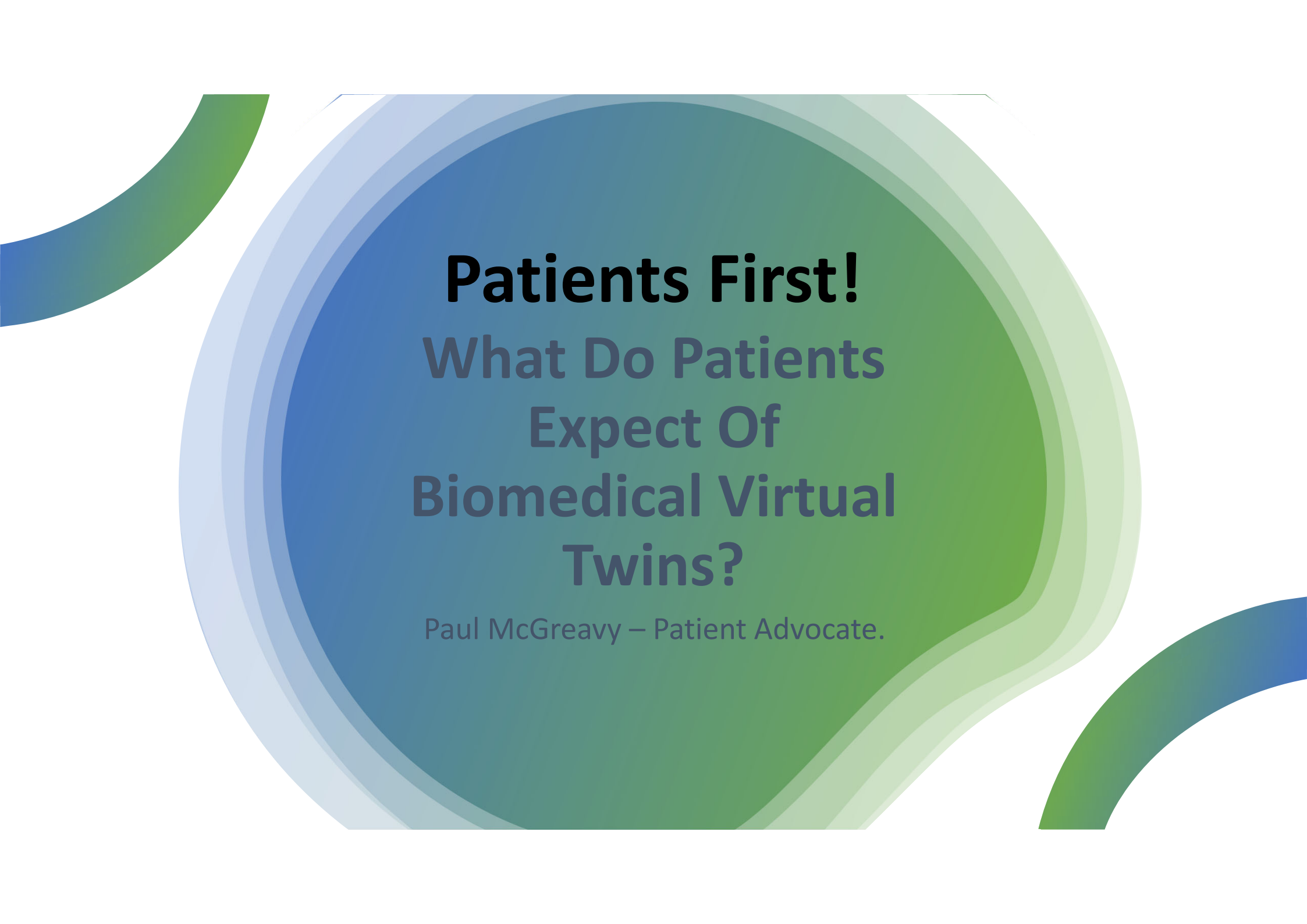




Patients First!

What Do Patients Expect Of Biomedical Virtual Twins?

Paul McGreavy – Patient Advocate.

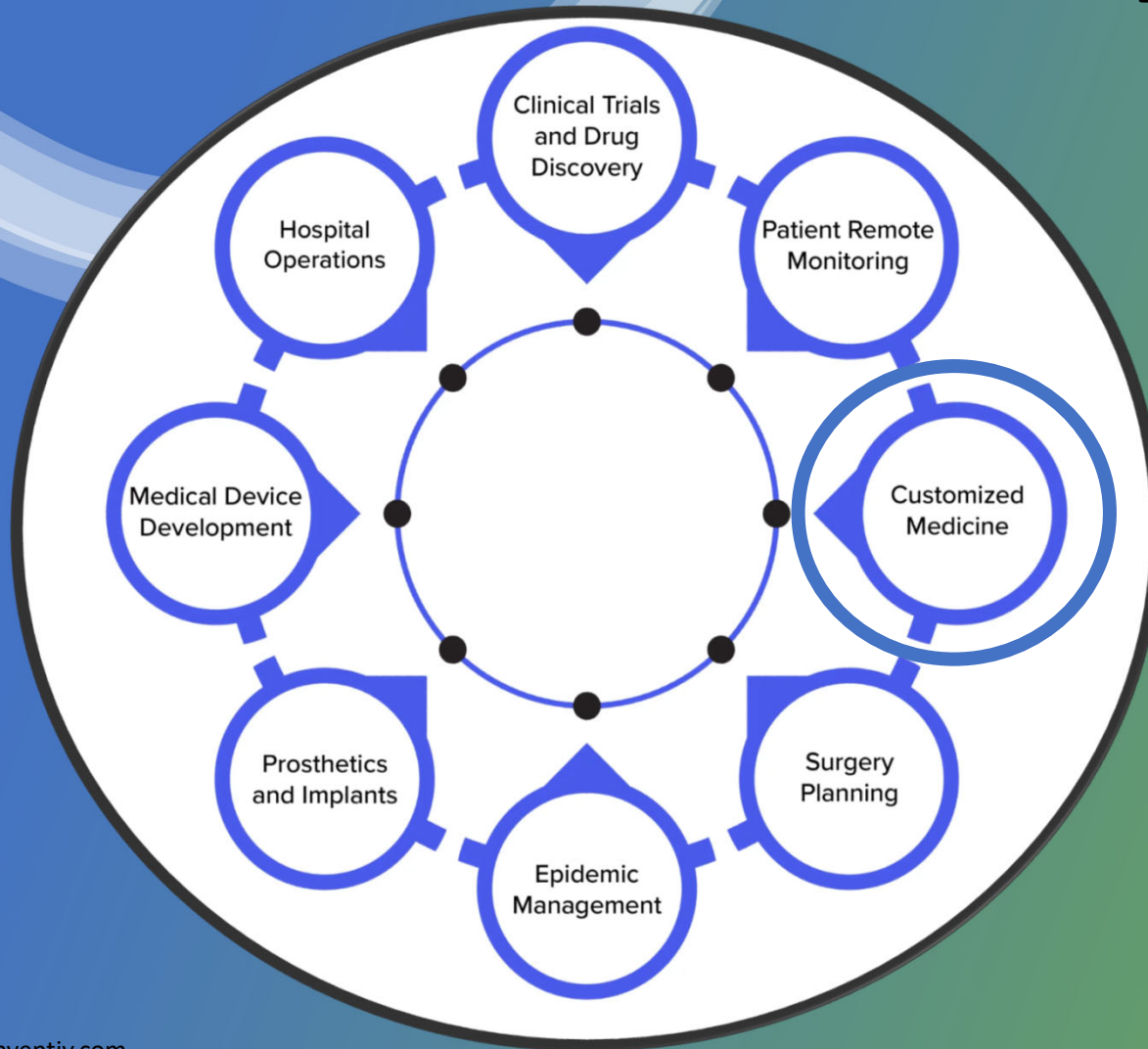
Definition?

A dynamic, computerised model of my own body, built from my medical data; a digital “mirror” of my health that evolves as I do.

It can:

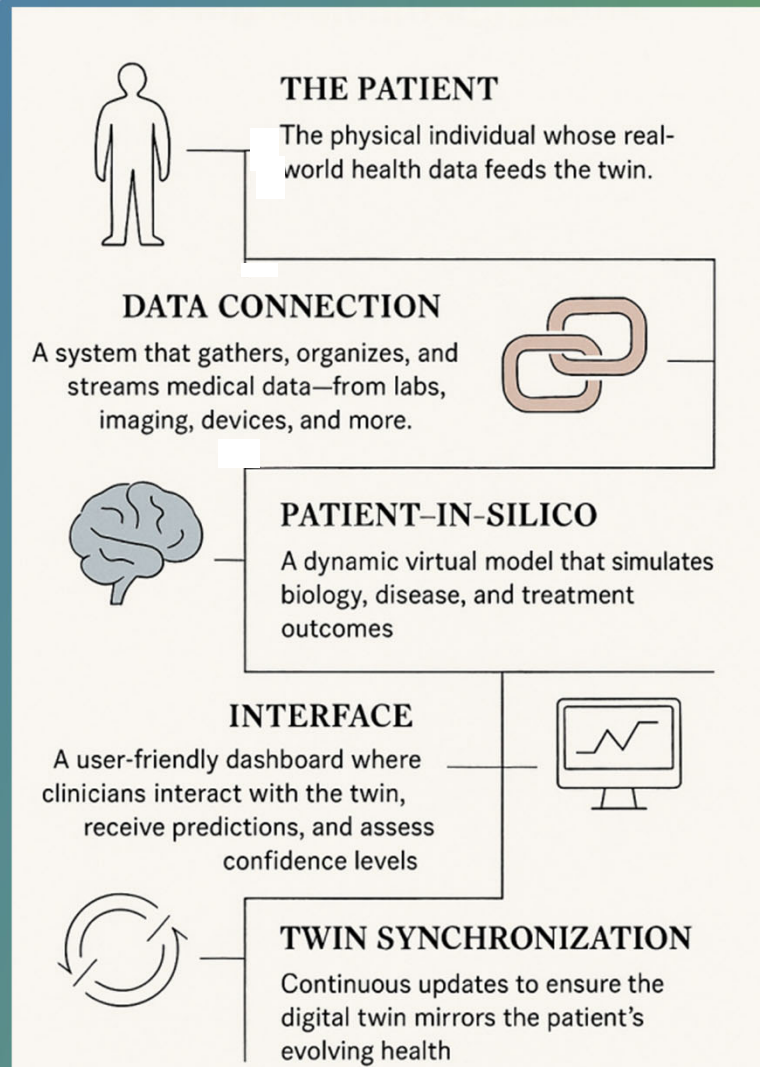
- Combine information from scans, blood tests, genetics, lifestyle, and wearable devices.
- Simulate how my body might react to medicines, surgeries, or lifestyle changes.
- Be a “test bed” before making real-world decisions.

What are they used for?



Patient Digital Twins

Building a Medical Digital Twin.



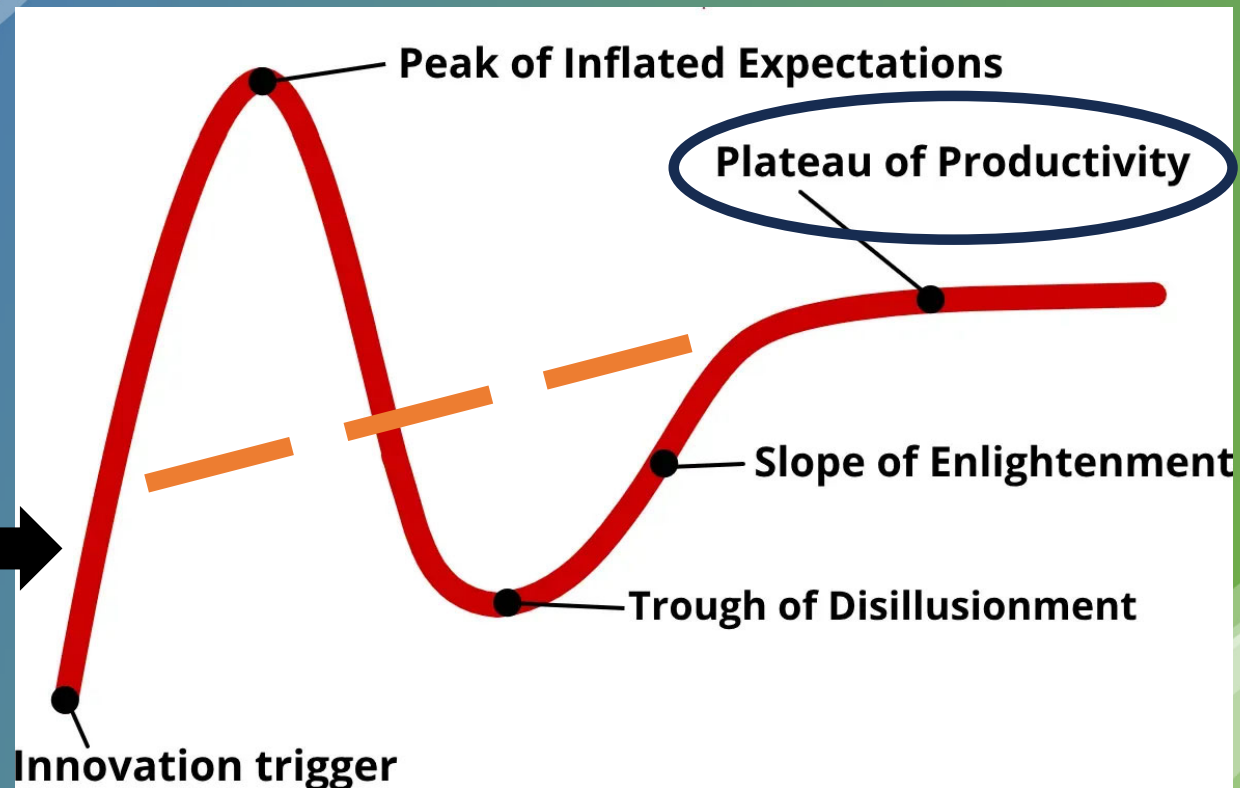
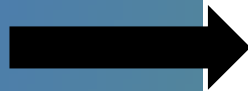
Continuous data feed

Inputs can be manipulated to assess disease progression and therapeutic impact

Patient friendly & professional interfaces

The Gartner Hype Cycle

We are here



The Plateau of Productivity

My Top 5 Expectations:

- **Improved Health Literacy** – People can interact with their virtual twin and understand the ways in which their body functions.
- **Prevention & Early Detection** – Dynamic monitoring identifies metabolic changes enabling early intervention.
- **Personalised Care** – Bespoke treatment plans – Pre-testing of therapeutic treatment.
- **Shared Decision Making** – Patients and clinicians can jointly explore therapeutic scenarios.
- **Efficient Clinical Trials** – Early-stage clinical trials can be run on virtual populations which may accelerate validation.

The background features a gradient from blue on the left to green on the right. In the top-left corner, there are several overlapping, curved, light-blue shapes that resemble stylized waves or a modern logo. In the bottom-right corner, there are similar overlapping, curved, light-green shapes.

Patients should expect medical virtual twins to become personalised digital companions for health decision-making, helping them and their doctors understand risks, test treatments safely, and prevent disease earlier.

**Is it a 'Silver
Bullet'?**

**Warnings of 'medieval'
levels of healthcare
inequality**

**"The health service (is) estimated to be
spending as much as £50bn a year
on the effects of deprivation."**

**Will Digital Twinning Solve
Health Disparities?**





“...air pollution - which disproportionately affects deprived communities was contributing to 30K deaths per year and costing £500 million a week..”

https://academic.oup.com/cardiovascres/article/121/11/1653/8230112?utm_medium=Email&utm_source=ESC%20Global&utm_campaign=esc-newsletter-week41-2025#google_vignette

How can biomedical digital twinning contribute to the mitigation of the the negative public health impact of climate change?

Conclusions:

“The landscape of digital-based healthcare services is being reshaped by current technology breakthroughs...

...past study has shown their lack of human-like interactions.”

Sestino A, D'Angelo A “My doctor is an avatar! The effect of anthropomorphism and emotional receptivity on individuals’ intention to use digital-based healthcare services, Technological Forecasting and Social Change. 2023

Questions:

Biomedical Digital Twins

- **Are they accurate?** Virtual twins depend on the quality of your data. Gaps or errors could mislead.
- **Do they guarantee privacy?** They require sensitive, highly personal health information. Patients will expect strict safeguards.
- **Do they ensure equity?** Early access may be limited to well-funded hospitals or wealthier patients, risking a “digital health divide.”
- **Can they improve global public health?** Particularly environmental conditions.
- **What about the role of clinicians?** Virtual twins are powerful tools; they do not replace doctors and shared decision making.

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Can you do it?