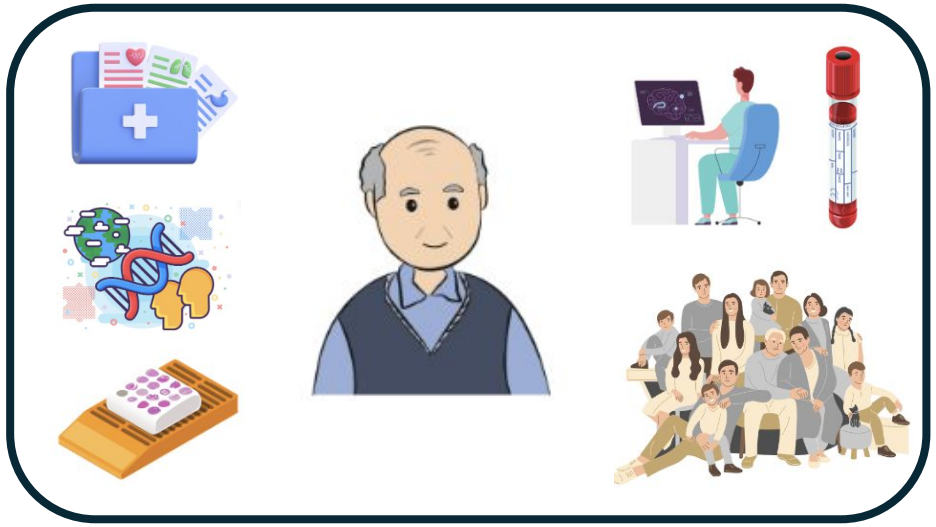
IA en oncología: ¿Ruido o solución?

Federico Losco M.D.

El pasado

El presente

El futuro



Pienso **Decido**

SYSTEMIC THERAPY FOR M1 CSPC[c,zz,aaa,bbb,ccc,ddd,eee]

WORKUP FOR METASTASES

- Perform physical exam
- Perform imaging for staging[f]
- Perform and/or collect PSA and calculate PSADT
- Estimate life expectancy (Principles of Life Expectancy Estimation [PROS-A])
- Perform germline and somatic genetic testing[d] (if not previously done)
- Obtain family history[d]
- Assess quality-of-life measures[e]

High-volume[fff] synchronous metastases →
ADT[y] with docetaxel and one of the following
- Preferred regimens:
  - Abiraterone (category 1)[y,gg]
  - Darolutamide (category 1)[y]

or
ADT[y] with one of the following:
- Preferred regimens:
  - Abiraterone (category 1)[y,gg]
  - Apalutamide (category 1)[y]
  - Enzalutamide (category 1)[y]

High-volume[fff] metachronous metastases or Low-volume synchronous metastases →
ADT[y] with one of the following:
- Preferred regimens:
  - Abiraterone (category 1)[y,gg]
  - Apalutamide (category 1)[y]
  - Enzalutamide (category 1)[y]

or
ADT[y] with docetaxel and one of the following
- Preferred regimens:
  - Abiraterone (category 1)[y,gg]
  - Darolutamide (category 1)[y]

or
ADT[y] with EBRT[u] to the primary tumor for low metastatic burden,[ggg] alone or with one of the following:
- Abiraterone[y,gg]
- Docetaxel (category 2B)

Low-volume metachronous metastases →
ADT[y] with one of the following:
- Preferred regimens:
  - Abiraterone (category 1)[y,gg]
  - Apalutamide (category 1)[y]
  - Enzalutamide (category 1)[y]

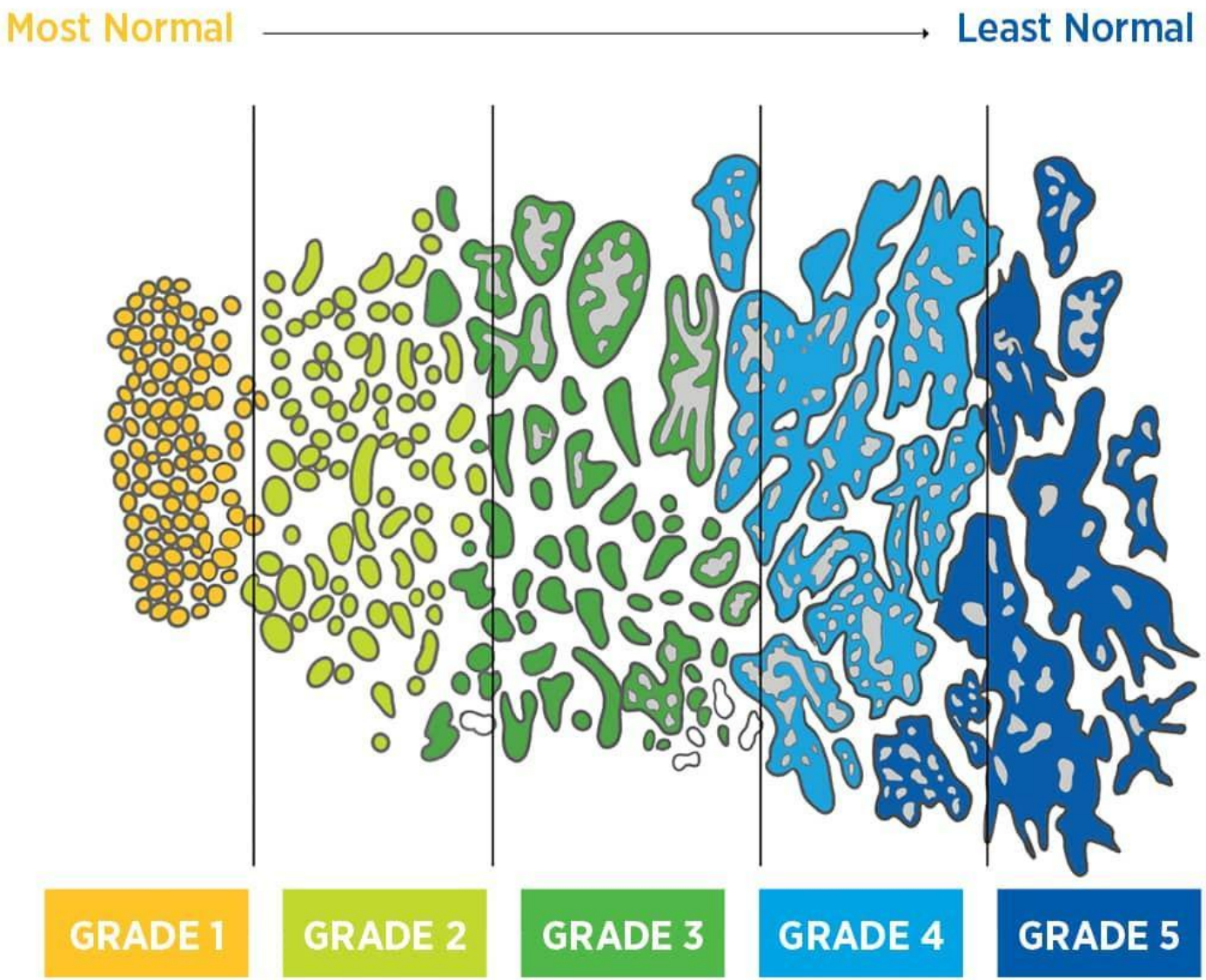
- Physical exam + PSA every 3–6 mo
- Imaging for symptoms[f]
- Periodic imaging to monitor treatment response

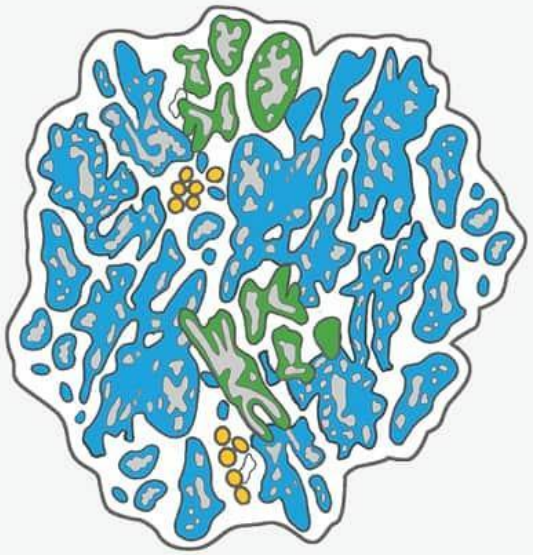
→ Progression[h,nn]

Studies negative for distant metastases → See Systemic Therapy for M0 CRPC (PROS-14)

Studies positive for distant metastases → See Systemic Therapy for M1 CRPC (PROS-15)

What Is a Gleason Score for Prostate Cancer?





In this prostate tumor, the most common pattern is GRADE 4, and the second most common is GRADE 3.

4 + 3 = Gleason score 7

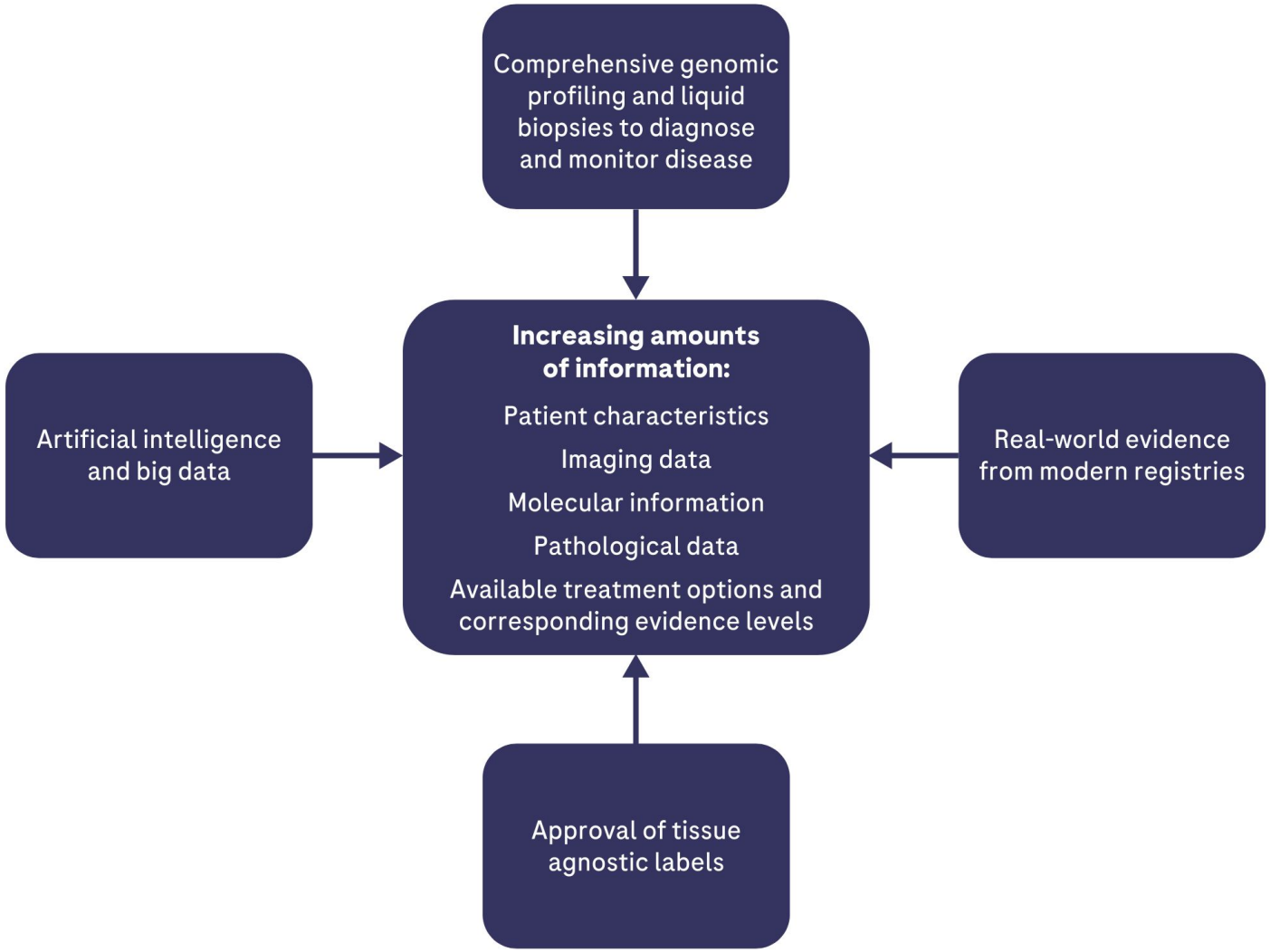
BIOMARKER FINDINGS	THERAPY AND CLINICAL TRIAL IMPLICATIONS
Blood Tumor Mutational Burden - 3 Muts/Mb	**No therapies or clinical trials.** See Biomarker Findings section
ctDNA Tumor Fraction - High (55%)	**High ctDNA Tumor Fraction defined as ≥ 1.0% based on concordance for defined short variants and fusions. See Biomarker Finding Summary.**
Microsatellite status - MSI-High Not Detected	**MSI-High not detected. No evidence of microsatellite instability in this sample (see Appendix section).**

GENOMIC FINDINGS		VAF%	THERAPIES WITH CLINICAL RELEVANCE (IN PATIENT'S TUMOR TYPE)	THERAPIES WITH CLINICAL RELEVANCE (IN OTHER TUMOR TYPE)
APC -	T1556fs*3	38.1%	None	None
2 Trials see p. 11				

GENOMIC FINDINGS		VAF%	THERAPIES WITH CLINICAL RELEVANCE (IN PATIENT'S TUMOR TYPE)	THERAPIES WITH CLINICAL RELEVANCE (IN OTHER TUMOR TYPE)
ARAF -	amplification - equivocal	-	None	None
3 Trials see p. 12				
MYC -	amplification - equivocal	-	None	None
6 Trials see p. 13				
TP53 -	P152fs*14	32.7%	None	None
1 Trial see p. 14				

The value of virtual molecular tumor boards for informed clinical decision-making

Martín Angel[*,1], **Mutlu Demiray**[2], **Umut Dişel**[3], **João Passos**[4]



The Oncologist, 2024, XX, 1–6
https://doi.org/10.1093/oncolo/oyae077
Advance access publication 18 May 2024

Prospective Study of Homologous Recombination Repair Gene Mutation Prevalence in Patients With Advanced Prostate Cancer From Latin America: Challenges and Future Approaches

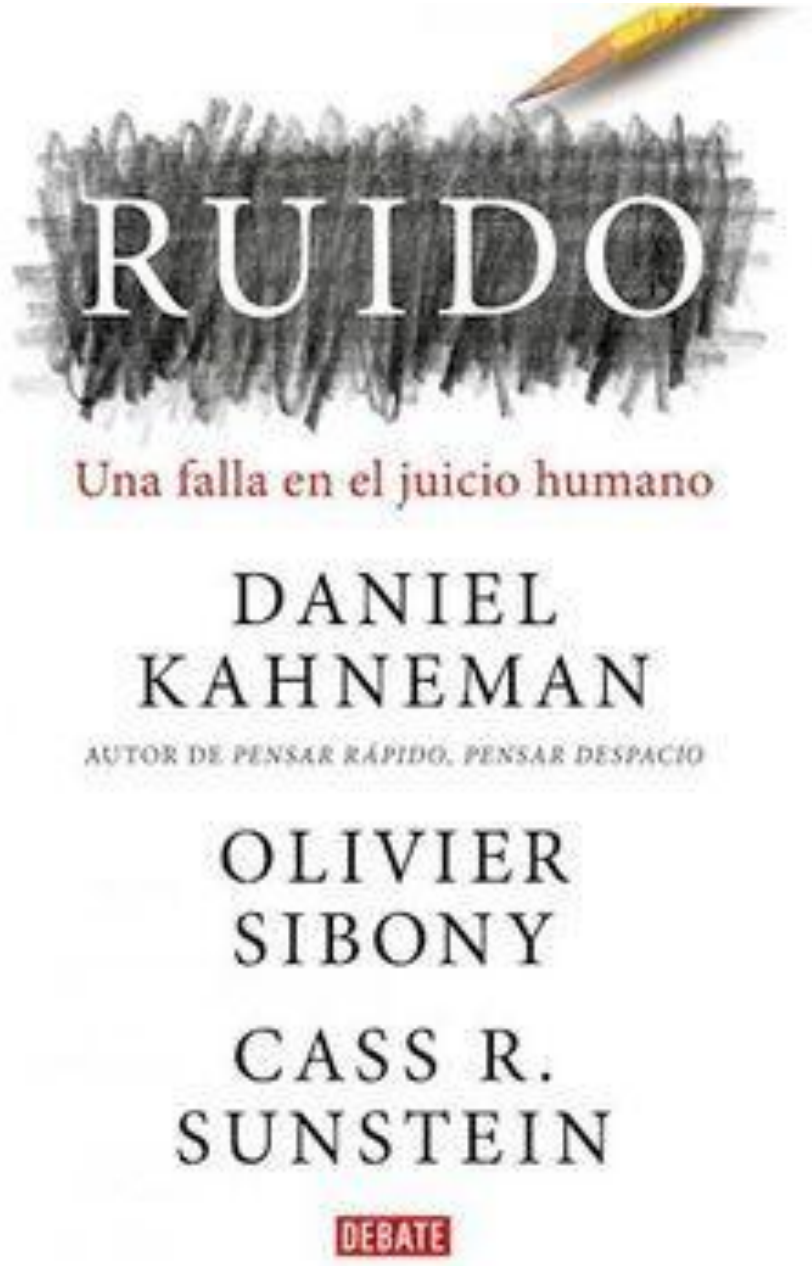
Ray Manneh, MD[1]; Carmen Alaez Verson, MD[2]; Angel Martin, MD[3]; Arturo Delgado, MD[4]; Pedro H. Isaacsson Velho, MD[5]; Alejandro Manduley, MD[6]; Luis Tejado, MD[7]; Yolanda Rodríguez, MSc[7]; Carmen Vargas, MSc[8]; and Pedro C. Barata, MD, MSc, FACP[9]

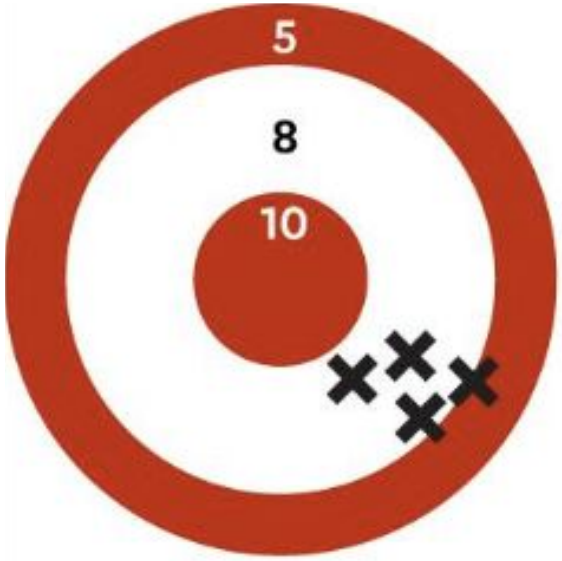
DOI https://doi.org/10.1200/PO.23.00628

Variants of Uncertain Significance (VUS 39 %)

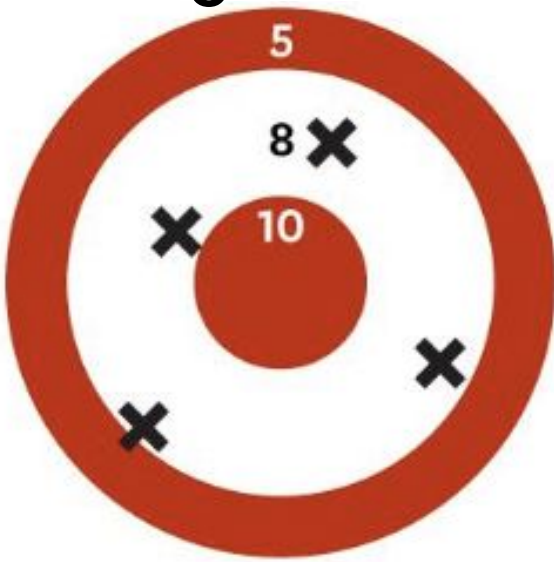
BRCA2 (5.4%, n=21)
FANCA (4.7%, n=18)
ATM (4.1%, n=16)
ATR (3.9%, n=15)
CHEK2 (3.1%, n=12)
MRE11 (3.1%, n=12)
PALB2 (2.8%, n=11)
BRCA1 (2.3%, N=9)
BRIP1 (2.3%, n=9)
FANCL (2.3%, n=9)
RAD51B(2.1%, n=8)
CDK12 (2.1%, n=8)

Falta de datos.
Ruido biológico, ruido humano, ruido estadístico.


RUIDO
Una falla en el juicio humano
DANIEL KAHNEMAN
AUTOR DE PENSAR RÁPIDO, PENSAR DESPACIO
OLIVIER SIBONY
CASS R. SUNSTEIN
DEBATE


5
8
10

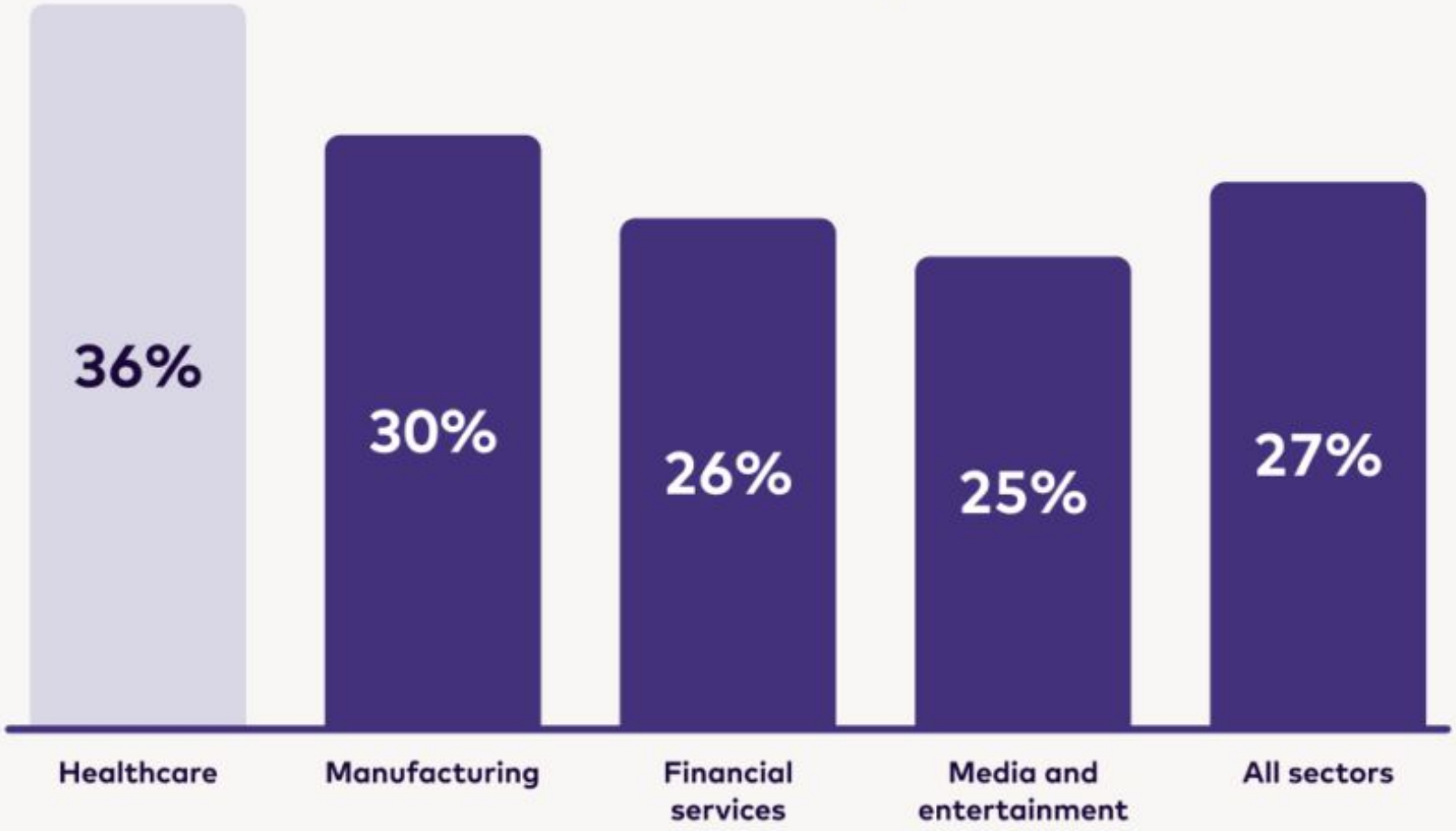
SESGO


5
8
10

RUIDO

El presente

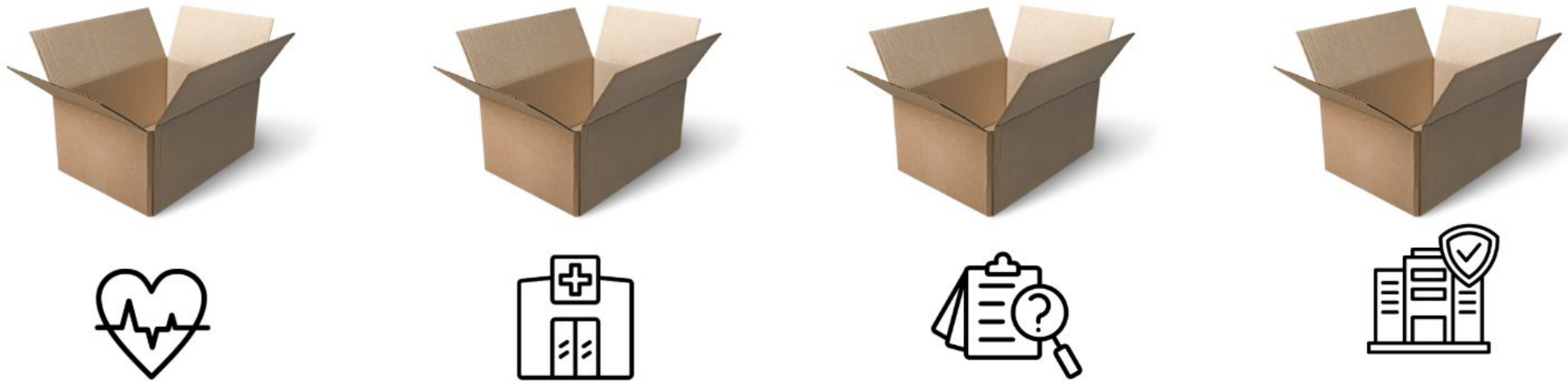
Healthcare data growth outpaces other industries by 2025



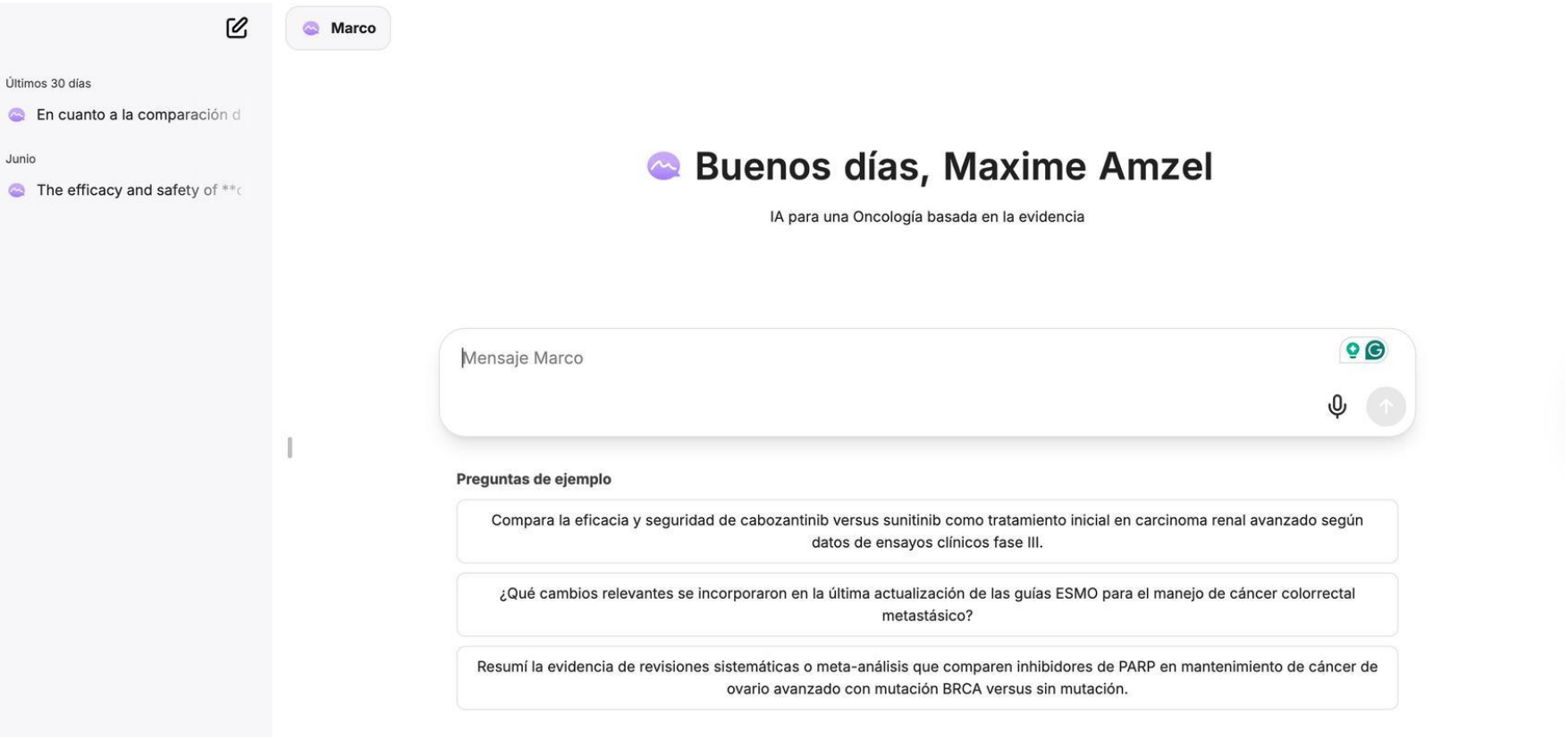
The Digitization of the World: From Edge to Core; IDC Whitepaper #US44413318 Sponsored by Seagate; November 2018

La IA ordena, prioriza.
No nos dice que
tenemos que hacer,
nos dice donde mirar.

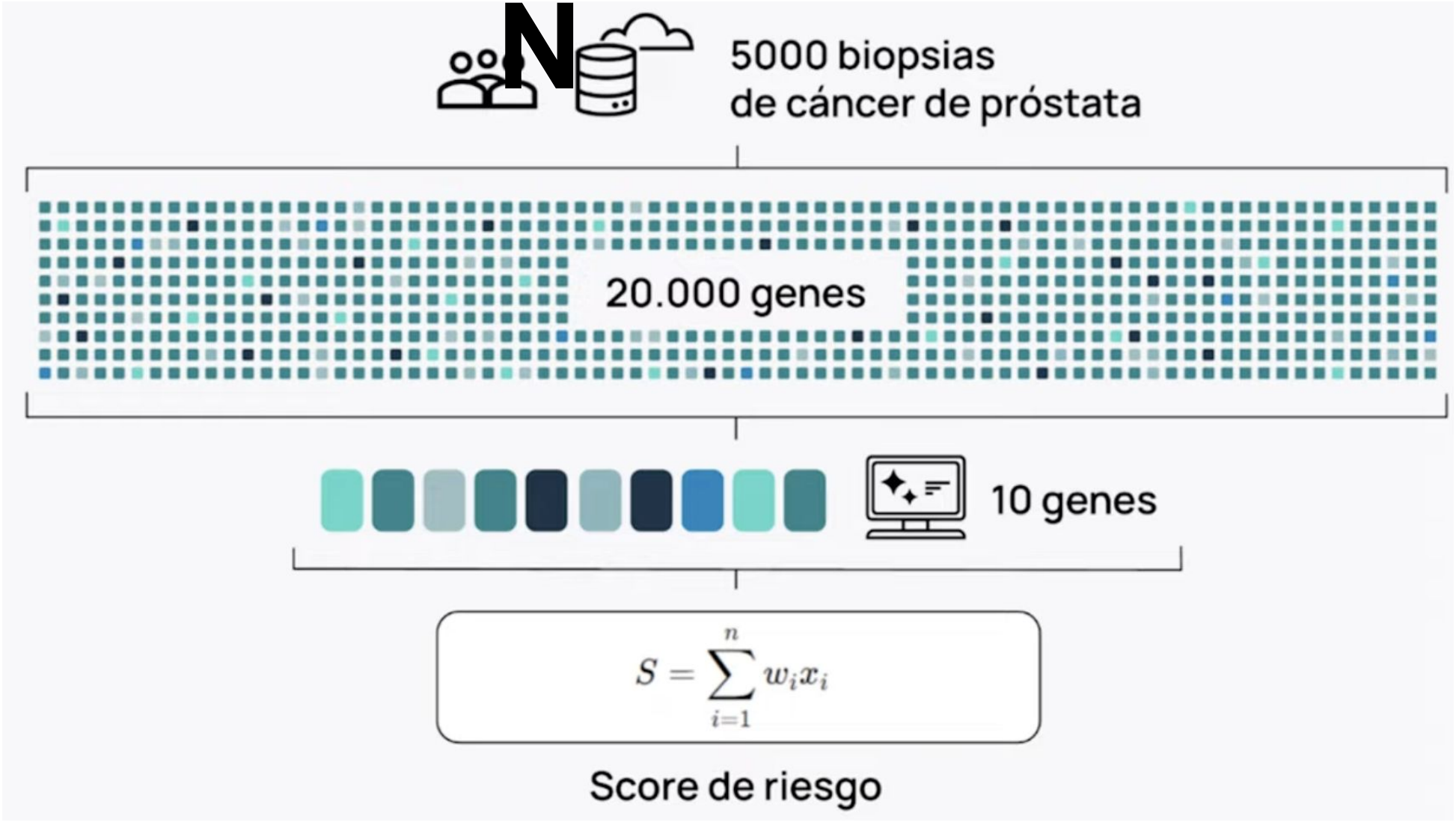
Marco



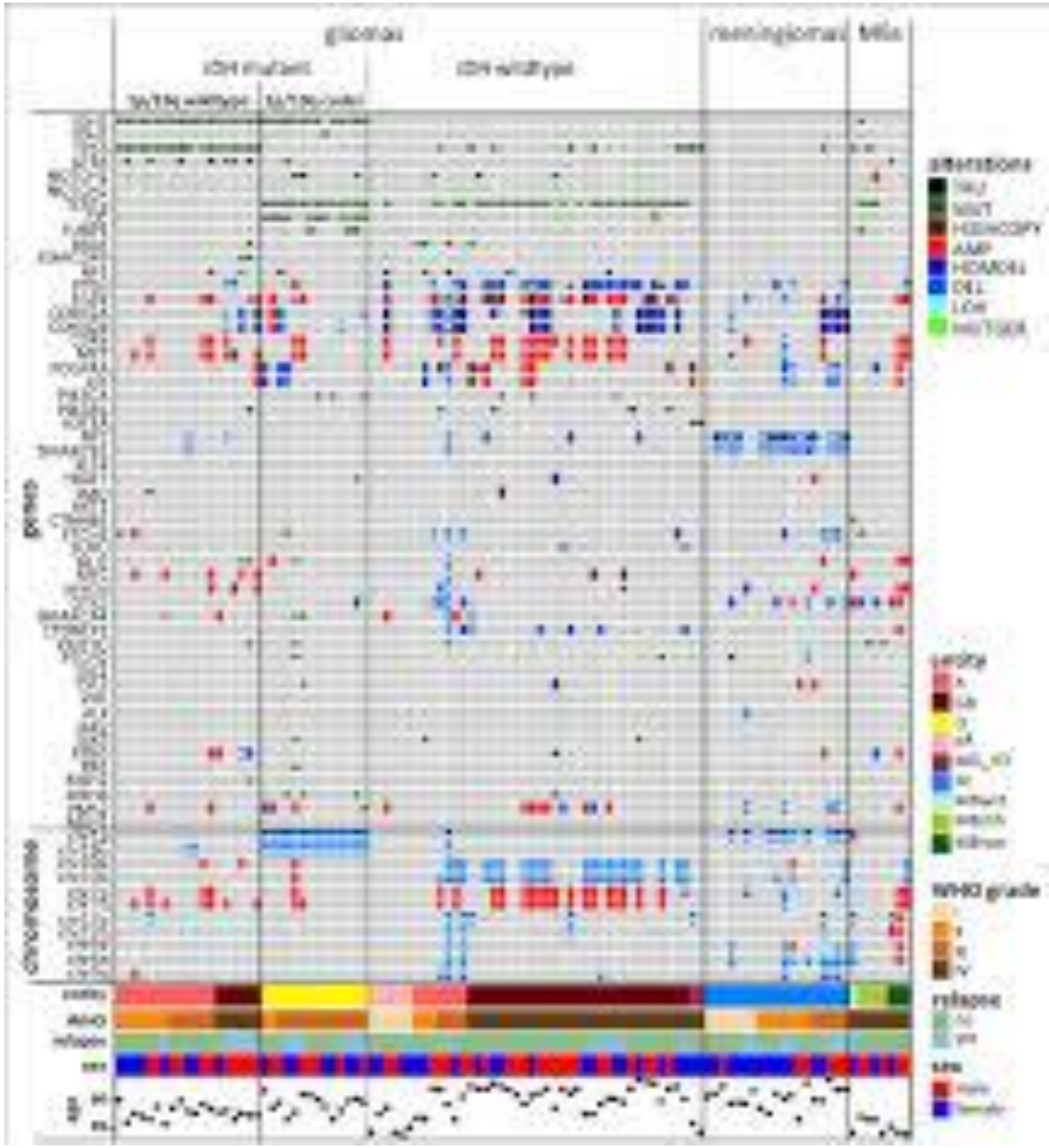
www.marco.care



PREGEN



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


gliomas
IDH mutant
IDH wildtype
meningiomas
MBs
alterations
AMP
DEL
LOH
WHO grade
relapse
sex
gene
chromosome

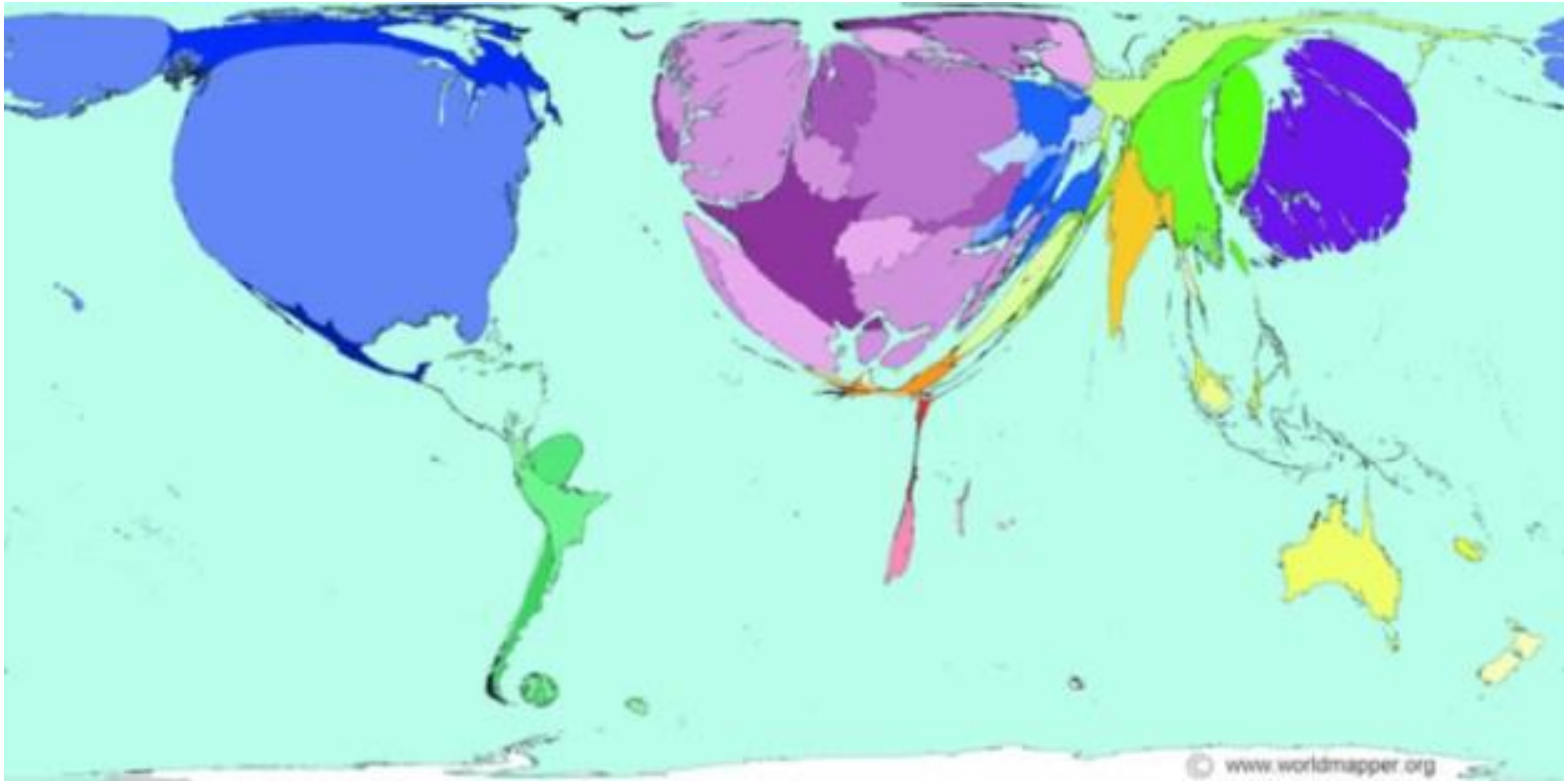
¿Dónde encaja el medico hoy?

Ya no es:

- el que recuerda todo
- el que procesa todas las variables
- el que calcula riesgos a mano

Es el que

- define la pregunta
- valida el contexto
- asume la decisión
- termina siendo el responsable moral



https://qz.com/449405/this-map-of-the-worlds-scientific-research-is-disturbingly-unequal

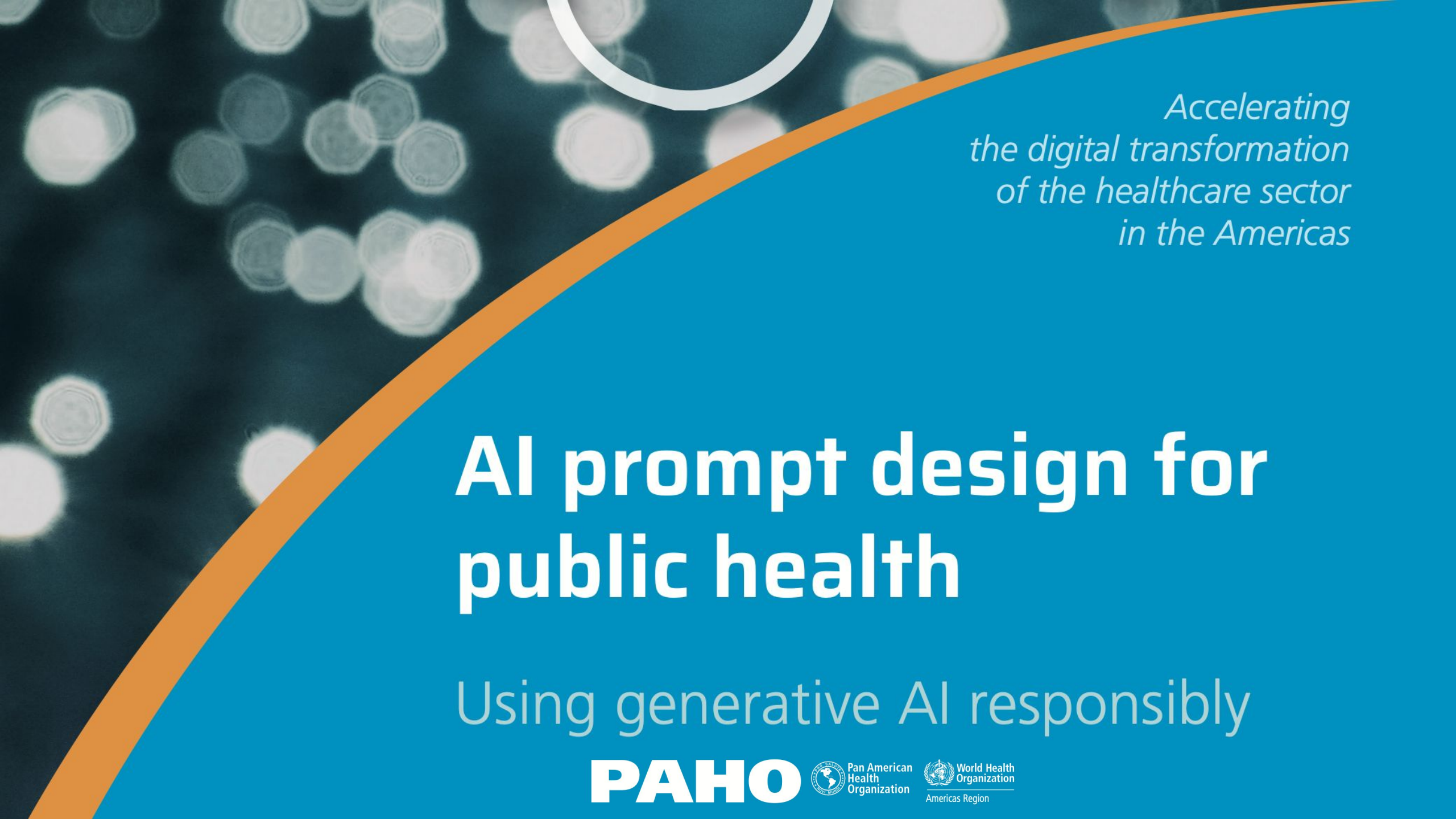
nature medicine

Comment | Published: 16 October 2025

The fragile intelligence of GPT-5 in medicine

Rebecca Handler, Sonali Sharma & Tina Hernandez-Boussard

Nature Medicine (2025) | Cite this article



Accelerating the digital transformation of the healthcare sector in the Americas

AI prompt design for public health

Using generative AI responsibly

PAHO Pan American Health Organization

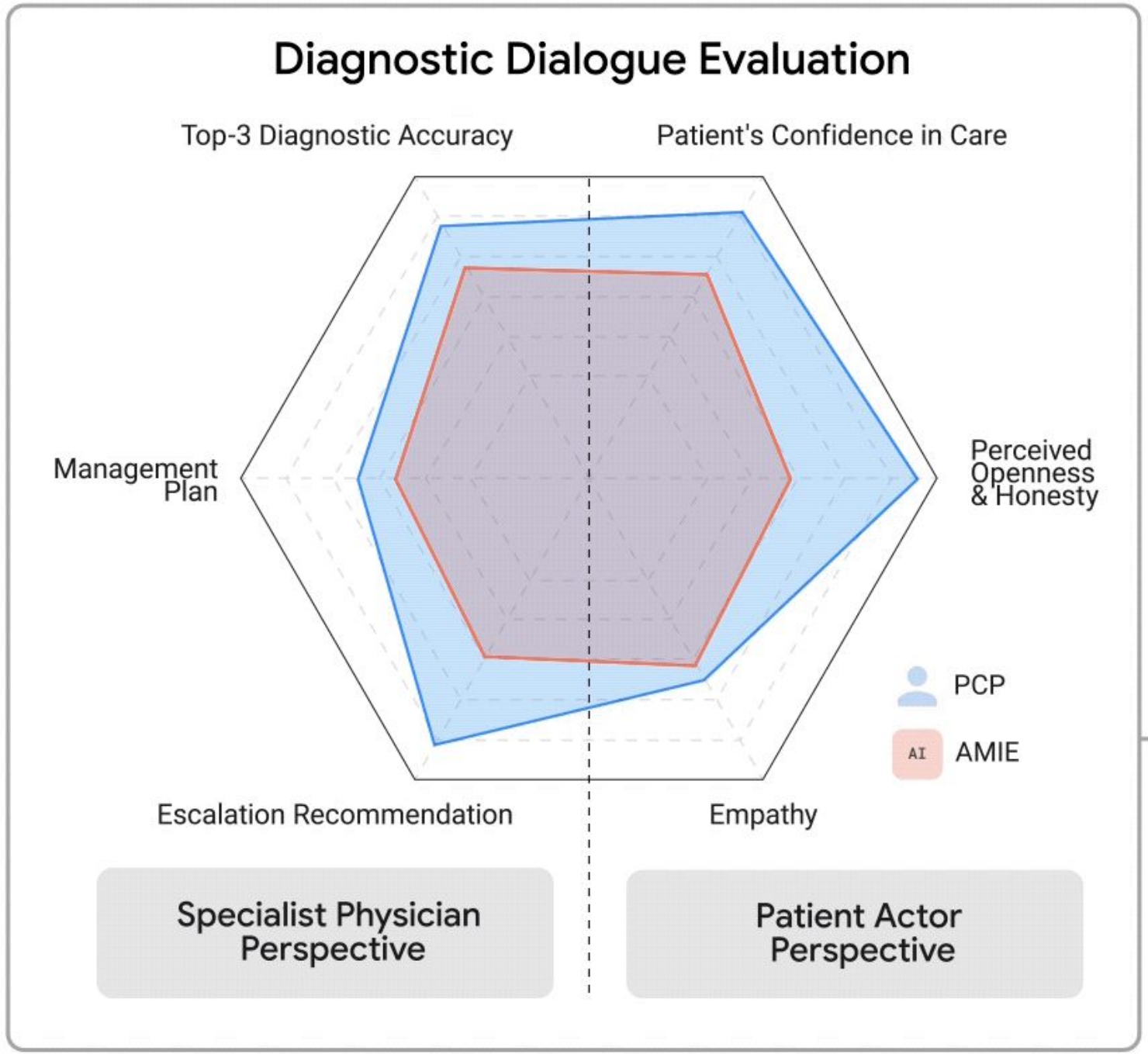
World Health Organization Americas Region

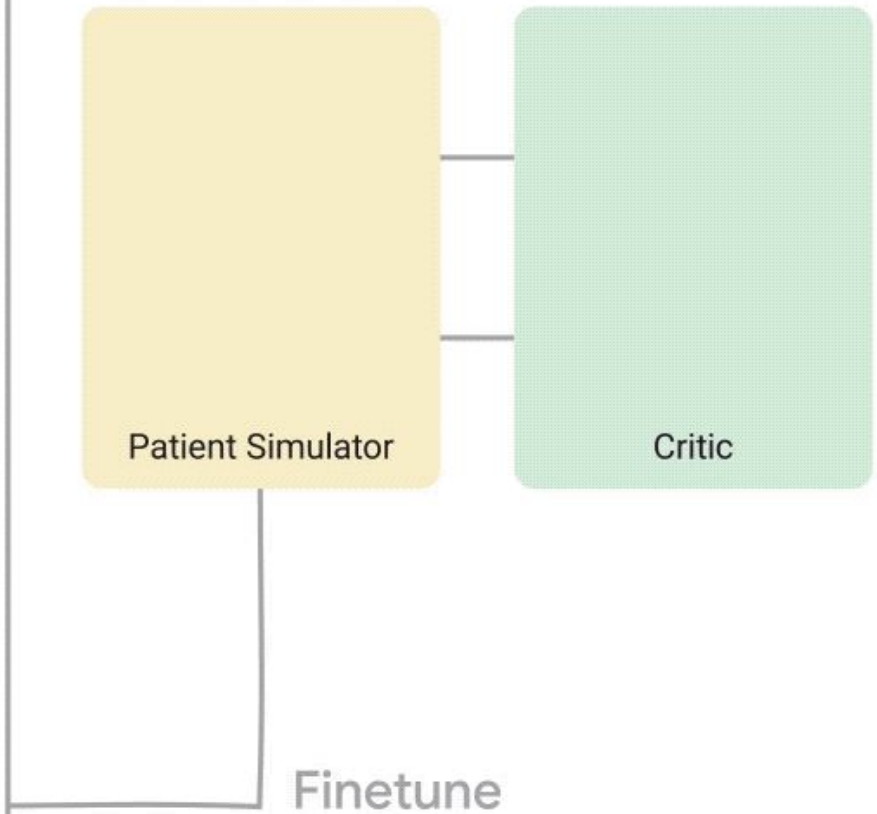
Falta de representatividad en el dataset.
Modelos todavía imperfectos.
Herramientas no integradas a la práctica.

El futuro

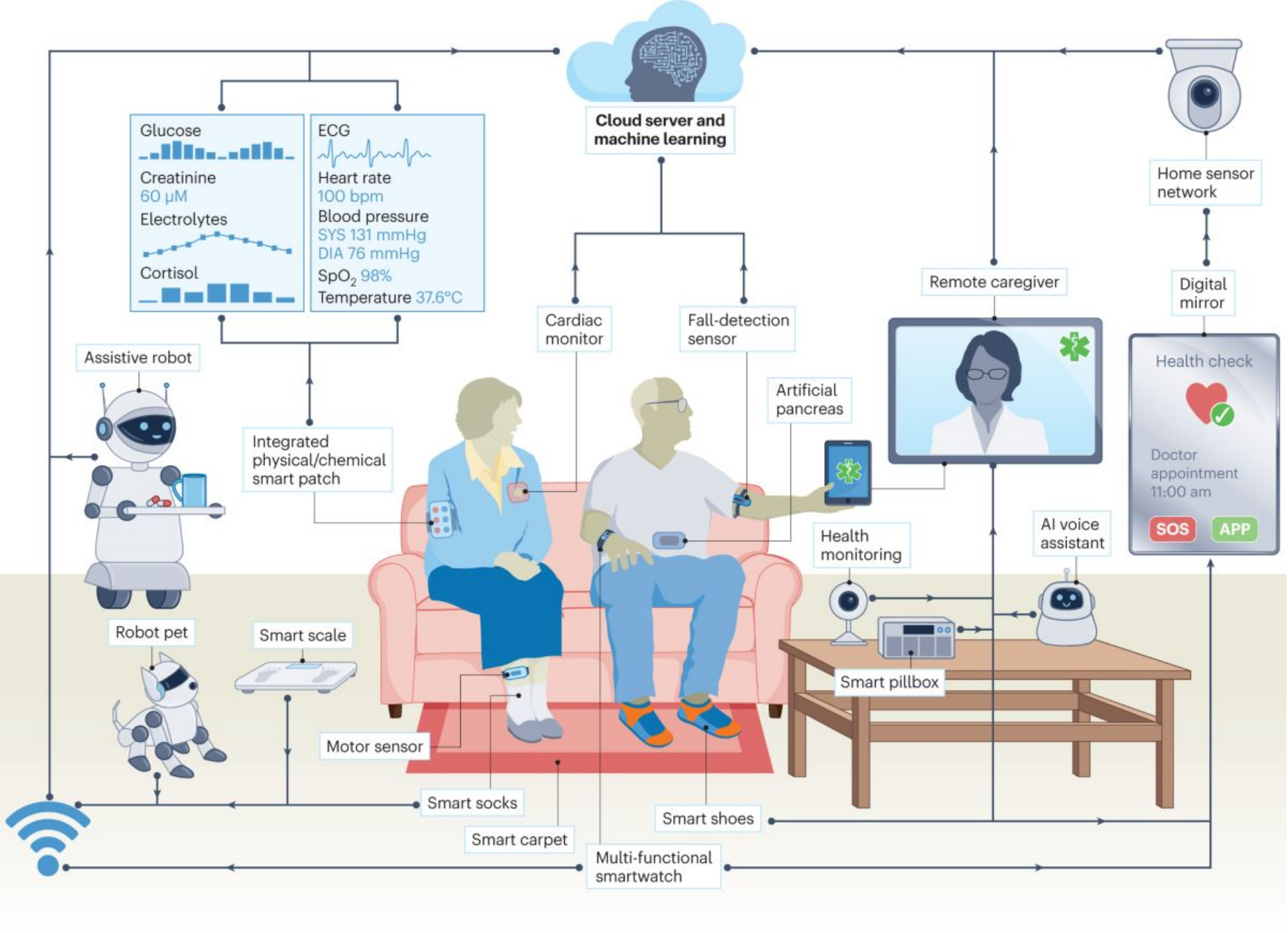
A physicist is just an atom's way of looking at itself.

— Niels Bohr —



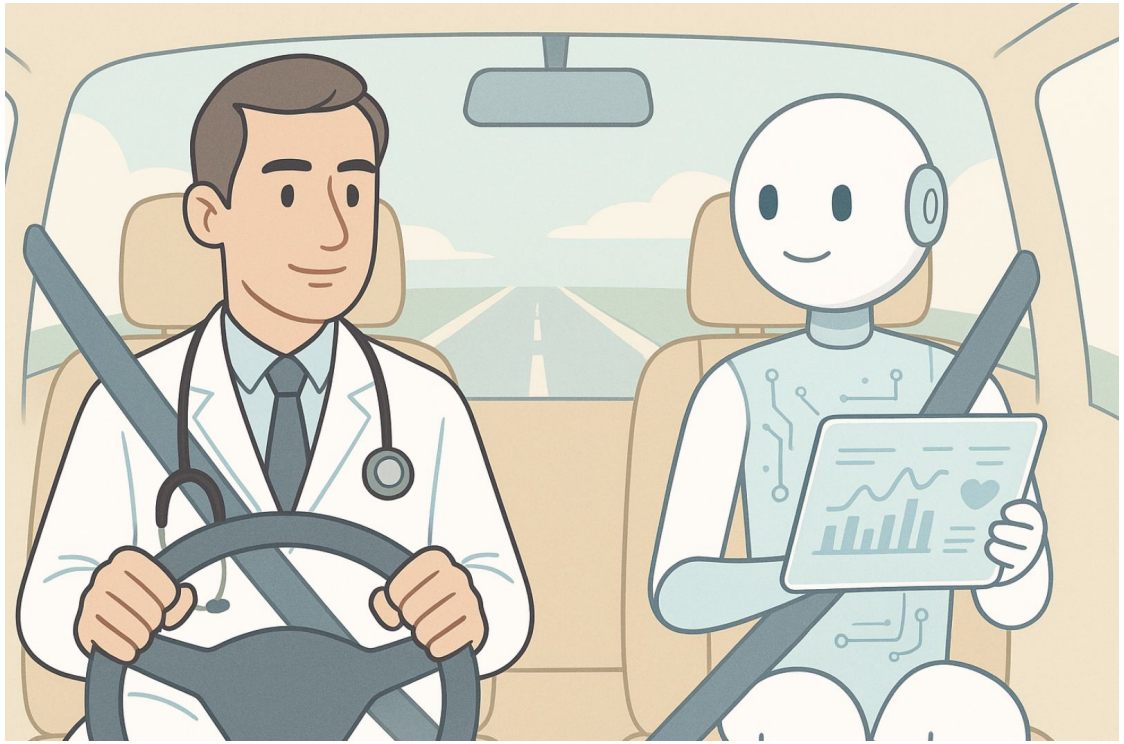


https://research.google/blog/amie-a-research-ai-system-for-diagnostic-medical-reasoning-and-conversations/



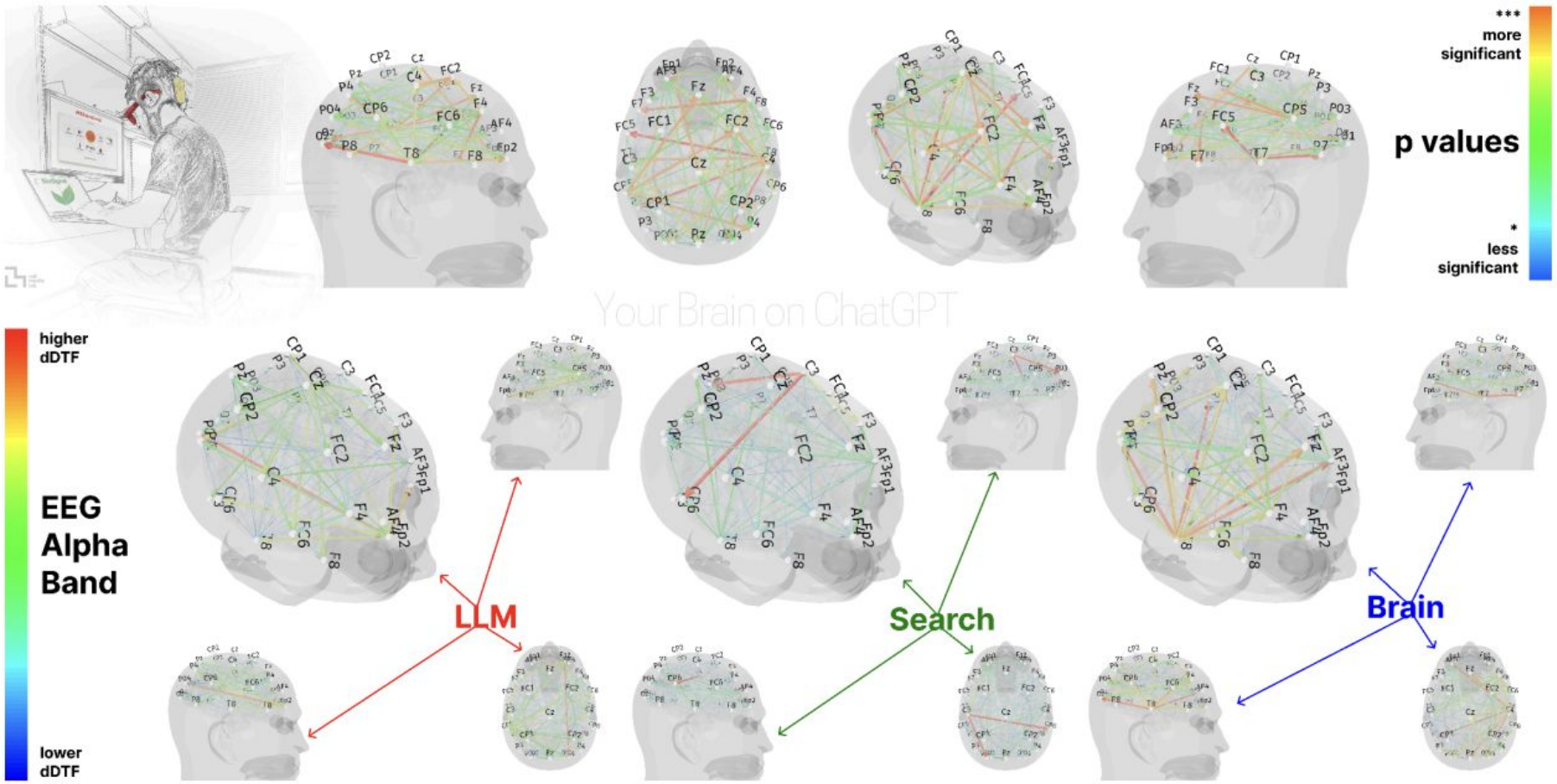
Chen, C., Ding, S. & Wang, J. Digital health for aging populations. *Nat Med* **29**, 1623–1630 (2023). https://doi.org/10.1038/s41591-023-02391-8

La IA como copiloto.



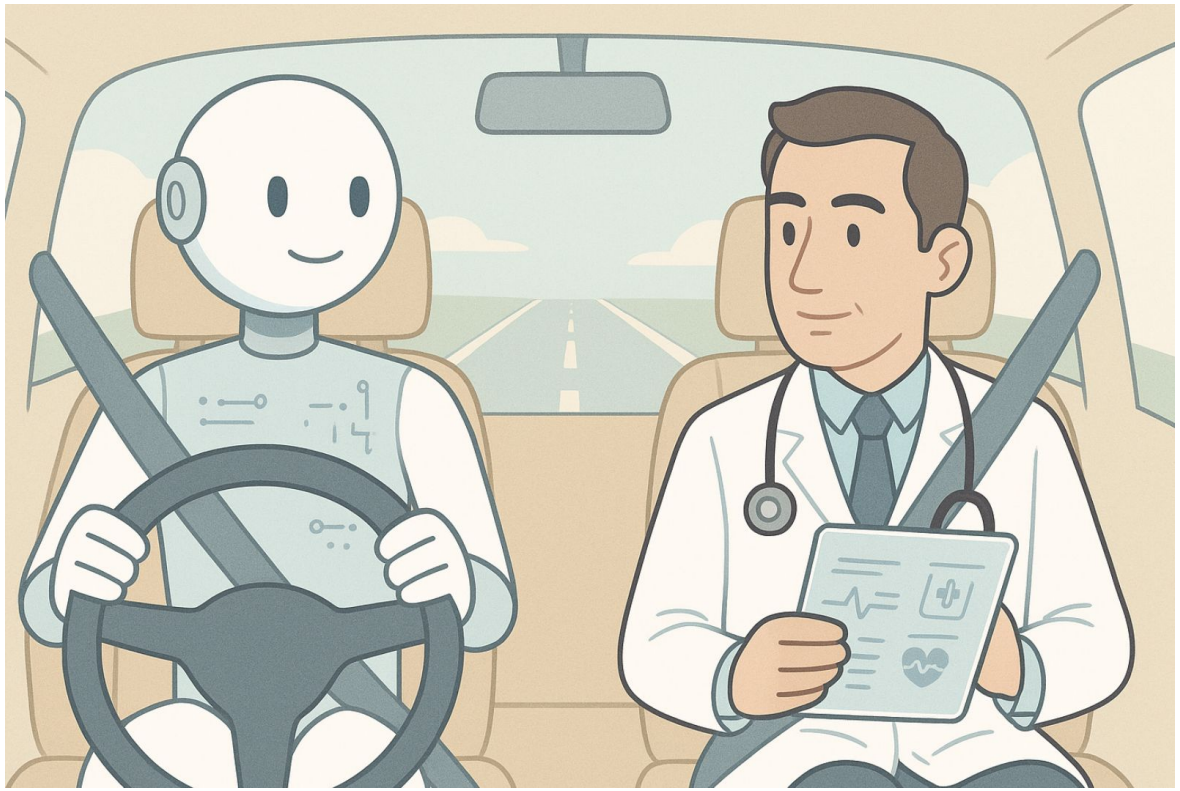
- La IA resume, sugiere, integra, prioriza.
- El medico decide, converge comunica.

Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task△



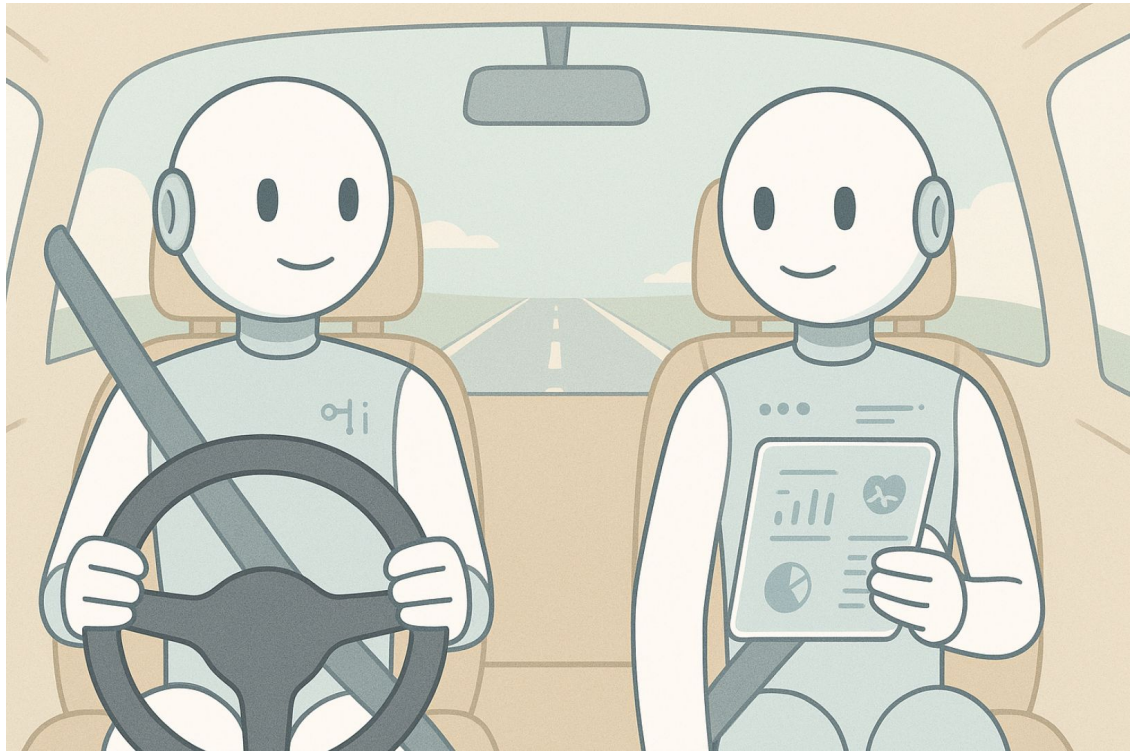
https://arxiv.org/pdf/2506.08872

El médico como supervisor.



- La IA sugiere, detecta patrones recomienda tratamientos personalizados.
- El medico supervisa, interviene acompaña.

La IA autónoma



- La IA sugiere, detecta patrones recomienda tratamientos personalizados, supervisa, interviene, acompaña.

Solucionados todos los aspectos técnicos el ruido es moral.

IA en oncología: ¿ruido o solución?

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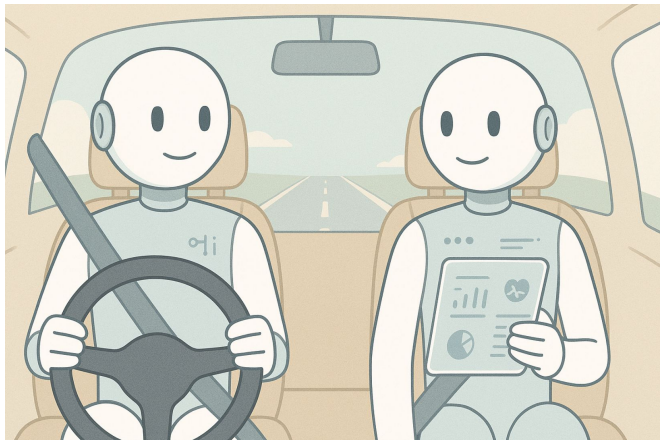
El futuro



Muchas gracias!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BIODOTS