Transformational Change:
Building a Collaborative Future

Global Forum
Shaping the future
2025

TECHNOLOGY, SUSTAINABILITY & HUMANITY
27 & 28 OCTOBER 2025
EUROSTARS TOWER
MADRID, SPAIN

The Impact of AI in Healthcare

Transforming Challenges into Opportunities

Mariane Cimino, cofounder Cimbiose
Session 3A - Sustainability and Health -Tuesday, October 28

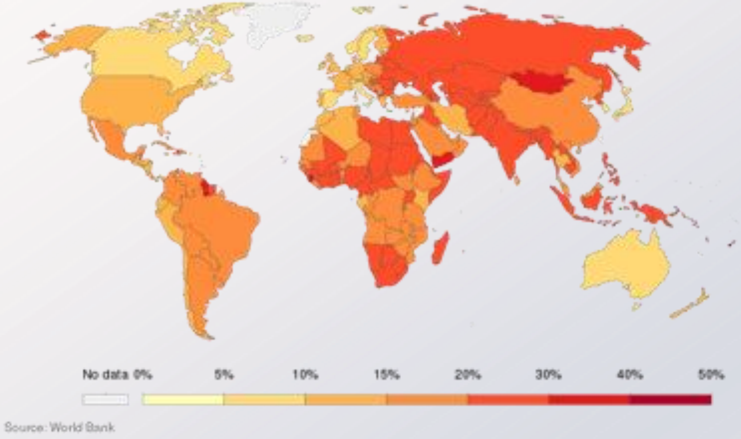
Introduction to AI in Healthcare

- **Artificial Intelligence: a revolution for the healthcare sector**
  - Specialised AI mainly and historically
  - Generative AI for teletranslation, writing medical documents, letters of address to other health professionals, codification of acts for billing purposes

- **AI technologies are helping address critical challenges**: aging populations, increase in chronic diseases, workforce shortages, financial sustainability…
- **AI in healthcare leverages structured data to provide innovative solutions**

Challenges Facing Healthcare Systems

- **Aging demographics, increase in chronic diseases**: Increasing demand for healthcare services
- **Workforce shortages**: Difficulty in attracting and retaining healthcare professionals, need to move from curative to preventive systems
- **Financial sustainability**: Rising costs and budget constraints
- **Data management**: Need for efficient, secure, and interoperable health data



Mortality from non-communicable diseases, 2016: mortality of people aged 30 who die before their 70th birthday from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases

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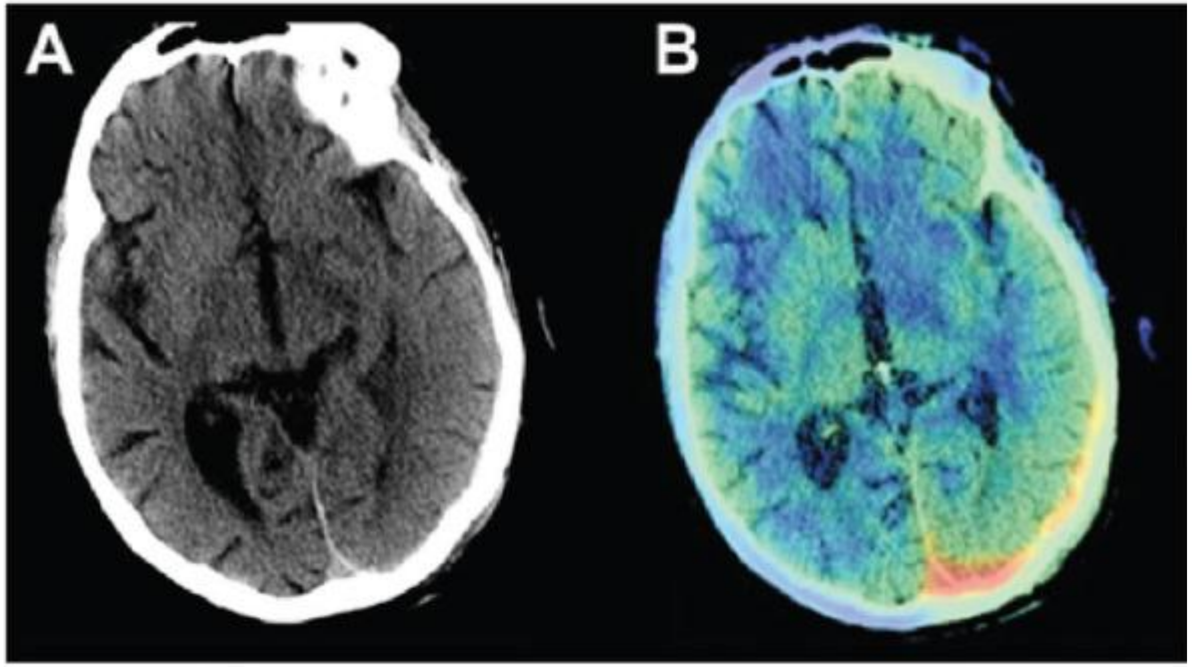
How AI is transforming healthcare

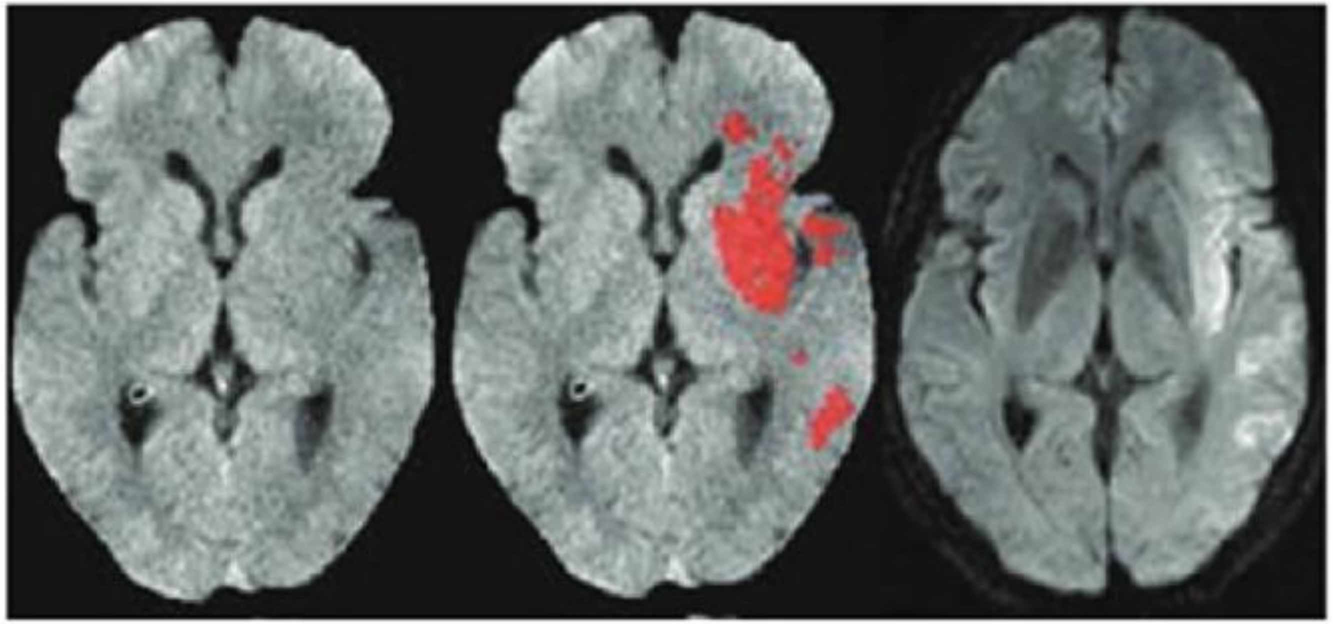
- **Diagnostics**: AI-powered tools for faster and more accurate diagnosis
- **Patient remote monitoring and predictive analytics**: Forecasting disease outbreaks and patient deterioration
- **Personalized medicine**: Tailoring treatments based on individual patient data
- **Administrative automation**: Streamlining operations like scheduling and billing
- **Robotics and surgery**: AI-assisted robotic surgeries for precision and efficiency

Some examples in radiology



(A) Subtle, isointense, left subdural haemorrhage on head CT
(B) AI based software highlights the area of haemorrhage, colour coded in red

UMass Memorial Healthcare. Retrieved from https://www.umassmed.edu/radiology/rad-news/2020/10/ai-mri/



Left: non-enhanced CT
Middle: non-enhanced CT superimposed with AI-detected ischaemic stroke
Right: corresponding diffusion-weighted imaging (DWI) MRI

Qiu, W et al. Retrieved from https://doi.org/10.1148/radiol.2020191193

Some examples in planning

AI-generated illustrations

Legal weekly rest

Sick leave

Holidays

4000 constraints
(legal, service, personal)

5 days a month for 35 persons!

4 months' planning (instead of 1 month visibility)

Optimised operating rooms

Planning time divided by 2

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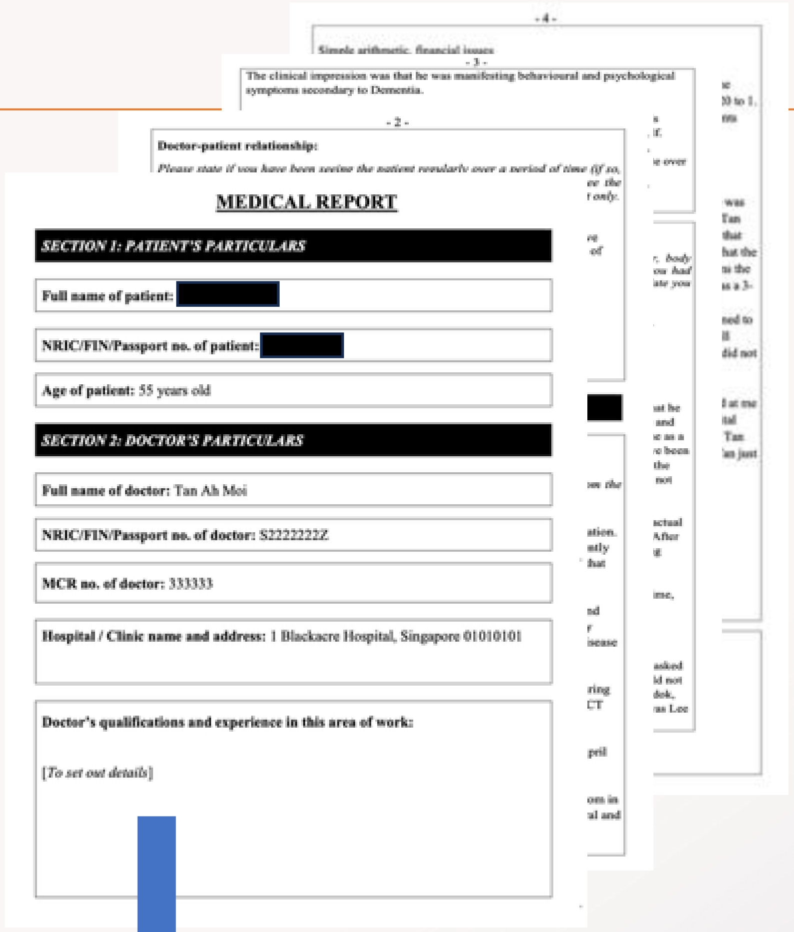
Referral letter


- 4 -

Simple arithmetic, financial issues

- 3 -

The clinical impression was that he was manifesting behavioural and psychological symptoms secondary to Dementia.

- 2 -

Doctor-patient relationship:

Please state if you have been seeing the patient regularly over a period of time (if so,

MEDICAL REPORT

SECTION 1: PATIENT'S PARTICULARS
Full name of patient: [redacted]
NRIC/FIN/Passport no. of patient: [redacted]
Age of patient: 55 years old
SECTION 2: DOCTOR'S PARTICULARS
Full name of doctor: Tan Ah Moi
NRIC/FIN/Passport no. of doctor: S2222222Z
MCR no. of doctor: 333333
Hospital / Clinic name and address: 1 Blackacre Hospital, Singapore 01010101
Doctor's qualifications and experience in this area of work: [To set out details]

[Your Name, MD] [Your Title, e.g., Consultant Physician/Geriatrician/Neurologist] [Your Hospital/Clinic Name] [Your Address] [City, Postal Code] [Your Email] [Your Phone Number]
[Date]
Dr. [Neuroradiologist's Name] Department of Neuroradiology [Hospital Name] [Hospital Address] [City, Postal Code]

Subject: Referral for Neuroimaging Assessment – Mr. [redacted] (NRIC: [redacted])
Dear Dr. [Neuroradiologist's Name],
I am writing to refer [redacted], a 55-year-old male, for a specialized neuroradiological assessment. [redacted] has a complex medical history, including **multiple strokes, dementia, and progressive cognitive decline**, and I would appreciate your expertise in further evaluating his condition.

Request for Neuroimaging
To better understand the extent of [redacted]'s neurocognitive impairment and guide further management, I kindly request the following investigations:

1. **MRI Brain** (with sequences to assess ischemic lesions, cortical atrophy, and other structural abnormalities).
2. **MR Angiography (MRA)** or **CT Angiography (CTA)** of intracranial vessels to evaluate for vascular pathology.
3. Any additional imaging or assessments you deem necessary to clarify his diagnosis and prognosis.

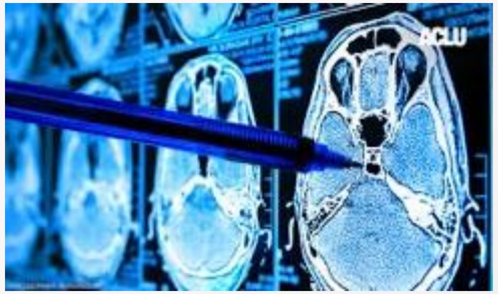
Supporting Documents

- Detailed consultation report (20 June 2015).
- Previous imaging results (CT and MRI from 2010).
- Summary of his medical history and follow-up since 2010.

Urgency and Coordination
Given [redacted]s **rapid cognitive decline**, I would appreciate it if these investigations could be scheduled at your earliest convenience. I am available to discuss his case further or provide any additional information you may require.
Please do not hesitate to contact me if you need further details or wish to coordinate his care.

Thank you for your time and expertise. I look forward to your findings and recommendations.
Yours sincerely,
[Your Name, MD] [Your Title] [Your Hospital/Clinic Name] [Your Contact Information]

Some AI issues in healthcare



- **Data issues**: Data must be complete, accurate, and representative to train effective AI models

- **Integration into clinical practices**: Healthcare professionals may be reluctant to adopt new technologies due to the learning curve, changes in workflows, adoption issues or legal concerns
- **Regulation and ethics**

- **Side effects and clinical failures**: for instance, pathology detections with false negatives, bias and discrimination in models
- **Required computing power**: this can limit research and raise environmental questions




Advantages of AI Implementation

- **Improved accuracy**: Reduces human error in diagnostics and treatment
- **Efficiency**: Automates repetitive tasks, freeing up time for healthcare professionals
- **Cost savings**: Optimises resource allocation and reduces operational costs
- **Enhanced patient care**: Personalised treatments and proactive health management
- **Scalability**: AI solutions can be deployed across various healthcare settings

Future of AI in Healthcare

- AI will continue to evolve, offering even **more sophisticated solutions**
- **Integration** with emerging technologies like IoT, blockchain, and 5G
- Potential for AI to address **global health challenges**, such as pandemics and chronic diseases
- Importance of **training and collaboration** between technologists, healthcare professionals, and policymakers

Conclusion

- AI is a powerful tool for **transforming** healthcare and addressing critical challenges
- Successful implementation requires **robust data**, ethical considerations, and regulatory compliance
- The future of AI in healthcare is promising, with potential for significant **improvements in patient outcomes and system efficiency**

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