Stay alive in the digitized world

AI in Pediatric Infectious Diseases:

Created by

WP Vandepitte

Line ID 6685-515-8299

2

บทบาทของ AI ในงานโรคติดเชื้อในเด็ก

Epidemic Forecasting

Predict and track the spread of infectious diseases→ early intervention and prevention measures.

Dx & Tx Optimization

Analyze medical images, laboratory results, & patient data.

Drug & Vaccine Development

Analyze large amounts of data to identify potential targets & accelerate the research process.

3

An AI Tool That Can Help Forecast Viral Variants

EVEscape predicts future viral mutations, new variants using evolutionary, biological information

By CATHERINE CARUSO | October 11, 2023 | Research
4 min read

Video: IGNACIOLEO/Getty Images/Vetta collection

At a glance:

- New AI tool called EVEscape uses evolutionary and biological information to predict how a virus could change to escape the immune system.
- The tool successfully predicted the most concerning new variants that occurred during the COVID-19 pandemic.
- Researchers say the tool can help inform the development of vaccines and therapies for SARS-CoV-2 and other rapidly mutating viruses.

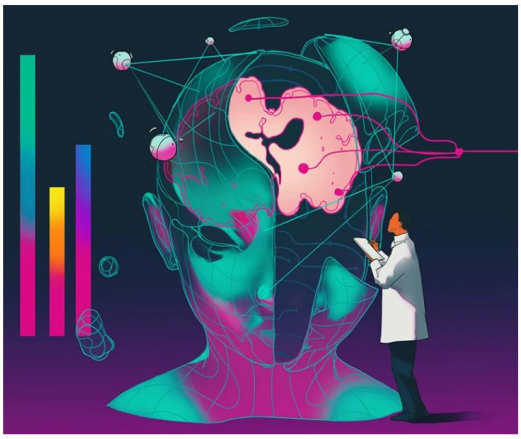
4

NATURE INDEX | 13 March 2024

How AI is being used to accelerate clinical trials

From study design to patient recruitment, researchers are investigating ways that technology could speed up the process.

By Matthew Hutson



Modern Clinical Trials

Location Selection → Recruitment → Monitoring → Analysis

>$1.2B
Average Cost

>5
Years

<20%
Success Rate

Improve the gold standard process with AI

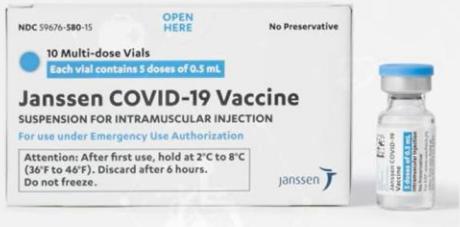
2

5

The First Successful AI-Driven Phase III Clinical Trial

Location Selection → Recruitment → Monitoring → Analysis

Massachusetts Institute of Technology



https://www.youtube.com/watch?v=ctRnh65cAeI

6

The First Successful AI-Driven Phase III Clinical Trial

Location Selection → Recruitment → Monitoring → Analysis

Time	4 - 6 months	1 - 2 years	1 - 3 years	6 months+

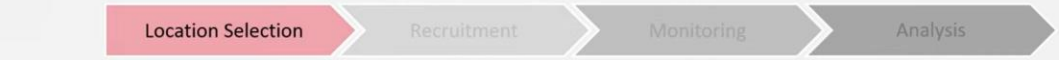
>1M
Daily Cases

>10,000
Daily Deaths

4

7

The First Successful AI-Driven Phase III Clinical Trial



Time	4 - 6 months	1 - 2 years	1 - 3 years	6 months+

Clinical Trial Period

# of people with disease at trial site

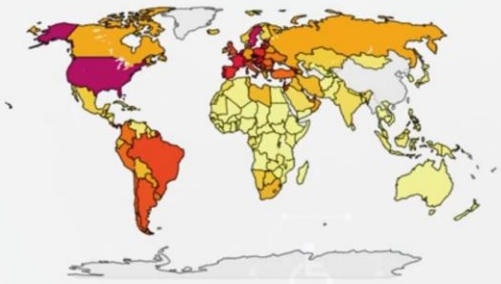
Selected 4 months in advance!!

DELPHI

5

8

Implementation for Janssen's Phase III Vaccine Trial



May 2020:
Select trial countries globally

June 2020:
Determining local site selections

Argentina, Brazil, Chile, Columbia, Mexico, Peru, South Africa, United States

9

Can a fabled blue parrot flourish again in the wild? p. 1148
Unlocking hidden physics with quantum computers pp. 1154 & 1182
Inherited microbiomes are shaped by lifestyle p. 1220
Science
$15
10 JUNE 2022
SPECIAL ISSUE
science.org
AAAS
NUCLEAR PORE
A gateway complex
p. 1172
A
B
Cryo-EM
AlphaFold
Outer Y
Inner Y
Combined model

10

LASKER FOUNDATION
AlphaFold—for predicting protein structures
2023 Albert Lasker Basic Medical Research Award
Demis Hassabis
Google DeepMind
John Jumper
Google DeepMind
15 September 2023

11