

# Overview of PANDEM-2 project

## Joint Conference Day 3

15 June 2023, BAO, Brussels

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Máire Connolly  
PANDEM-2 Coordinator  
University of Galway, Ireland

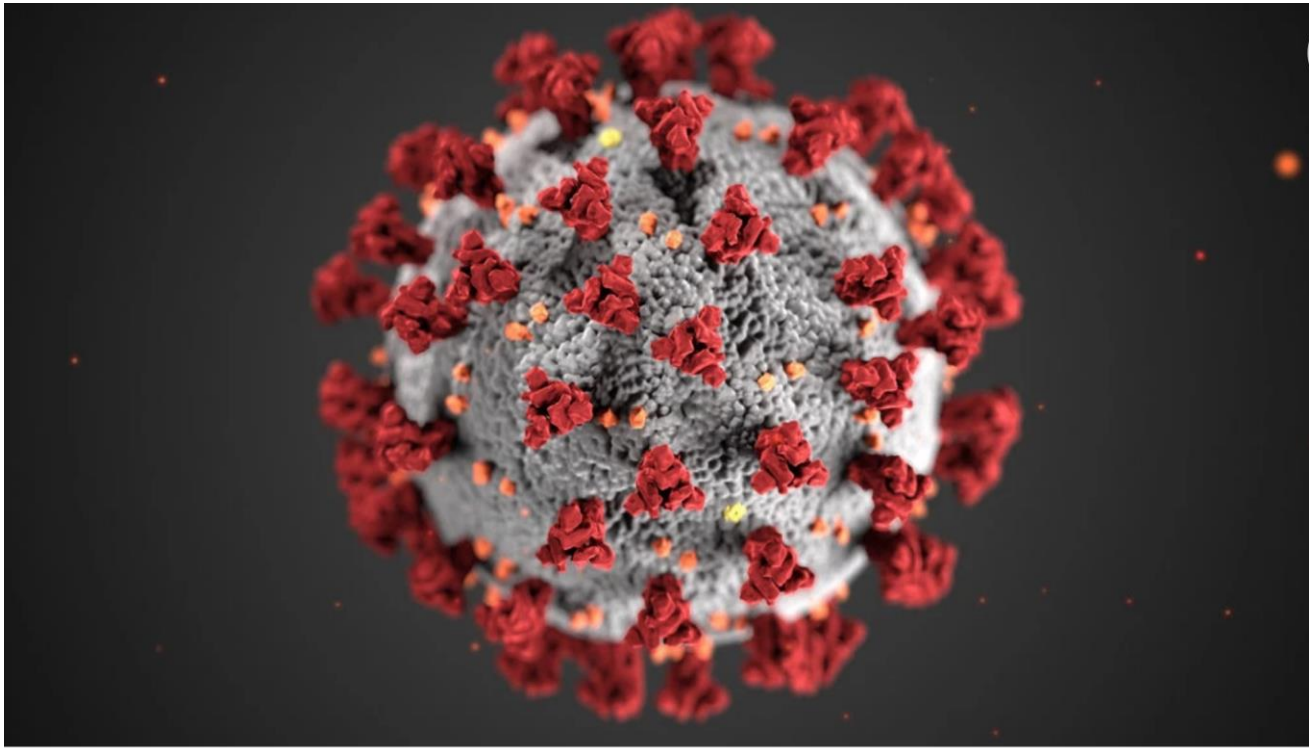


This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 883285

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PANDEM-2  
PANDEMIC PREPAREDNESS AND RESPONSE



# Post COVID-19 landscape

- Devastating health, social, economic and security impacts from disease with 1% mortality
- 780M cases and 7M deaths reported
- But 24M estimated excess deaths associated with COVID-19 globally
- Cost \$12.5 trillion dollars - IMF



# Outline

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- Pandemic threats – what is out there?
- Current context in Europe and focus on preparedness
- PANDEM-2 project outputs



# Risk factors for next pandemic

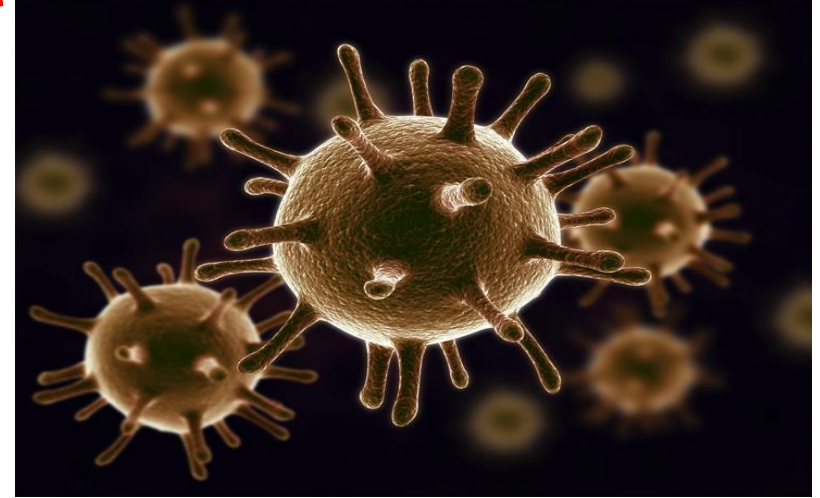
- Deforestation with human encroachment into virgin forests
- Unregulated trade in high risk species eg wet markets
- Intensive farming practices
- Genetic engineering technology allowing editing of known viruses and bacteria to create new pathogens
- Biosecurity lapses in BSL3/4 labs leading to accidental release
- Deliberate use “gain of function” biological warfare research





# What biological agents pose the greatest threat?

- | Novel strain of known virus eg influenza H5N1, coronavirus
- | Resurgence of known diseases eg Zika, Nipah, Ebola HF, Lassa fever, RVF



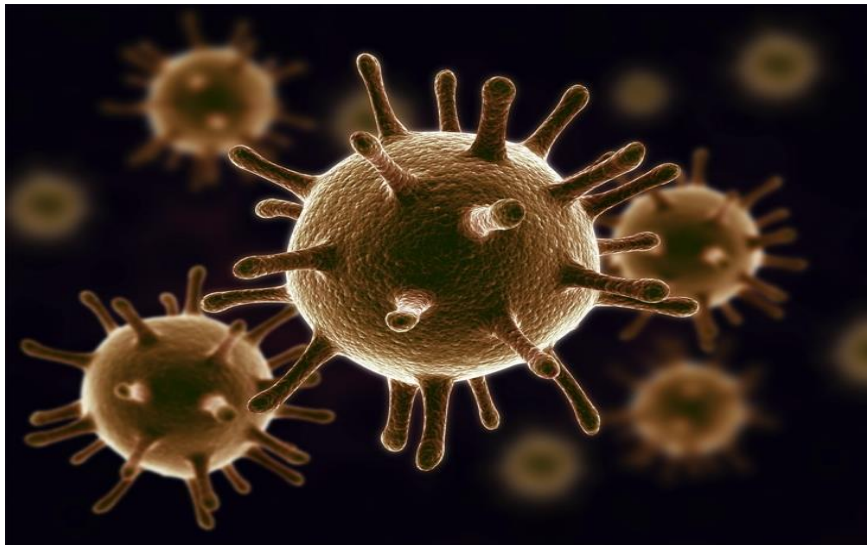
# What biological agents pose the greatest threat?

- | Deliberate release of category A major public health hazards eg anthrax, botulism, Marburg virus, Ebola virus, plague
- | Antimicrobial resistance eg MDR-TB, MRSA, CPE



# Novel strain of influenza A remains most likely source of the next pandemic

- › Large livestock farms – risk of spillover infections
- › Intensive poultry farming practices increase the risk of transmission to poultry workers and further spread among human populations
- › Human cases of reported novel influenza A infection increasing in Asia eg avian and swine strains but low levels of human-to-human transmission





# Current context – EU agencies

- › New legislation to strengthen **pandemic preparedness and response** with **Regulation on serious cross border threats to health** came into force in October 2022
- › Central role of **DG SANTE** and **Health Security Committee**
- › Extension of **ECDC's mandate** building on key roles in **epidemic intelligence, risk assessment, scientific advice** and **training**
- › Development of **digital platforms for epidemiological surveillance** and investment in **EWRS system**
- › Includes establishment of **EU health crisis and pandemic plan** and **national plans by MS** using an **all hazards** approach
- › European Commission will facilitate **stress tests** to ensure operation of EU preparedness and response plan



# Current context – EU agencies

- › Establishment of **Health Emergency Preparedness and Response Authority (HERA)** in September 2021
- › Mission to **prevent, detect and rapidly respond to health emergencies**
- › Mechanisms to ensure the **development, production and distribution of medicines, vaccines and other medical countermeasures**
- › **Joint procurement of medical countermeasures** in the event of a public health emergency
- › Key links to **DG SANTE, ECDC, EMC, DG HOME**

# Current context – WHO

- › **WHO Health in Emergencies** programme played central role in **global coordination** of COVID-19 response
- › **WHO Pandemic Hub** in Berlin on data intelligence
- › New guidance published in April 2023 **on integrating planning** for responding to any **respiratory pathogen** such as influenza and coronaviruses
- › WHA May 2023 – strategic roundtable to focus on 3 key MS led processes:
  - › Working Group on **Amendments to the IHR**
  - › Intergovernmental Negotiating Body (INB) to draft a **WHO convention, agreement or international instrument** on to strengthen pandemic prevention, preparedness and response
  - › High level meeting of **UN General Assembly**



# Background to PANDEM-2 research project

- › PANDEM phase 1 focused on research gaps in **surveillance, communications and governance** for large scale pandemics – led by University of Galway, 2015-2017
- › WHO/EURO on consortium, ECDC on Advisory Board (Dr Josep Jansa)
- › Major gap identified – **IT systems** to support **preparedness and response to cross border threats** in EU member states
- › PANDEM-CAP **resource modelling tool** – fed into models developed by Irish government in response to COVID-19

# PANDEM-2: project partners

- › 19 partners, 13 EU countries
  - › National Public Health Agencies: Germany, Sweden, the Netherlands, Portugal, Finland, Romania
  - › Hospital: Radboud University Medical Centre, the Netherlands
  - › First responders: Austrian Red Cross, Italian Red Cross, Emergency Medical Services in Portugal
- › **Budget €9.75M** in Disaster Resilient Societies thematic area of H2020 Security work programme
- › **Advisory Board** – ECDC, WHO, Irish Defence Forces, American Red Cross



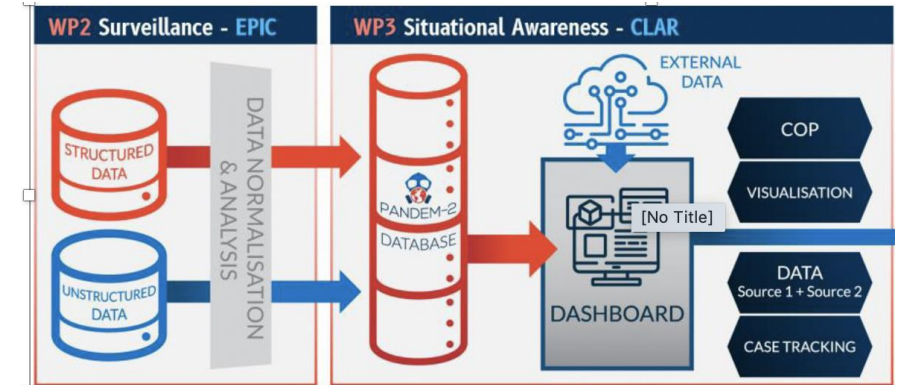


# PANDEM-2 Aim and objectives

- › Aim is to enable EU member states to **better prepare** for **future pandemics** through **innovations in IT** and **training**
- › Objectives are to:
  - › Identify, map and integrate **pandemic-related data** from multiple sources into a **pandemic management database**
  - › Develop a **dashboard** for **pandemic preparedness training and response**
  - › Develop **pandemic prediction** and **resource modelling tools**
  - › Create and deliver a **toolkit** and **training material for pandemic communication**
  - › Deliver **pandemic scenarios** to be used for **cross border exercises and simulations**

# Surveillance – led by EpiConcept with UoG and UCL

- › PANDEM source beta release - captures, normalizes and aggregates surveillance data from multiple sources eg TESSy (EpiPulse), WHO, InfluenzaNet, social media, flight data to provide indicators for situational awareness
- › Social media analysis (SMA) tool for two-way communication
- › Integration of Next Generation Sequencing (NGS) data for pandemic detection and monitoring – multi-parametric simulator linking contextual metadata eg co-morbidities, vaccine status and virus genomic data



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Name	Progress	Step	Status	Last Import Started	Last Import Ended	Next Check	Files	Mb	Issues
1 COVID-19 Datahub	100.00%	ended	success	2022-03-15 06:16:34	2022-03-15 10:43:44	2022-03-17 02:00:00	249	300.3	0
2 ECDC Atlas	100.00%	ended	success	2022-03-02 23:51:44	2022-03-03 00:02:44	2022-03-15 18:48:28	1	9.9	50
3 ECDC COVID-19	100.00%	ended	success	2022-03-10 16:52:59	2022-03-10 17:26:13	2022-03-15 18:48:12	1	4.5	50
4 Eurostats NUTS	100.00%	ended	success	2022-03-02 23:51:49	2022-03-02 23:58:38	2022-03-15 18:48:41	1	1.6	0
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6 Influenza net	100.00%	ended	success	2022-03-10 16:53:49	2022-03-10 17:26:14	2022-03-15 18:48:42	7	0.3	0
7 MediSys	100.00%	ended	success	2022-03-15 11:05:42	2022-03-15 11:06:02	2022-03-15 11:25:40	1	0	0
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9 RKI COVID-19 manual	100.00%	ended	success	2022-03-14 18:48:12	2022-03-14 18:57:07	2022-03-15 11:20:21	6	11.3	100
10 THL COVID-19 manual	100.00%	ended	success	2022-03-14 09:27:41	2022-03-14 09:39:05	2022-03-15 11:20:23	5	1.7	0
11 Twitter	100.00%	ended	success	2022-03-15 11:05:43	2022-03-15 11:06:21	2022-03-15 11:25:41	2	0.9	0

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# Situational awareness - led by Clarisoft

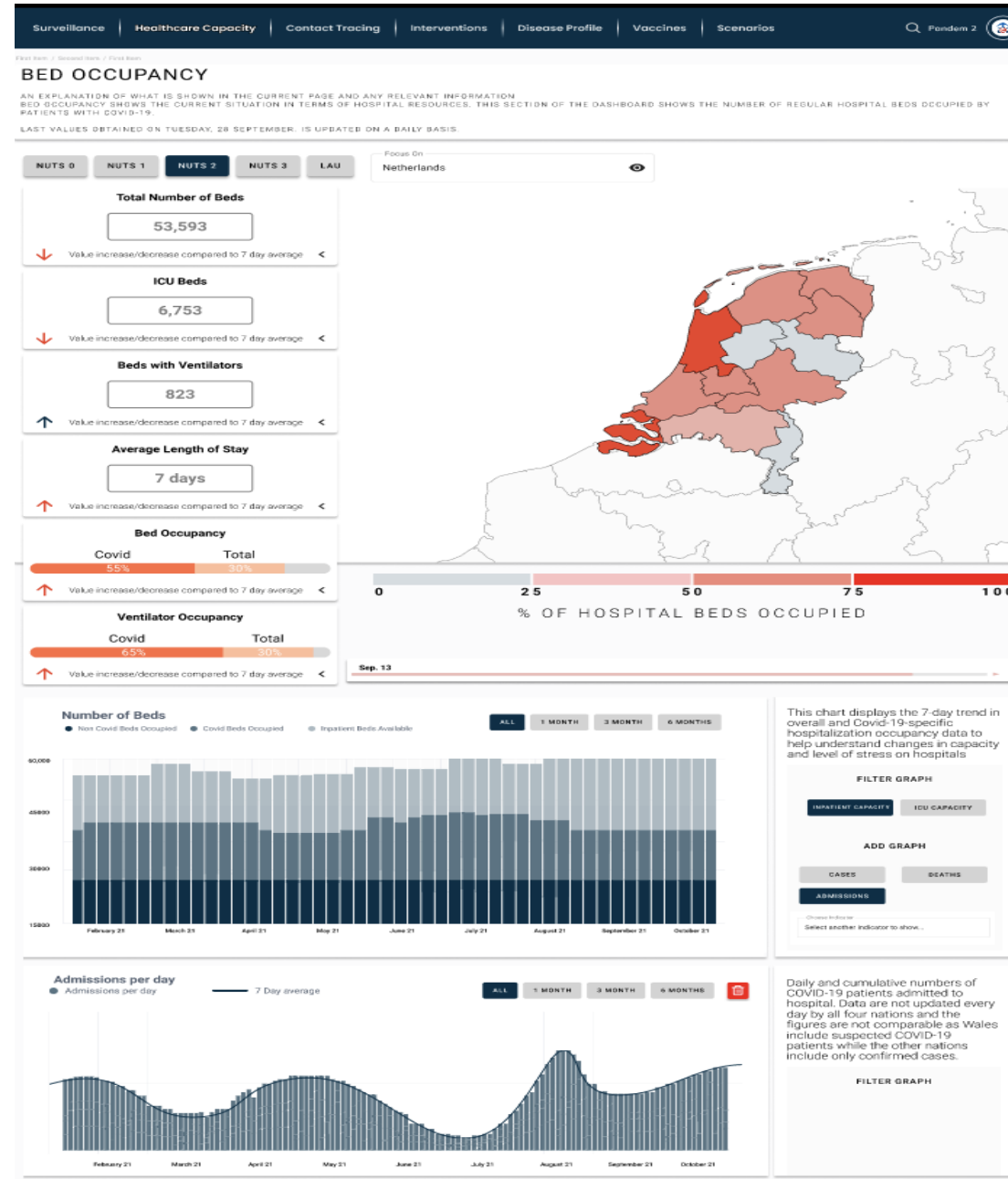
PANDEM-2 Dashboard - decision support tool for pandemic preparedness and response

- **Situational awareness**

- Cases
- Hospitalisations
- Deaths
- Testing
- Contact tracing

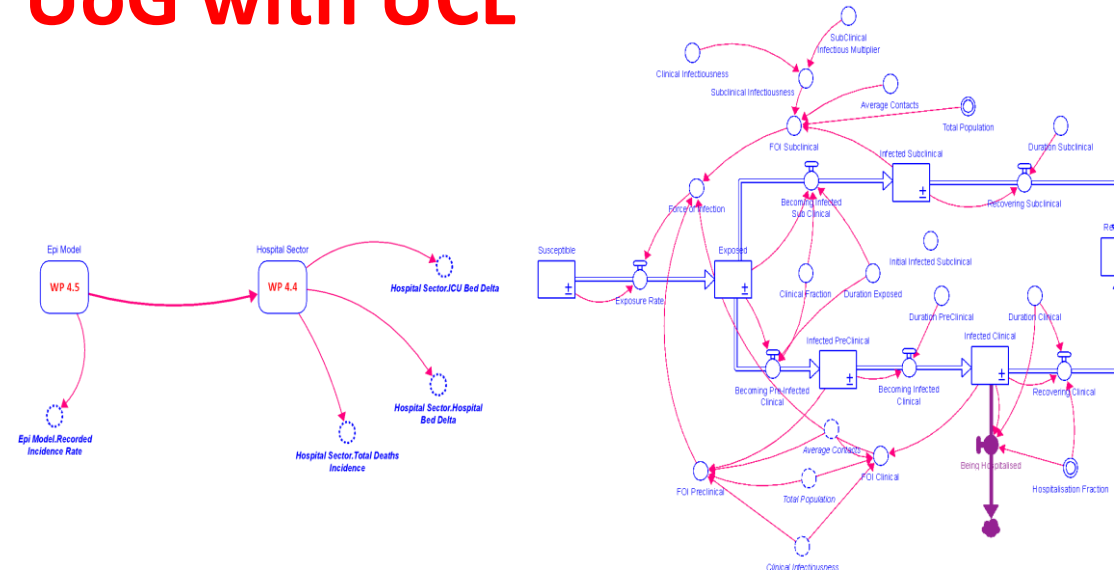
- **Interventions and countermeasures**

- NPI – stay at home orders, school closures, quarantine, travel bans, border closures
- Vaccination – doses given, % pop fully vaccinated



# Pandemic planning – led by UoG with UCL

- > **Predictive Modelling** - an integrated library of **disease transmission models** to predict progression of a pandemic
- > **Resource Planning System** - simulation tool for **capacity analysis** and **resource demands** in a pandemic
- > **Workforce mapping** –self-assessment tool for EU MS to measure public health workforce capacity in quantitative (FTE/person months) and qualitative (competency) terms
- > **Toolkit** with guidelines, protocols and resources on **biosafety and biosecurity** for first responders, clinical staff and laboratory personnel during cross-border responses



## Keep it trained

- Theoretical and practical biosafety training about
  - PPE donning/doffing or decontamination procedures should be given to all first responders
- Having a team or at least some staff members regularly trained on biosafety procedures, helping other team members before and after transport operations, would reduce fear and malfunction

## Useful links

Safe use of PPE



eNOTICE



## Keep it informed

- For a sound risk assessment, reliable and maximal information needs to be collected about the pandemic pathogen. The use of a centralised European data platform can be beneficial
- New findings from research laboratories about pandemic pathogen should be rapidly communicated on the relevant platform. Medical staff or biosafety advisors could then access this information and adapt patient transport protocol
- Adaptation of transport procedures should be quickly and clearly communicated to first responders. To harmonize global response, such updated procedures should ideally be uploaded into the PANDEM-2 dashboard

## Useful links

ECDC repository



PANDEM-2 dashboard



## Keep it realistic

- First responders overprotection could be counterproductive as it leads to physical and mental exhaustion. If possible, adapt procedure and PPE used regarding pathogen severity and pandemic evolution
  - Review of newly available PPE with a better design or adaptation to ground situation should be performed on a regular basis

## Useful links

ENCIRCLE PPE catalogue





# Training & Simulation – led by RKI

## › Simulation exercises

- › Three scenarios based on real pandemic events from peacetime planning to response to post-pandemic recovery in setting of Public Health Emergency Operation Centre in national public health agency
- › Pandemic Influenza, Ebola and Disease X/SARS-CoV-3
- › Testing and evaluation of PANDEM-2 dashboard and tools in TTX in June 2022 in Berlin and FX in March 2023 in RKI and RIVM

## › Operational strategy

- › Working with ECDC, DG SANTE, DG HOME, Irish Defense Forces, WHO & stakeholder partners to plan practical implementation of PANDEM-2 outputs by member states



# Communications – led by Fraunhofer-Int with Carr Comms

- **Knowledge bases from use case of COVID-19**
  - Establishing trust
  - Disinformation/misinformation
  - Lessons from marketing and public relations
- **Communication resources & tools**
  - Portfolio of communication resources for different scenarios eg PR templates
- **Media training handbook** for public health spokespersons, communications team members in PHAs and government officials
  - Learning guide for individual or group coaching sessions
  - Supported by downloadable, shareable formats and video-based content



# THANK YOU!

Máire Connolly  
Coordinator

Email: [maire.connolly@universityofgalway.ie](mailto:maire.connolly@universityofgalway.ie)

Jessica Hayes  
Project Manager

Email: [jessica.hayes@universityofgalway.ie](mailto:jessica.hayes@universityofgalway.ie)



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