type. The number of global reported natural disaster events in any given year. Note that this largely reflects increases in data reporting, and should not be used to assess the total number of events.



Data source: EM-DAT, CRED / UCLouvain (2024)

Note: Data includes disasters recorded up to April 2024.

OurWorldInData.org/natural-disasters | CC BY



Multiple countries

2024 East Africa Flooding and Cyclones



2024 Taiwan Earthquake



United States

2024 US Tornadoes



ASEAN
RESPONSE

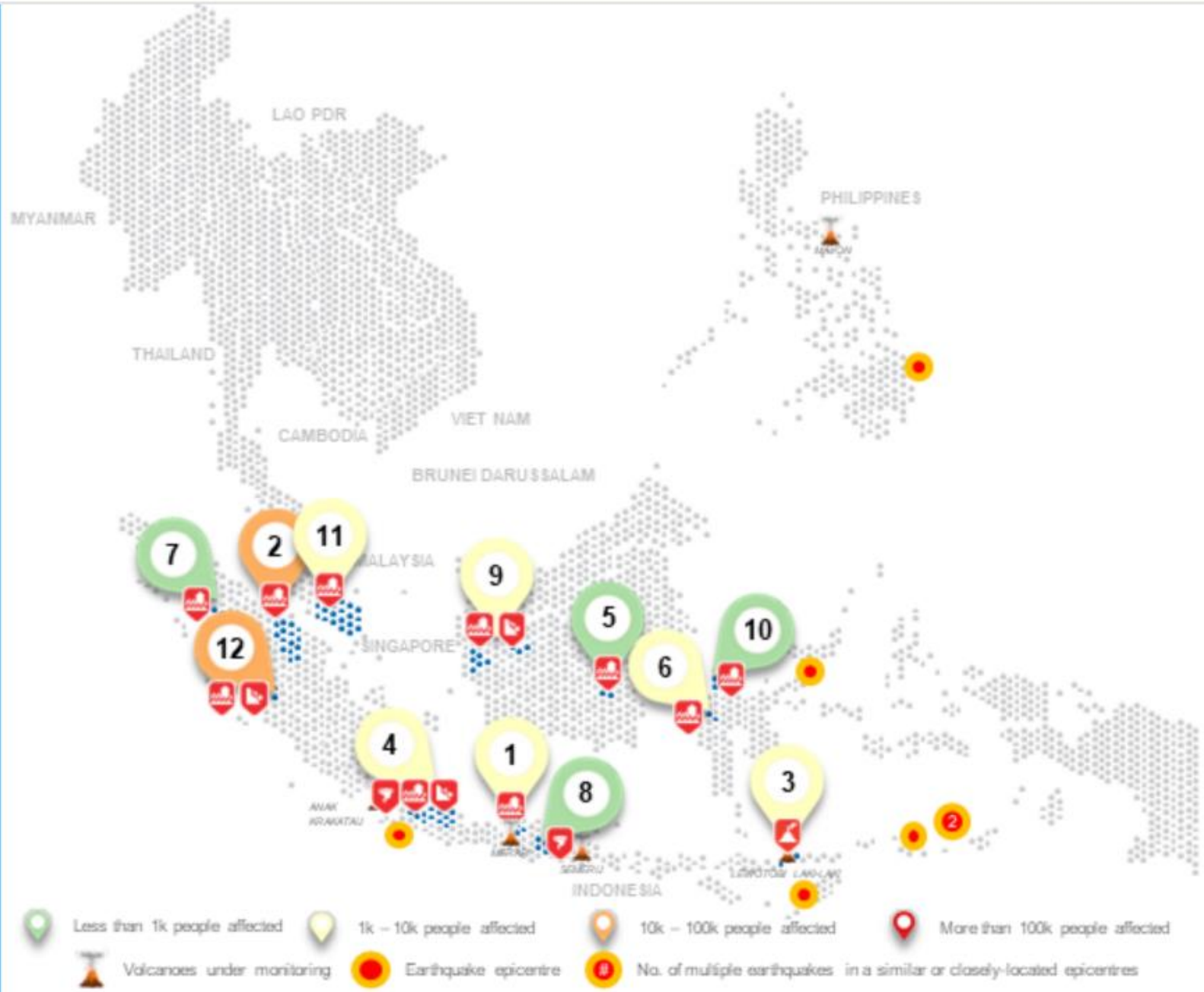
ONE ASEAN
ONE RESPONSE

WEEKLY DISASTER UPDATE

Week 1
1 – 7 January 2024

- ahacentre.org
- [ahacentre](https://www.facebook.com/ahacentre)
- [@ahacentre](https://twitter.com/ahacentre)
- [@ahacentre](https://www.instagram.com/ahacentre)

The AHA Centre, GRAHA BNPB 12th floor,
Jl. Raya Pemuda Kav. 26, East Jakarta 13120 Indonesia



REGIONAL TALLY



Note: Estimations are based on data reported/confirmed by National Disaster Management Organisations of each respective ASEAN Member State and other verified sources

01 Indonesia, Flooding in [Sragen](#) and [Grobogan](#) (Central Java)
1, 2 January 2024

02 Indonesia, Flooding in [Indragiri Hulu](#), [Dumai](#), [Pekanbaru](#), [Pelalawan](#), and [Siak](#) (Riau)
1, 1, 1, 3, 7 January 2024

03 Indonesia, [Lewotobi Laki-laki Volcano Activity](#) (East Nusa Tenggara)
1 January 2024

04 Indonesia, Flooding, Landslide, and Tornado in [Karawang](#), [Purwakarta](#), [Indramayu](#), [Bogor](#), and [Subang](#) (West Java); [South Tangerang](#) (Banten); and [Jakarta](#) (2)
1, 4, 5, 5, 6, 7, 7, 7 January 2024

05 Indonesia, Flooding in [Tabalong](#) (South Kalimantan)
2 January 2024

06 Indonesia, Flooding in [Mamuju Tengah](#) (West Sulawesi)
3 January 2024

07 Indonesia, Flooding in [Tapanuli Selatan](#) (North Sumatra)
3 January 2024

08 Indonesia, Tornadoes in [Tulungagung](#) and Strong Winds in [Blitar](#) (East Java)
3, 4 January 2024

09 Indonesia, Flooding and Landslide in [Bengkayang](#), [Kapuas Hulu](#), and [Landak](#) (West Kalimantan)
4, 5, 6 January 2024

10 Indonesia, Flooding in [Donggala](#) (Central Sulawesi)
4 January 2024

11 Malaysia, Flooding in [Johor](#) and [Pahang](#)
4 January 2024

12 Indonesia, Flooding and Landslides in [Tebo](#) (Jambi)
5 January 2024

