AI and the Future of RMD Care:

Hype or Reality?

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DHI cluster

PEOPLE
IDEAS
BETTER HEALTH

CONNECTED
INNOVATION
HEALTHIER TOMORROW

Mira Ganova, PhD

CEO, Digital Health and Innovation Cluster Bulgaria

- Digital health ecosystem leader
- Bridging AI, innovation and real healthcare impact
- Leading national and European initiatives in digital health
- Focused on implementation, patient-centred care and system transformation



Turning promising technologies into better care for real people.

AI is already impressive.

But is it improving care?

Four capabilities and four ways they can support the patient journey

SEE

COMPUTER VISION

Analyze images and recognize patterns

· Hand images · Eye screening

PREDICT

PREDICTIVE AI

Identify patterns linked to risk, progression or response

· Early diagnosis · Disease course · Treatment response

MEASURE

DIGITAL BIOMARKERS

Turn everyday signals into meaningful health data

·Sensors /Wearables · Movement ·Sleep

EXPLAIN

GENERATIVE AI

Make complex information easier to understand

Medication · Disease education · Health literacy

Different technologies. One question: can they improve the patient journey?

In healthcare, capability is only interesting when it creates value for a person ...

THE PATIENT REALITY

Healthcare sees appointments.

Patients live the disease every day.



Between appointments, symptoms, treatment effects and daily function keep changing.

PAIN | FATIGUE | MOVEMENT | SLEEP | MEDICATION | WORK | RECOVERY

AI should connect clinical snapshots with the lived patient journey.

A consultation is a snapshot.

An RMD is a continuous experience.

Where can AI help along the RMD journey?

01 SEE EARLIER → 02 DIAGNOSE → 03 PERSONALISE → 04 TREATMENT SUPPORT → 05 BETWEEN VISITS → 06 REHABILITATE → 07 UNDERSTAND

PATIENT JOURNEY → DATA → PATTERNS → BETTER DECISIONS

SEE EARLIER

AI can help us see signals earlier.

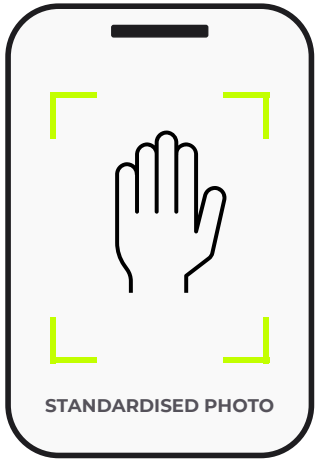
RMD RESEARCH • SMARTPHONE

A hand photo can become an early signal.

1,112 patients

2,296 hand photos

0.852 test AUROC

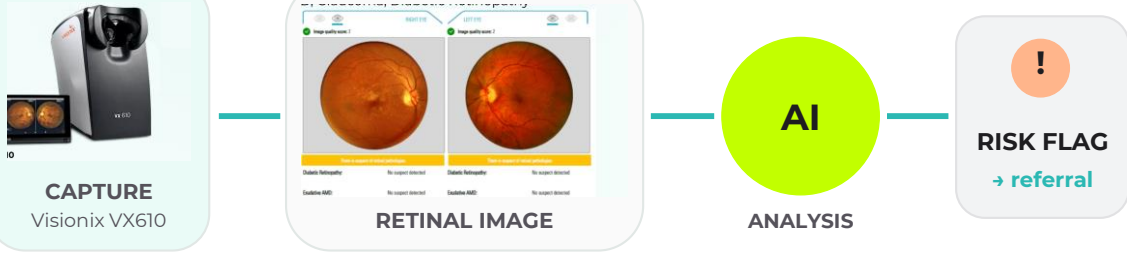


SIGNAL ≠ DIAGNOSIS

Computer vision detected hand synovitis from standardized smartphone images.

DHI REAL-WORLD • EYE SCREENING

A retinal image can trigger earlier attention.



AI supports first-line screening by identifying cases that may need specialist review.

SCREEN → REFER

Different disease. Same capability: image → pattern recognition → earlier attention.

Detecting inflammatory arthritis in hand smartphone photographs: development and validation of a computer vision model in clinical settings - PubMed

DHI eye-screening example: real-world implementation.

COLLECT THE SIGNALS

The patient generates data every day.

Now we have ways to capture some of it.

SMARTPHONE

symptoms · motion · ePROs

SMARTWATCH

activity · sleep · HR

MOTION / IMU

range of motion · gait

SMART INSOLE

pressure · load · gait

MUSCLE / EMG



muscle activation

BIOSENSOR / IoT

temperature · biomarkers

CONTINUOUS DATA

MOVEMENT

PAIN / SYMPTOMS

ACTIVITY

SLEEP

FATIGUE

FUNCTION

AI

PATTERNS OVER TIME

Change
Risk
Response
Recovery

From a snapshot of the patient → to a timeline of the patient.

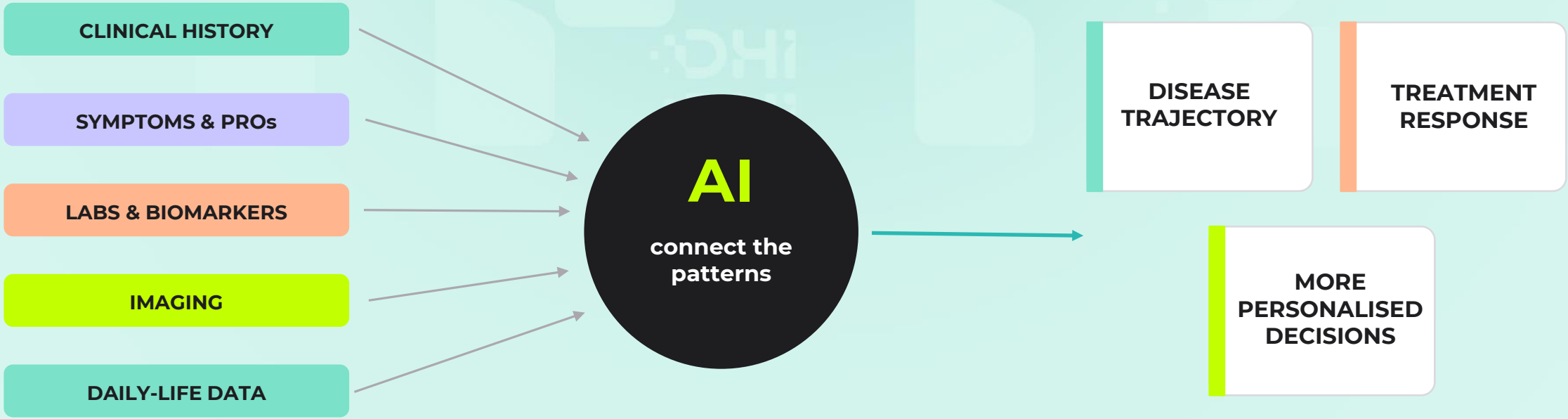
Creagh et al., npj Digital Medicine 7, 33 (2024) · DOI 10.1038/s41746-024-01013-y

Same diagnosis. Different patient.

Can AI help us understand who is more likely to respond to what?

89 STUDIES

mapped AI/ML for treatment-response prediction in a 2025 scoping review

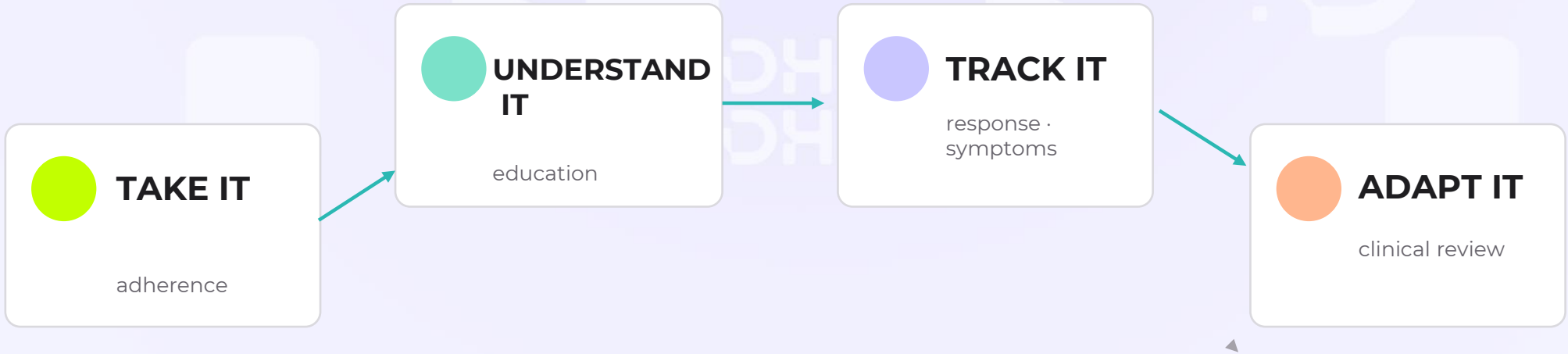


From “What usually works?” → toward “What may work better for you?”

Benavent et al., Rheumatology International 45, 91 (2025) · DOI 10.1007/s00296-025-05825-3

The treatment decision is not the end.

It is where another journey begins.



RA · 2026 REAL-WORLD STUDY

Clinical measures + patient-reported outcomes + data tracked change after treatment initiation.

The goal is not more monitoring. The goal is earlier understanding of whether treatment is working.

Nowell et al., Arthritis Care & Research, 2026 · PMID 42527849

BETWEEN VISITS

The disease does not pause.

So why does the data?



PAIN

SLEEP

ACTIVITY

FATIGUE

MOBILITY

FLARE SIGNALS

CLINIC
snapshot

DIGITAL
timeline

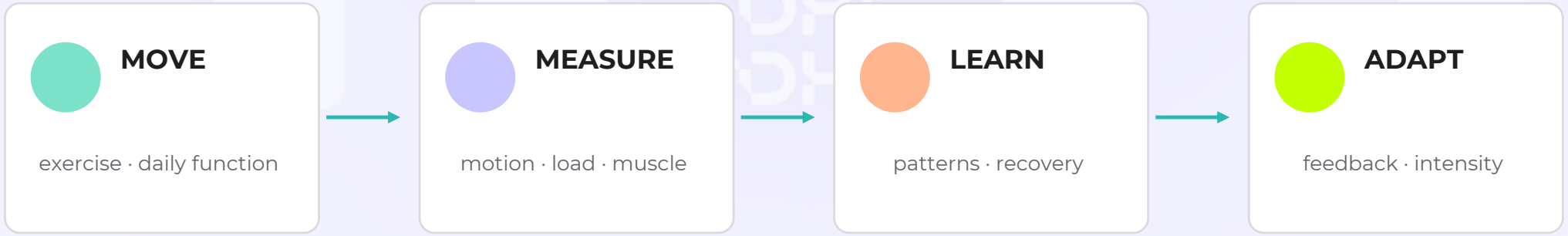
AI
patterns

Measure what matters, not everything that can be measured.

REHABILITATION & FUNCTION

Rehabilitation can become responsive.

From “do these exercises” to “how is your body responding?”



IMU / MOTION

range of motion · gait

PRESSURE / LOAD

walking · joint loading

EMG / MUSCLE

activation · compensation

BIOSENSORS

temperature · lactate · recovery

IRHIS
a DHI Cluster project

lactate sensor recovery example

Not every useful device is AI. Sensors create the data that AI can learn from.

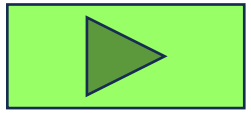
AI rehabilitation evidence map: Abdalla et al., Frontiers in Digital Health, 2026 · DOI 10.3389/fdgth.2026.1737957

The consultation ends. The questions don’t.

Complex instructions meet real life.

Patient

“Two tablets twice a day?”



Physician

“No. One tablet once a day.”

Patient

“So… two tablets once a day?”

Luminera remembers, even when you don’t.

- PERSONALISED INFO
- MEDICATION GUIDANCE
- AI Q&A
- IN YOUR POCKET

AI can support the conversation - not replace it.

UNDERSTAND · REMEMBER · ACT

REALITY CHECK

CAPABILITY ≠ CARE

What turns AI into real-world impact?

- DATA
- EVIDENCE
- WORKFLOW
- TRUST
- ACCESS
- INFRASTRUCTURE & CONNECTIVITY
- PATIENT INVOLVEMENT
- IMPLEMENTATION CAPACITY

The algorithm is often not the hardest part.

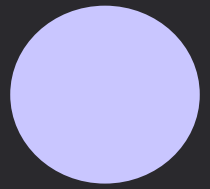
HUMAN + AI

Better decisions need three kinds of intelligence.



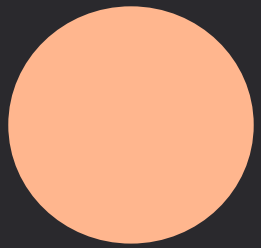
AI

patterns
prediction
scale



CLINICIAN

clinical judgement
context
responsibility



PATIENT

lived experience
preferences
priorities

BETTER DECISIONS

AI does not know what it feels like to live with an RMD.

PATIENT ORGANISATIONS

Don’t wait for the AI future. Help shape it.

From co-design to education, outreach and early action.

DEFINE

what problems matter

CO-DESIGN

solutions around real life

EDUCATE

health & digital literacy

MOBILISE

campaigns · outreach · screening activation

CHALLENGE

unsafe · inaccessible · irrelevant

WHAT PROBLEMS MATTER?

WHO DO WE NEED TO REACH?

WHAT ACTION DO WE WANT?

WHO COULD BE LEFT OUT?

Patients should shape AI when we define problems, design solutions and activate communities.

FROM AWARENESS TO ACTION

AI and digital tools only create value when people can understand, trust and use them.

HEALTH LITERACY

disease · symptoms · treatment · warning signs

DIGITAL LITERACY

tools · AI limits · data use · consent

AWARENESS

recognise symptoms earlier · reduce stigma · motivate action

SCREENING / EARLY RECOGNITION

red flags · risk signals · referral pathways

EDUCATION & NAVIGATION

what to do next · where to go · whom to ask

TRUSTED MESSENGERS | **COMMUNITY OUTREACH** | **CAMPAIGNS** | **EARLY ACTION**

Awareness is not communication only. It is part of the care pathway.

DHI cluster

HYPE or REALITY?

The capability is real.
The transformation is not automatic.

Better human care,
made possible by AI.



Thank you.