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A Path to Health Equity in the AI Healthcare Era

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Health Equity is more than just equal access to quality care …

Health Equity is the fair and just opportunity for everyone to fulfil their human potential in all aspects of health and wellbeing

Is this equity or equality?

A pharmaceutical company is recruiting for a clinical trial. In order to meet their diversity targets, they are accepting eligible patients across all patient groups (genders, ethnicities, ages etc.)
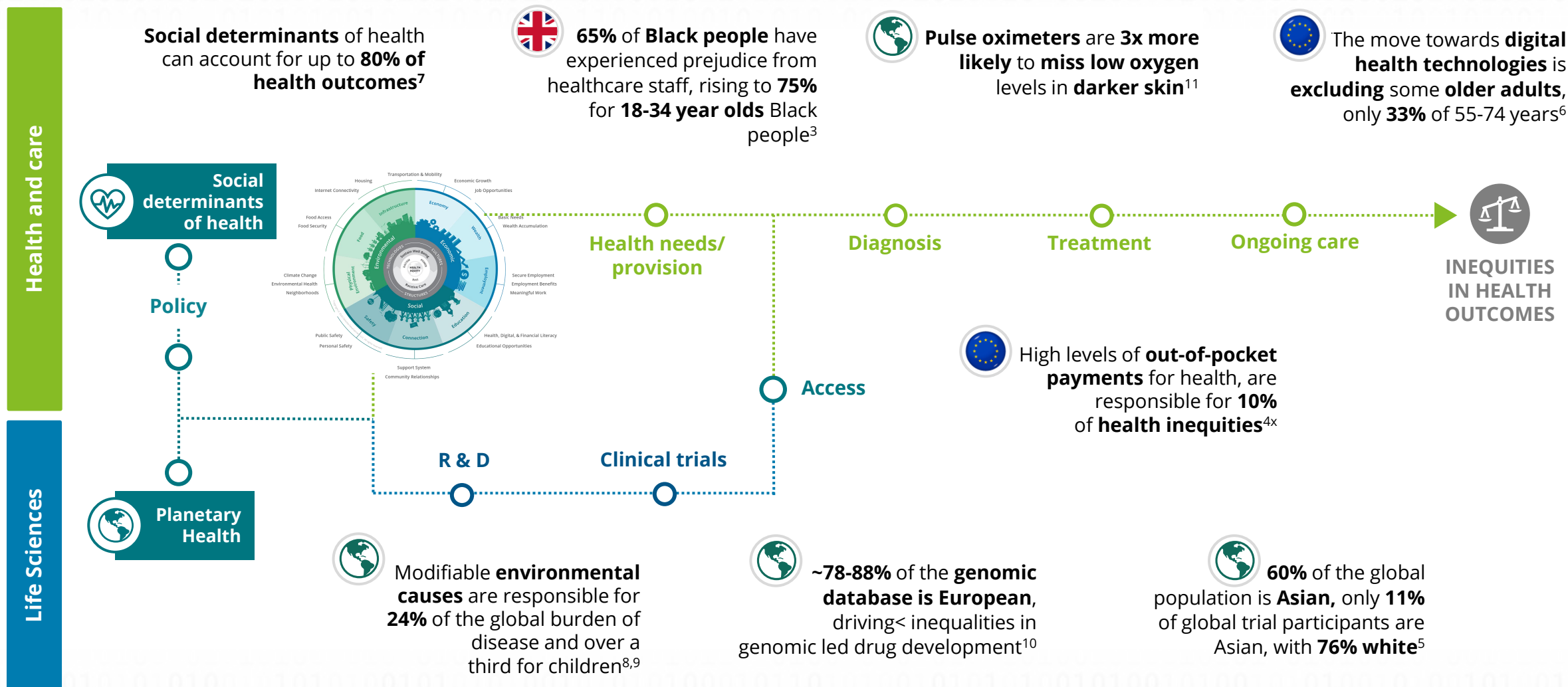

Equality doesn't mean **Equity**
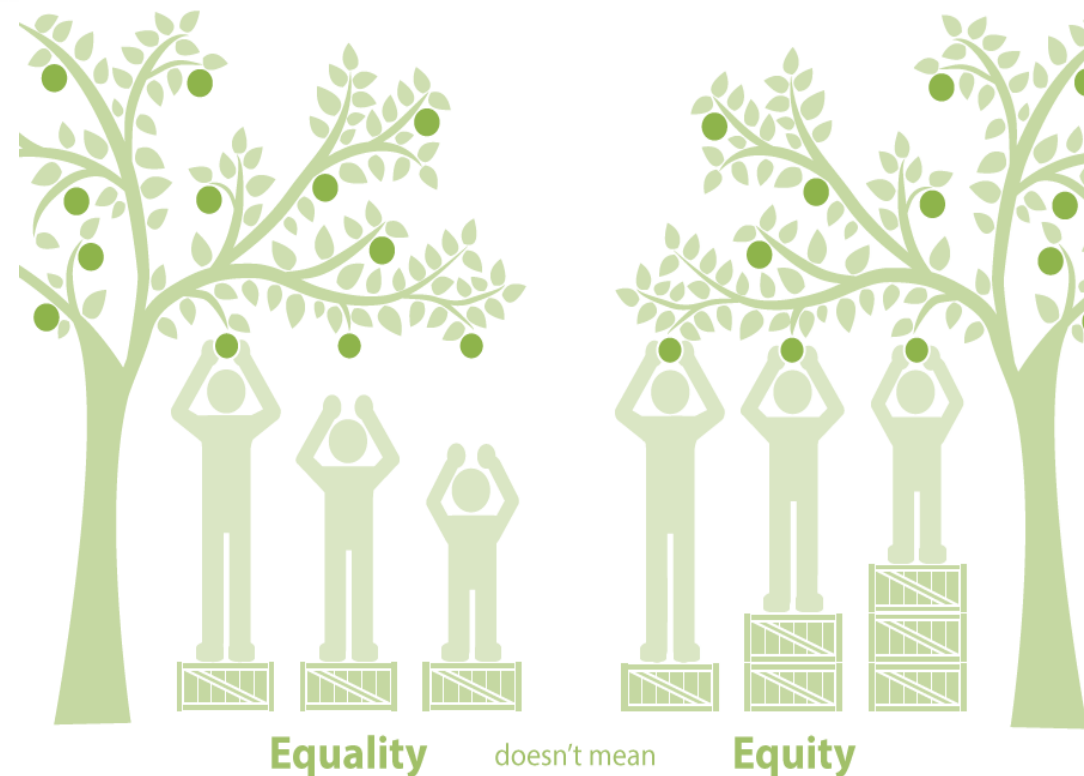
Where do health inequalities exist?

Social determinants of health, such as housing, education and employment opportunities can account for up to 80% of health outcomes
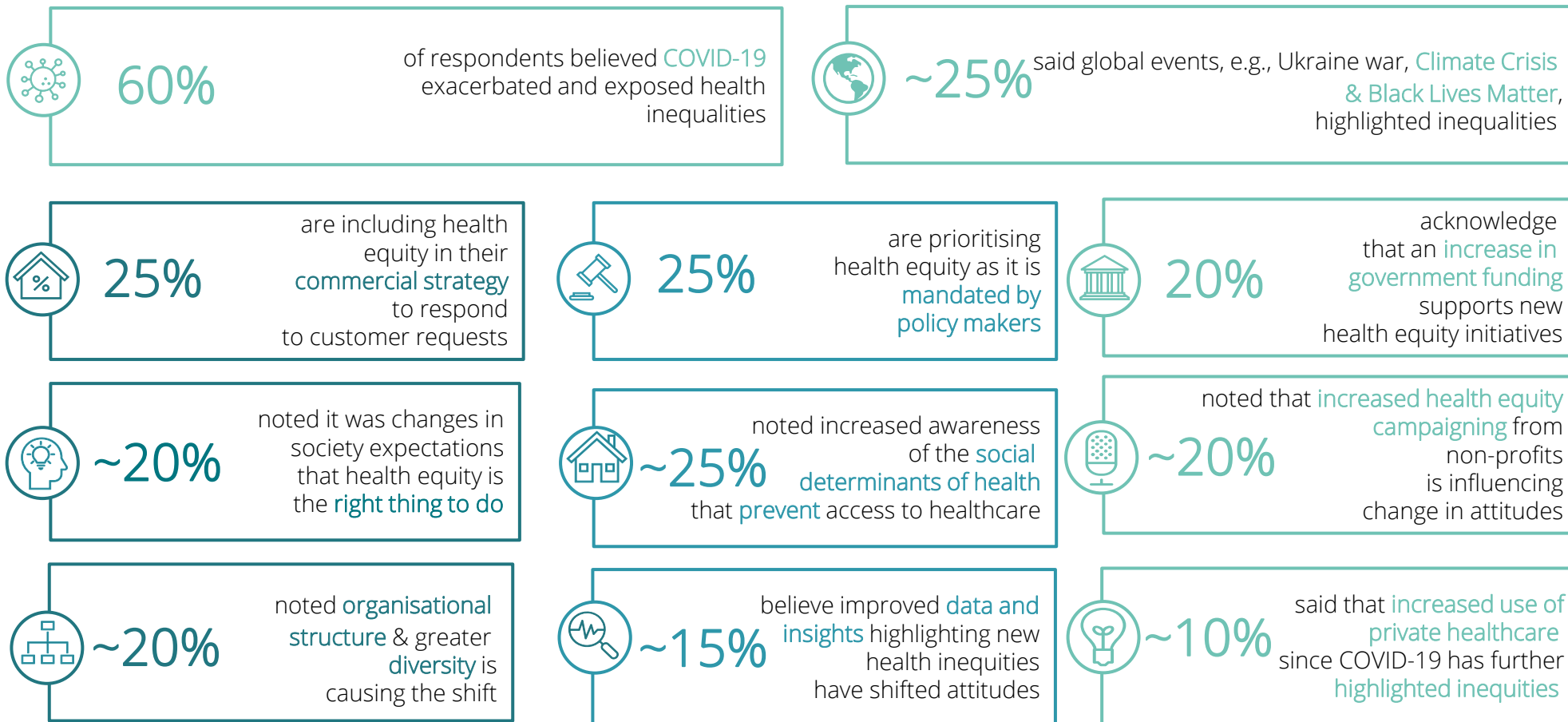
Where do health inequalities exist?

Social determinants of health can account for up to **80% of health outcomes**[7]

65% of **Black people** have experienced prejudice from healthcare staff, rising to **75%** for **18-34 year olds** Black people[3]

Pulse oximeters are **3x more likely** to **miss low oxygen** levels in **darker skin**[11]

The move towards **digital health technologies** is **excluding** some **older adults**, only **33%** of 55-74 years[6]

Health and care

Social determinants of health

Policy

Health needs/ provision

Diagnosis

Treatment

Ongoing care

INEQUITIES IN HEALTH OUTCOMES

Access

High levels of **out-of-pocket payments** for health, are responsible for **10%** of **health inequities**[4x]

Life Sciences

Planetary Health

R & D

Clinical trials

Modifiable **environmental causes** are responsible for **24%** of the global burden of disease and over a third for children[8,9]

~78-88% of the **genomic database is European**, driving< inequalities in genomic led drug development[10]

60% of the global population is **Asian,** only **11%** of global trial participants are Asian, with **76% white**[5]

Ref: 1. Int J Equity Health 2. Nursing Open 3. BMJ 4. WHO Europe 5. Nature Reviews Disease Primers 6. WHO Europe 7. National Academy of Medicine 8. The Lancet 9.The Lancet 10. Cell

All members of the ecosystem are shifting their attitudes positively towards health equity

60% of respondents believed COVID-19 exacerbated and exposed health inequalities

~25% said global events, e.g., Ukraine war, Climate Crisis & Black Lives Matter, highlighted inequalities

100% of healthcare and life science stakeholders believe their health equity attitudes have strongly shifted since 2018

25% are including health equity in their commercial strategy to respond to customer requests

25% are prioritising health equity as it is mandated by policy makers

20% acknowledge that an increase in government funding supports new health equity initiatives

~20% noted it was changes in society expectations that health equity is the right thing to do

~25% noted increased awareness of the social determinants of health that prevent access to healthcare

~20% noted that increased health equity campaigning from non-profits is influencing change in attitudes

~20% noted organisational structure & greater diversity is causing the shift

~15% believe improved data and insights highlighting new health inequities have shifted attitudes

~10% said that increased use of private healthcare since COVID-19 has further highlighted inequities

Sample Size (N = 40), **Groups:** Charities (N=8), Digital Health (N=5), MedTech (N=5), Pharma (N=13), Policy Maker (N=4), Providers (N=5)

Source: European Deloitte Health Equity Institute

Not only is health equity a moral imperative, but there is also a strong business and organizational case to act

BUSINESS

- Drive improved patient outcomes and access
- Grow revenue by unlocking untapped markets and customer segments
- Reduce compliance risks and show impact to investor community

PATIENTS

- Reduce variation in patient access and outcomes
- Support health systems to improve care
- Act on ESG ambitions

STAKEHOLDERS

- Build and retain customer trust & improve company / brand perception
- Develop partnerships & strengthen relationships across the health ecosystem
- Attract, engage and retain top, diverse talent

IT'S GOOD FOR BUSINESS

IT'S THE RIGHT THING TO DO FOR PATIENTS

IT BUILDS TRUST WITH STAKEHOLDERS

ALL COMPANIES ARE HEALTH CARE COMPANIES

Source: UK / NSE Deloitte Health Equity Institute

Top current health equity strategies

Inclusive R&D

Leveraging RWE to Increase patient diversity in clinical trials, and adopt equity by design principle in product pipelines

Improving data, analytics & technology infrastructure

Improving data & analytics and technology infrastructure to support strategy & implementation, ensuring the right data is captured in local settings/stratified to vulnerable patient populations
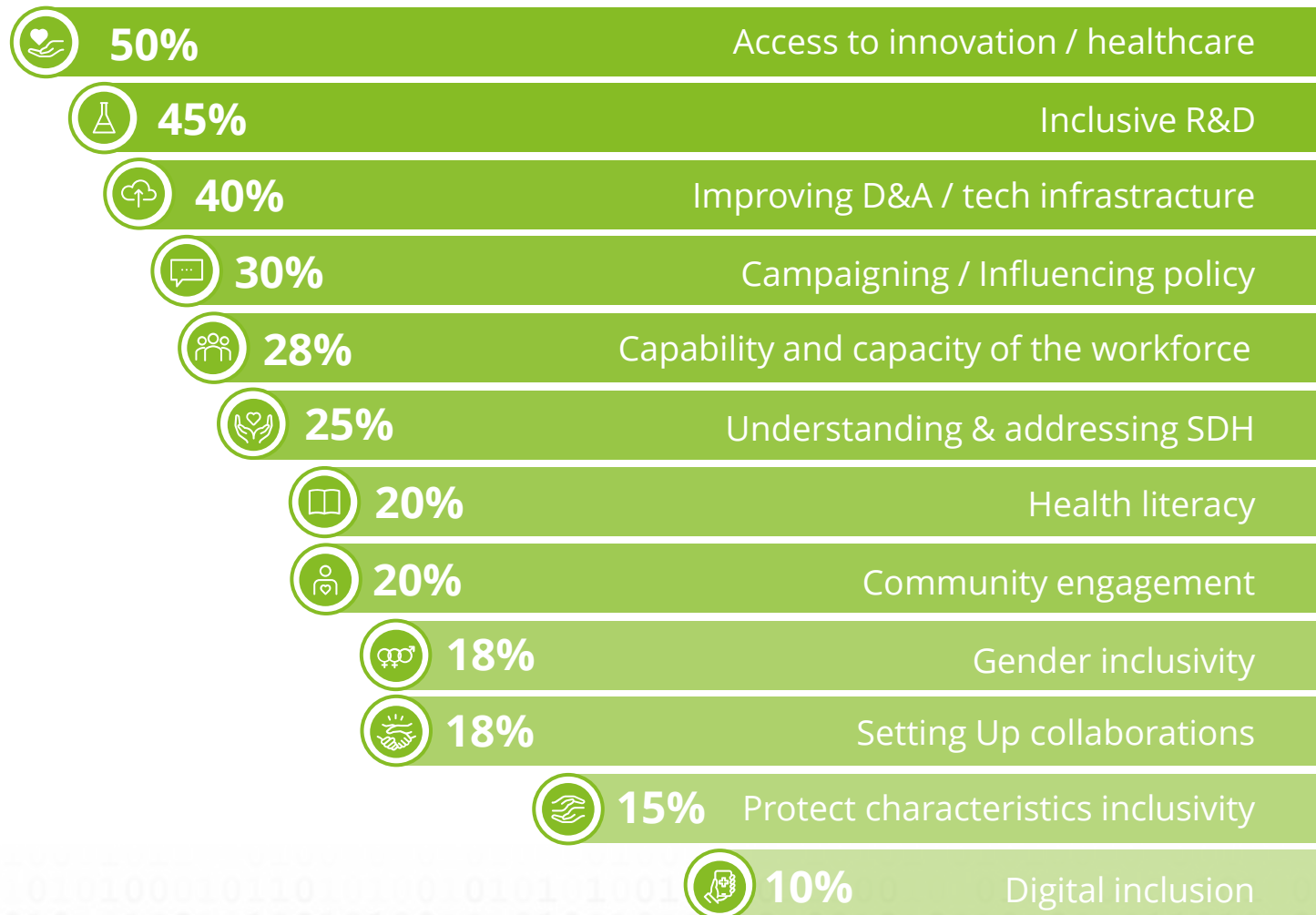
Health literacy

Empowering vulnerable patients to navigate the healthcare pathway e.g. digital tools that translate Tx / CT options into laymen's terms

Digital inclusivity

Partnering with telecoms (5G for rural/disadvantaged communities) and invest in user experience and talent to address the divide caused by digital tools

Percentage	Strategy
50%	Access to innovation / healthcare
45%	Inclusive R&D
40%	Improving D&A / tech infrastructure
30%	Campaigning / Influencing policy
28%	Capability and capacity of the workforce
25%	Understanding & addressing SDH
20%	Health literacy
20%	Community engagement
18%	Gender inclusivity
18%	Setting Up collaborations
15%	Protect characteristics inclusivity
10%	Digital inclusion

Percentage of total respondents (all stakeholders) that adopt each strategy

Source: European Deloitte Health Equity Institute

Sample Size (N = 40), **Groups:** Charities (N=8), Digital Health (N=5), MedTech (N=5), Pharma (N=13), Policy Maker (N=4), Providers (N=5)

Actions to enable a more equitable future

Addressing current drivers of health inequity

Training and education of workforce; working to embed health equity competency as core

Digitally inclusive service design, and improving technology literacy including addressing device and connectivity poverty

Language inclusive healthcare services and digital tools to enable everyone to access and receive equitable care

Including gender differences into health care pathways and research

Preventing future drivers of health inequity

Diversify -omic and other datasets to enable targeted care for all populations

Privatisation / consumerisation of healthcare driving inequalities between low and high socioeconomic groups

Health literacy and addressing misinformation to eliminate mistrust of medicines and target hard to reach patients

Addressing bias in AI to ensure its adoption does not exacerbate existing system bias and challenges

Working together to achieve health equity

Restructure business models to create bold solutions; A "Super Matrix" approach to bring stakeholders together

Improved data and technology infrastructure to facilitate health equity strategies e.g. data sharing, system & IT interconnectivity between ecosystem members

Increased focus and visibility across Europe driving changes in policy and providers to improve access

Encourage greater due diligence to ensure that deployment of equitable solutions is viewed as a collective responsibility

The Future of Health
A path to equity in an AI health era

AI can be a gamechanger, but it may also exacerbate existing bias in the health system if used without care

Potential benefits of AI

Population Engagement
AI can be used to improve awareness of prevention strategies and encourage individuals to engage with health initiatives, including screening programmes

Patient Experience
Providing a tailored patient experience and easier access to care may improve patient engagement and ownership for their healthcare needs

Clinical Outcomes
Improving clinical processes and decision support with AI solutions can provide healthcare professionals more time to provide patient-centred care

Efficiency and cost
Encouraging patient engagement and improving access to healthcare may reduce costs by improving overall population health and ensuring that conditions are diagnosed and treated at an early stage

Potential for AI to exacerbate bias

The cost of using *inappropriate* data sets[1]
- An algorithm using patient's health costs as a proxy for estimating their health needs assigns Black patients the same level of health risk as White patients

- The data used is **inadequate and exacerbates racial bias** as less money is typically spent on Black patients than White patients with the same health requirements

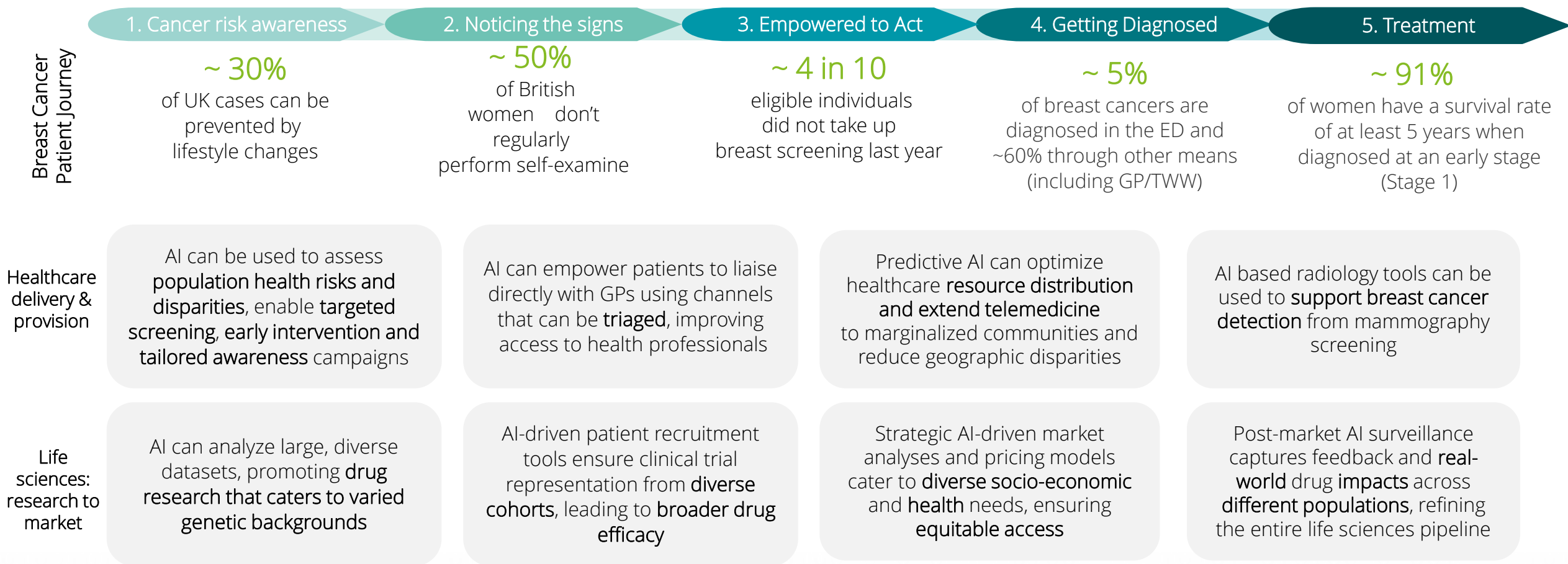### The cost of using *unrepresentative* data sets[2]
- Researchers leveraged publicly available medical imaging data to train an AI system to perform computer-assisted diagnosis of thoracic diseases

- They noticed that system **performance decreased for underrepresented genders** when the data set did not comply with a minimum gender balance

References:
1. Brief Report: Gender imbalance in medical imaging datasets produces biased classifiers for computer-aided diagnosis - PMC (nih.gov)
2. https://www.science.org/doi/10.1126/science.aax2342?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed

However, it can also democratize and bring us closer to an optimal healthcare pathway

1. Cancer risk awareness	2. Noticing the signs	3. Empowered to Act	4. Getting Diagnosed	5. Treatment

Breast Cancer Patient Journey

~ 30%	~ 50%	~ 4 in 10	~ 5%	~ 91%
of UK cases can be prevented by lifestyle changes	of British women don't regularly perform self-examine	eligible individuals did not take up breast screening last year	of breast cancers are diagnosed in the ED and ~60% through other means (including GP/TWW)	of women have a survival rate of at least 5 years when diagnosed at an early stage (Stage 1)

Healthcare delivery & provision

AI can be used to assess **population health risks and disparities**, enable **targeted screening, early intervention and tailored awareness** campaigns	AI can empower patients to liaise directly with GPs using channels that can be **triaged**, improving access to health professionals	Predictive AI can optimize healthcare **resource distribution and extend telemedicine** to marginalized communities and reduce geographic disparities	AI based radiology tools can be used to **support breast cancer detection** from mammography screening

Life sciences: research to market

AI can analyze large, diverse datasets, promoting **drug research that caters to varied genetic backgrounds**	AI-driven patient recruitment tools ensure clinical trial representation from **diverse cohorts**, leading to **broader drug efficacy**	Strategic AI-driven market analyses and pricing models cater to **diverse socio-economic** and **health** needs, ensuring **equitable access**	Post-market AI surveillance captures feedback and **real-world** drug **impacts** across **different populations**, refining the entire life sciences pipeline

Sources:
Facts and figures | Breast Cancer UK
Almost half of British women do not self-examine for breast cancer | Breast cancer | The Guardian
NHS England » Women urged to take up NHS breast screening invites
Costs of Early Invasive Breast Cancer in England Using National Patient-Level Data - PubMed (nih.gov)
Deloitte Analysis: Incidence – National Disease Registration Service; Routes of diagnosis and diagnoses in stage 1/2 – NHS Digital

Patients, ethics and transparency are central to AI development
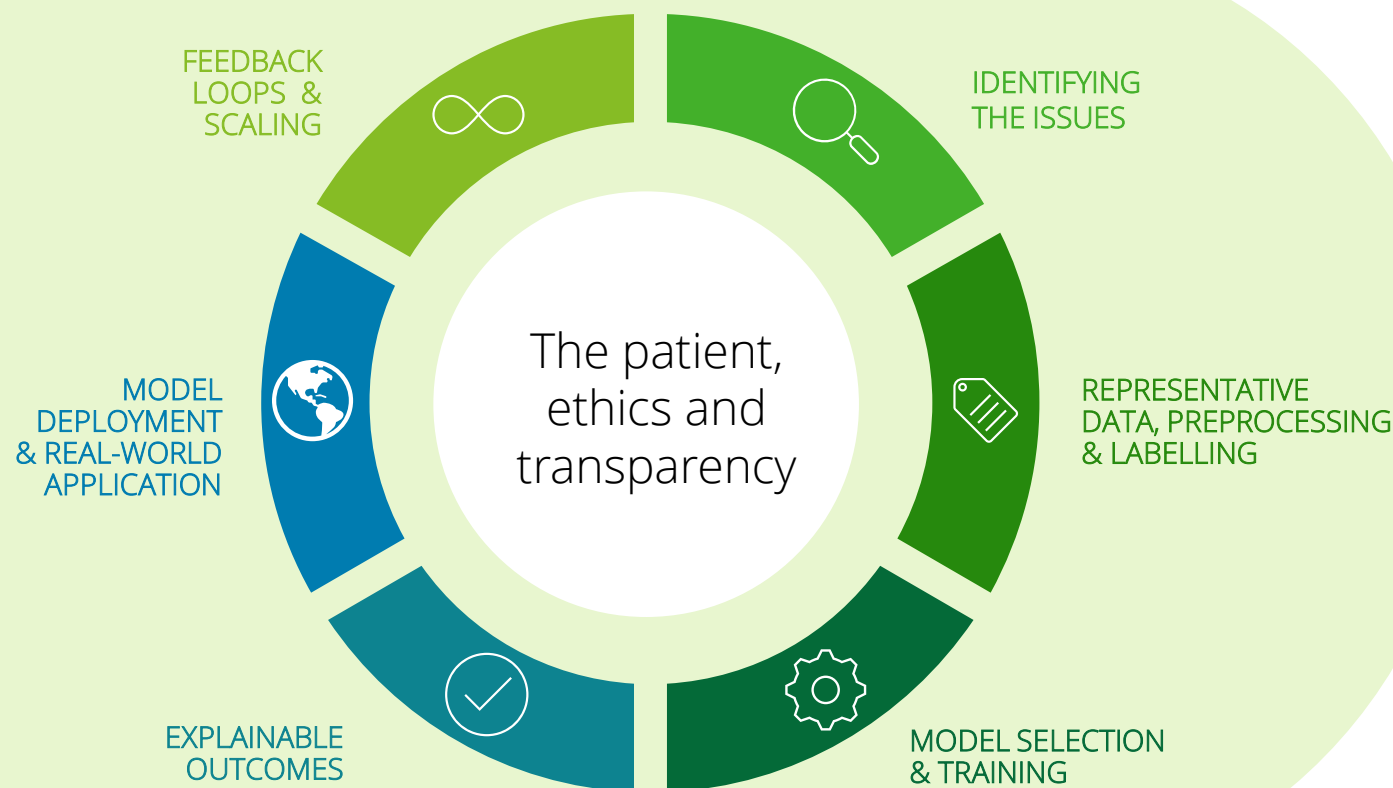
Compounding Impact of Algorithm Outputs

The outputs of AI algorithms, especially if they're biased, can feed back into the system, further reinforcing and amplifying biases in a vicious cycle.

Over time, this can lead to significant health inequities where entire populations are left out of medical advancements

Therefore, a holistic and thoughtful approach is required for selecting use cases and deploying these solutions to appropriately manage that risk

"Human-in-the-loop" will be the default and Generative AI should be viewed as an accelerator and an enabler to colleagues

FEEDBACK LOOPS & SCALING

IDENTIFYING THE ISSUES

The patient, ethics and transparency

REPRESENTATIVE DATA, PREPROCESSING & LABELLING

MODEL DEPLOYMENT & REAL-WORLD APPLICATION

EXPLAINABLE OUTCOMES

MODEL SELECTION & TRAINING

The Zero Gaps Pledge

At the World Economic Forum Annual Meeting 2023 in Davos, the Global Health Equity Network (GHEN), supported by Deloitte, launched the Zero Health Gaps Pledge, the first ever global, multi-sector CEO-level pledge for health equity

ZERO HEALTH GAPS PLEDGE

A public commitment from CEOs to improving health equity globally and embedding health equity across their organizational strategies, operations and investments.

Sample Pledge Commitments:

1 — **Assess health equity needs** across our workforce, consumer base, communities, and ecosystem.

2 — **Measure impact of our health equity work** with disaggregated data so variation can inform decisions.

3 — **Help advance the ethical use of data** and strong privacy controls.

4 — **Inspire other organizations** across sectors to act, to share learnings, and to accelerate the work of the GHEN.

5 — **Seek to understand how our organization can address root causes** of health inequities.

What action will you and your organisation take?

Thank you!