

Becoming a Healthcare Scientist



Professor Berne Ferry, Head of School

Scale & Impact of Healthcare Science



Approximately **60,000** healthcare staff work in the NHS across **50** different specialties

This is **5%** of the NHS workforce

Healthcare science staff help to **prevent, diagnose and treat** illness using their knowledge of science



Most staff work in the **Acute sector** with more than **90% in diagnostics**

HCS staff affect most patient pathways and inform more than **80% of all clinical decisions** in Primary, Secondary and Tertiary care



Healthcare science staff played vital role against **COVID-19**

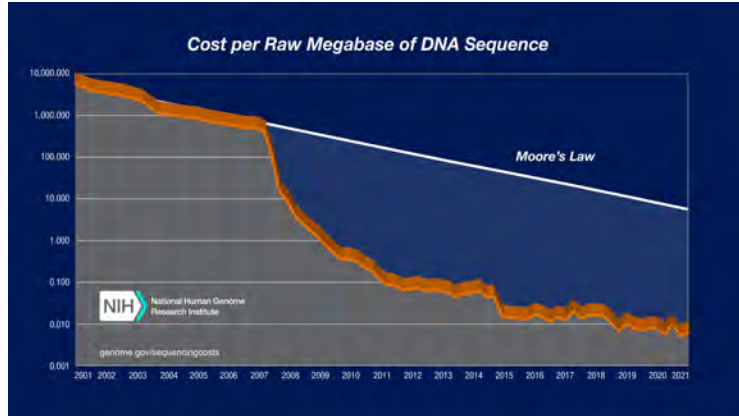
Received great media coverage for

- development of **vaccine**
- develop and deliver **PCR** and all **testing**
- the **ventilator** challenge
- scientists and science critical to **ICU** respiratory, cardiac and critical care

Changing Healthcare

Healthcare delivery will be vastly different in the future

Genomics Revolution

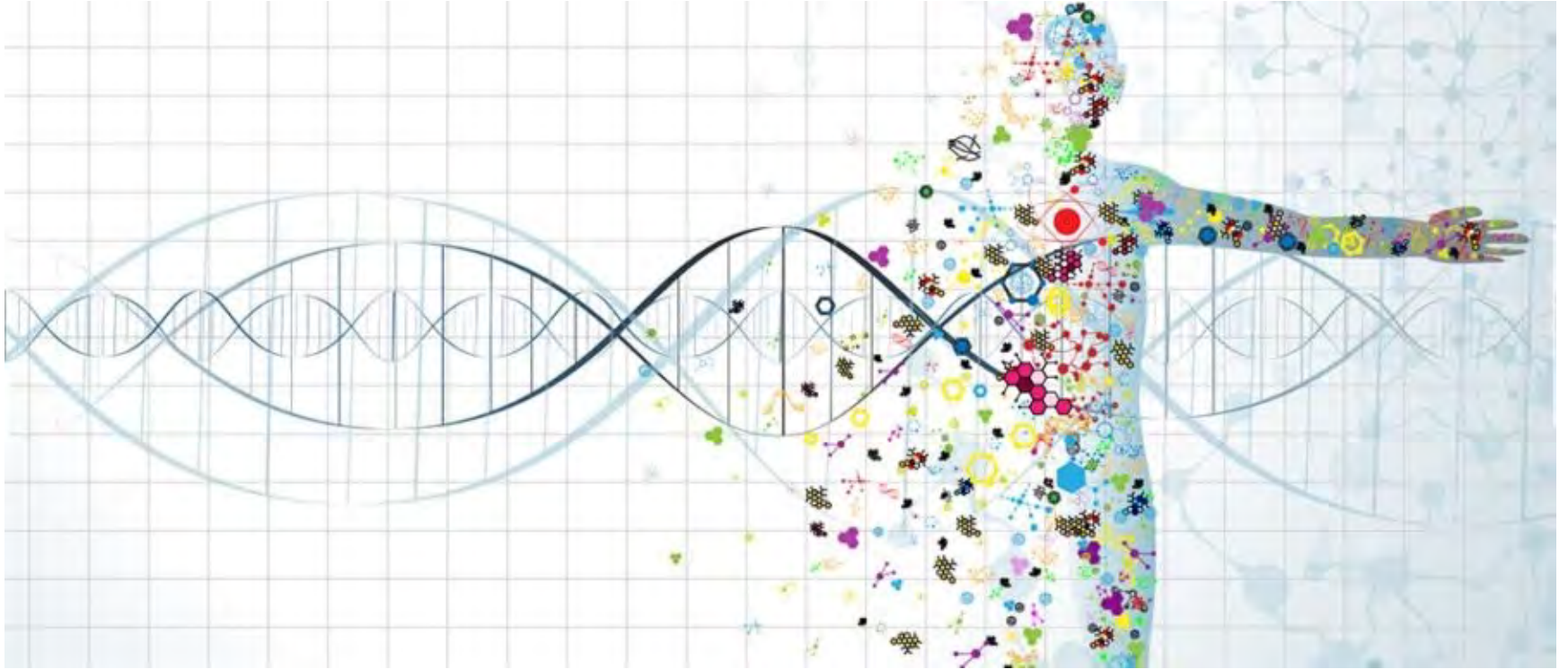


Data & Technology Avalanche



Healthcare Scientists are at the centre of this change

Genomics: Personalised / Precision Medicine



Current Medicine

One Treatment Fits All



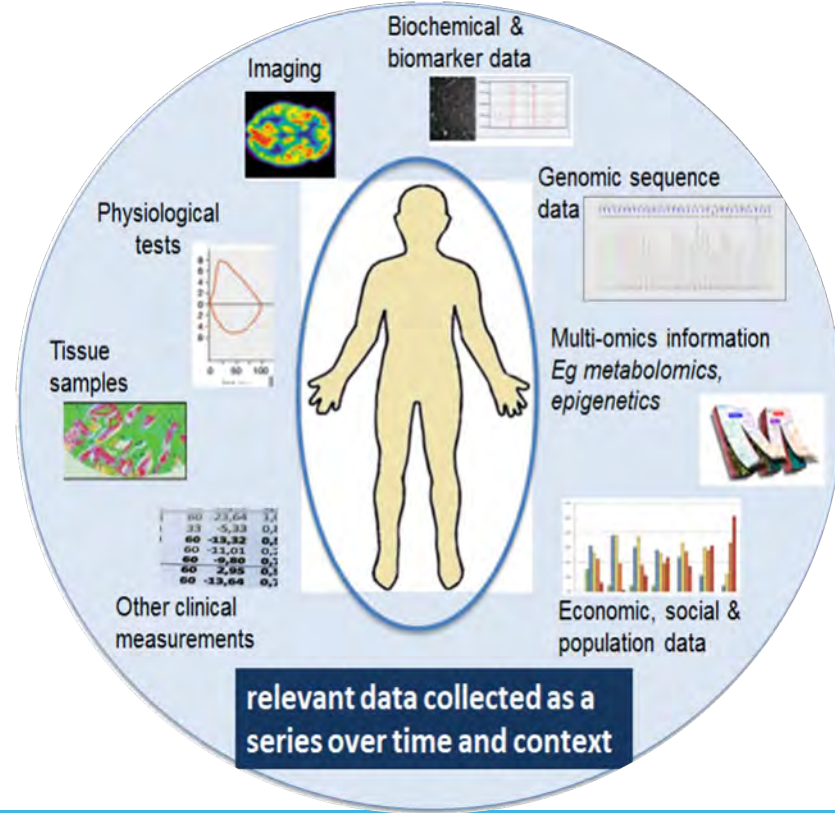
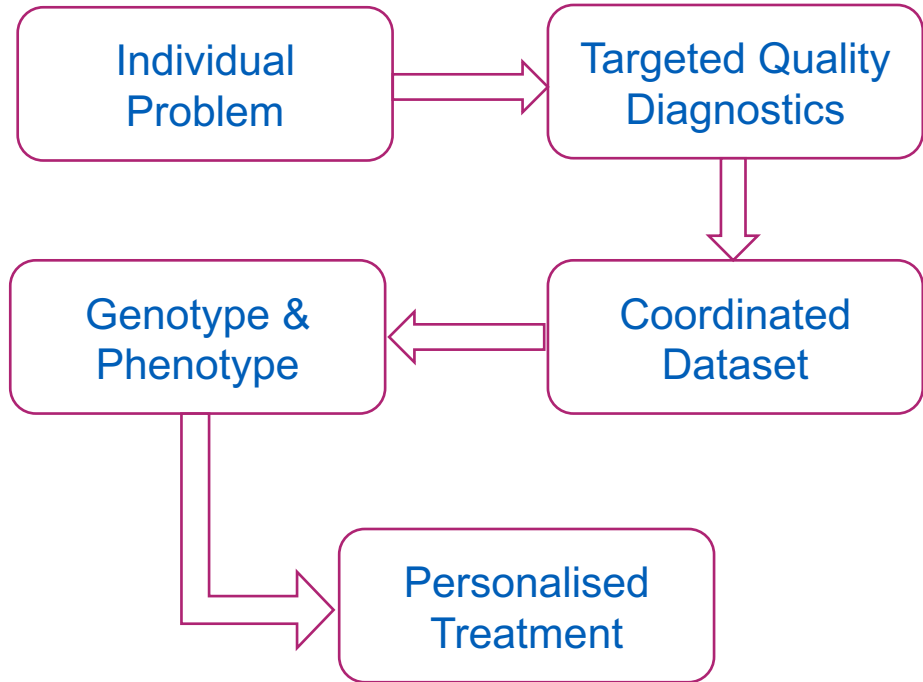
Future Medicine

More Personalized Diagnostics



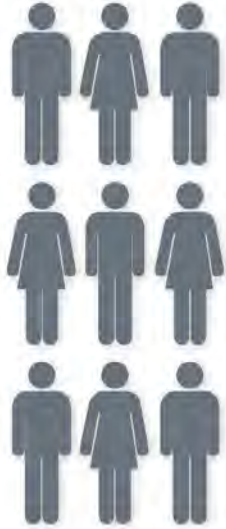
Reference: Velez, D & Hwang, K (2020). Personalised Medicine for the Infertile Male. *Urologic Clinics*. Vol. 47 Issue. 4. 01 Nov 2020 p. 523-536.

Integrated Diagnostics for Personalised Medicine



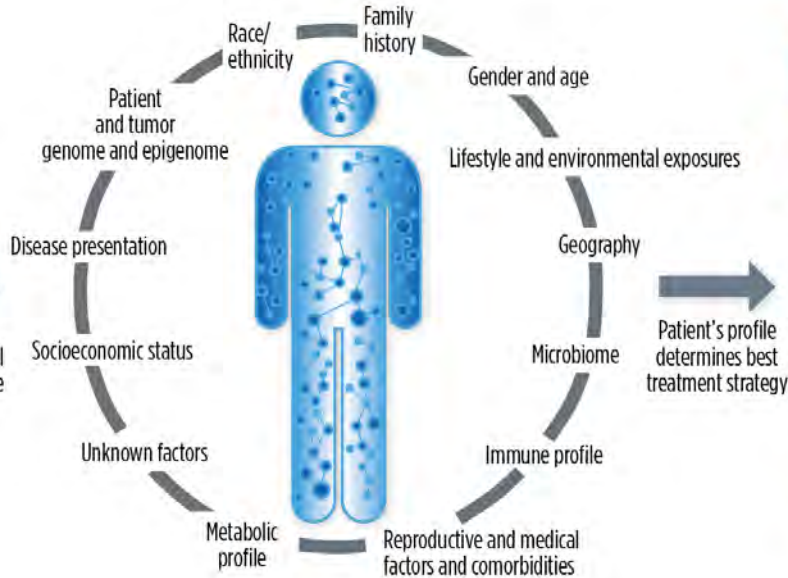
Precision Medicine

Patients diagnosed with cancer



Generate patient's personal and cancer profile

Factors contributing to the uniqueness of each person and his or her cancer



Precision medicine



Patient's profile determines best treatment strategy

Reference: American Association for Cancer Research (AACR) Cancer Progress Report 2020

Genomic Diagnosis:

Identifies the Individual Problem & Guides Clinical Management



***KCNJ11* p.V59M**
Permanent
diabetes and
developmental
delay

Sulphonylurea
Therapy



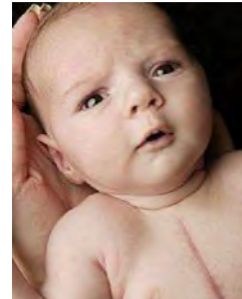
EIF2AK3* p.E371
Wolcott Rallison
Syndrome

Liver
Transplant



FOXP3
c.227delT
IPEX syndrome

Bone Marrow
Transplant



***GATA6* c.1448-
1455del**
Syndromic
pancreatic
agenesis

Insulin &
Exocrine
Supplements



***STAT3* p.T716M**
Multi-organ
autoimmune
disease

STAT3
inhibitor

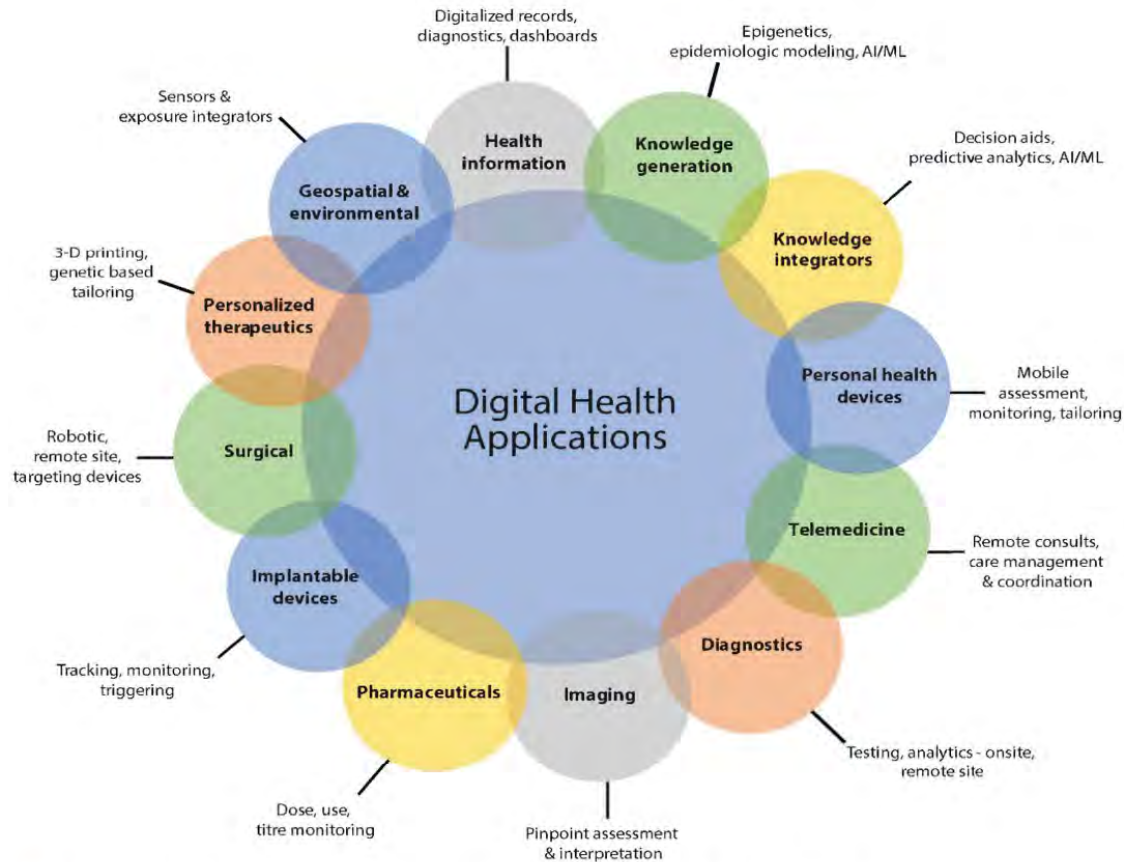
Data & Technology Revolution



Evolving Dynamics of Digital Healthcare



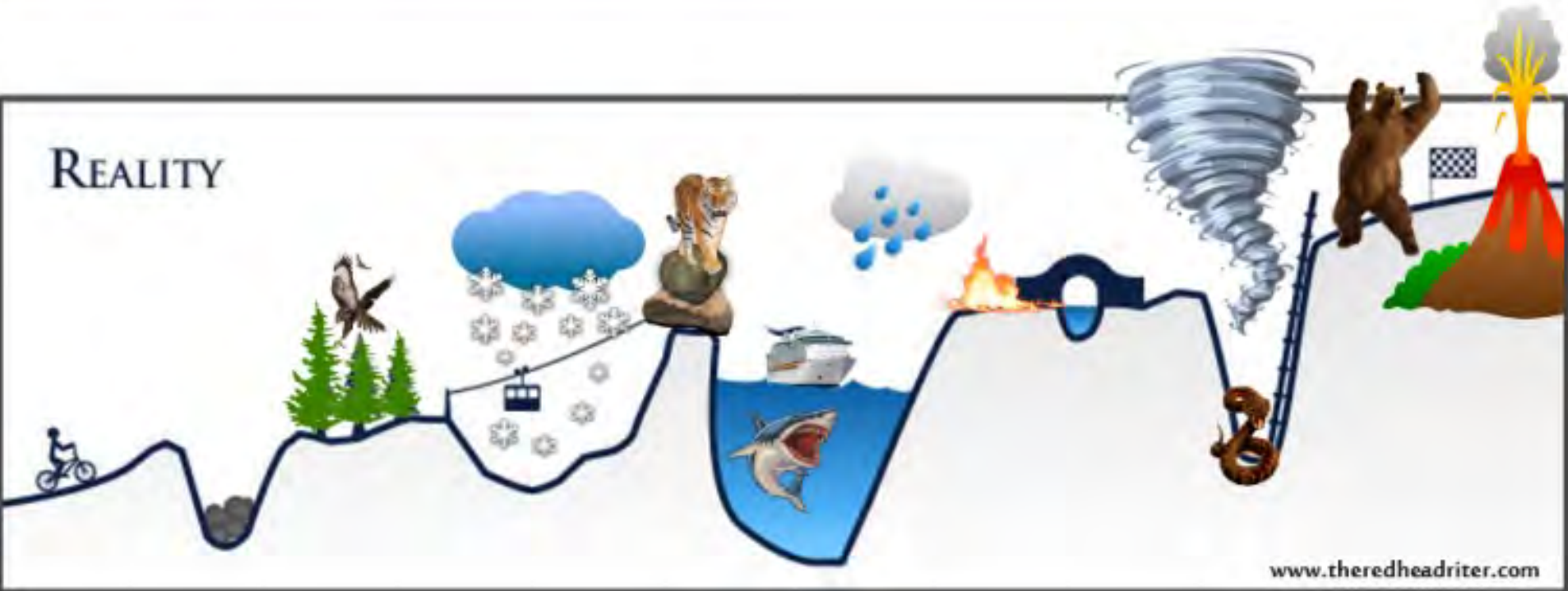
<https://www.thegatewaydigital.com/how-covid-19-is-changing-the-face-of-digital-healthcare/>



YOUR PLAN



REALITY



www.theredheadriter.com

3 years from now...the Iceberg Illusion



3 years from now...the Iceberg Illusion



Top Tips for Success

- Be collaborative
- Talk to one another: Social Media/Facebook
- Seek out Trust Lead Scientists
- Seek out Departmental Educational Leads
- Seek out Alumni of the programme
- Be prepared: to be a pioneer!
- Contact University/ NSHCS for ideas, help, support
- Expect challenges
- Stay positive.... It is a journey