Integrating Science and Care

Empowering patients and researchers through translational medicine
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   proximity model
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   convergence model
Science in the Age of the Invisible

How did translational models evolve?
Zacharias Janssen is generally believed to be the first investigator to invent the compound microscope....generally agreed among historians to be dated in the 1590s.
1700’s
the age of enlightenment
Research and Observation with naked eye

?10? kbtu / sf / year
1900’s
the age of the bench

“Modern” benches, microscopes and extract devices

85 kbtu / sf / year
2000’s
the age digital technologies

Dense Technologies and Equipment

412 kbtu / sf / year
Today
the age of the invisible

Emerging Technologies and Increased support labs

Collaboration

Big Data

800 – 1200? kbtu / sf / year
Today
the age of the invisible

More support labs
Dense equipment technologies
**Intercellular and Interstellar Imaging**

Transdisciplinary
Innovation through Collaboration
**Emphasis on Translational Research**
Translational medicine (TM) is a fairly recent concept: few clinicians and researchers used the term before the new millennium.

"all the steps that are involved in getting a new remedy from the laboratory bench to the bedside as efficiently as possible, from basic research, through evaluation, to the clinical application and the development of practice guidelines".

Removing gaps of communication and barriers between scientists, physicians, patients and industry

Bench-to-bedside enterprise of harnessing knowledge from basic sciences and transferring to:
• Produce new devices treatments and drugs
• Rapidly generate innovations for patients

The interface between science and clinical medicine: the conclusion of this process is the creation of new treatments for patients which can be brought to market.
Translational Research + Medicine

This is how we heal people in the 21st Century: Synergies between clinicians, patients and scientists…industry partners.
Integrating Science and Care

Proximity Model
Proximity Model
Hospital and Lab
Lab and Hospital
Institute for Regeneration and Repair
University of Edinburgh
The Edinburgh bioQuarter

[Image: Aerial view of Edinburgh bioQuarter]

Stantec
Clinical and Research Integration

Edinburgh Royal Infirmary, School of Medicine and QMRI

Clinical NHS
Research and Education
Industry Partners
Clinical NHS
Integration

- Researchers have close proximity to the Infirmary and Trials facilities.
- Clinical researchers collaborate in Discovery Forum
- Industry partners accommodated in lab hoteling suites
Campus Cohesion
Research, Academic and Clinical Integration
Research, Academic and Clinical Integration
Integrating Science and Care

Convergence Model
Convergence Model
Mind the Gap
adjective  lim·i·nal ˈli-mə-nəl

1.1: of, relating to, or situated at a sensory threshold: barely perceptible or capable of eliciting a response liminal visual stimuli
2.2: of, relating to, or being an intermediate state, phase, or condition: IN-BETWEEN, TRANSITIONAL in the liminal state between life and death — Deborah Jowitt
Gaps Thresholds and Liminal Space

Science
Research and discovery

Clinical Medicine
Patients and their families

Industry Partners

Campus Partners
Gaps Thresholds and Liminal Space

Science
Research and discovery

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Campus Partners
Centre for Brain Health
University of British Columbia
Create a new kind of centre
“The science of curing and the art of caring”

Promote synergies
Creating a Community

Empower patients
100% Patient Participation
8,500 Students and faculty venture past the Institute per day…….
Visual Connections to instil sense of confidence and optimism

Collison Zones to promote exchange of ideas

Natural Light and Sustainability to enhance experience
Collaborative Environments
Frequency
Quantity
Quality
of interaction
Planning for several populations
Collision Zones

CBH neural network
Collaboration – community scale

Synapse Hall

Clarity and ease of circulation
Atrium is hub for all public circulation and all entries

Clearly identified programs / destinations
Clinic side treated differently than lab side and eases issues of safety, security and privacy

Vertical integration
Fosters visual connectivity between researchers, clinicians and patients
Collaboration – lab studio scale
Collaboration – agile theme based labs
Collaboration – impromptu exchange
Motivating, Inspiring and Empowering Patients
Guiding Principles

Consolidation of patients, researchers, physicians, staff and students in one building to promote rapid innovation dissemination and to empower patients.

 Patients First
All patient activities occur on a single day at a single place

 Innovation & Teaching
Integration of clinical research & teaching missions into the design

 Healing Environments
Peaceful, calm, warm, and inviting environment with daylight and views

 Operational Efficiencies
Close adjacencies among clinics, Infusion, Pharmacy, and clinical trials
Empowering Patients

Patients must feel they are being cared for:

• **Architectural environment** which is **comfortable** so willing to give time, donate tissue….

• **Part of something** bigger than just themselves

• **Patient focused** – design for unique **patient-population determined needs**

• **Interior design and furniture to create sense of sanctuary** to support all of the above
The basics – natural light, generous spatial environment, visual markers and convenient flow….all table stakes.

Celebrate Asymmetry wherever possible - interior plays off classic left brain / right brain distinctiveness, in celebrating asymmetry and in turn reinforcing way finding and orientation for all users and complemented by material and colour selection within a neutral palette.

Tailor specific furniture selection - furniture is significant portion of and requires attention which is specific to patient population.
Neurological Patient Population has extreme **mobility issues** (MS, Lou Gehrig's & Parkinson) and the furniture was selected to support their weak upper body, awkward ability to transfer, difficulty ‘stopping & starting’, and of course, ensure safety (no casters).

Cognitive Patient Population has subtle and unpredictable confusion (Alzheimer’s & dementia) and the furniture was selected to offer **clear visual** cues such as not selecting white chairs for areas with a white floor, or not selecting a black seat with white arms that could be perceived as a chair with a hole in it;

Psychiatric Patient Population has very extreme psychiatric problems (acting out & aggression) and the furniture was selected to **passive**, such as no parts that can be pulled off & thrown.
Empowering Patients

Year 3 – how is it working
Empowering Patients

Year 3 – how is it working

Participation – 86% patient participation and climbing

Empowerment - 65% of patients now visit the ‘Forum’ to meet with researchers as part of their appointment

Outcomes 24% decrease in anxiety stabilization
28% increase in family member’s rating of patient’s personal Doctor
30% increase in individual engagement
32% increase in patients reporting shared decision-making as part of experience
18% decrease in suicides

Research Efficacy –
35% increase in published papers
25% increase in retention
2 spin-offs through industry partners
Thank-you

Questions??