
Sharing knowledge and technological innovations: How to connect our developments in other clinical disciplines?

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NRC · CNRC

Plastic Surgery and Innovation

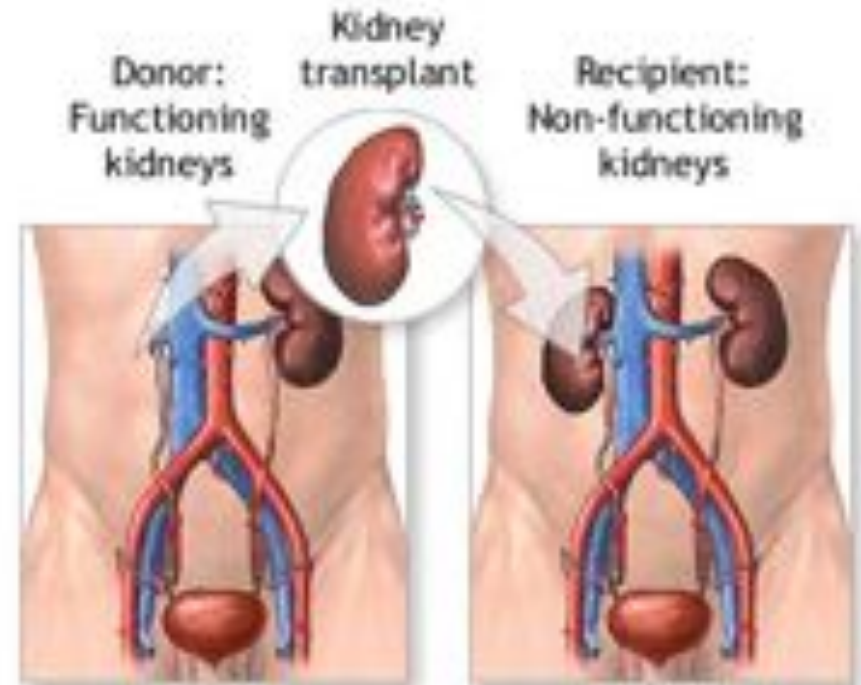


Plastic Surgery and Innovation



- Surgery everywhere on the body
- Do not “Own” and organ system
- Many medical Discoveries thru Plastic Surgery

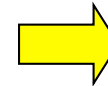
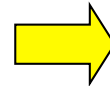
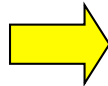
Innovation in Plastic Surgery



Artificial Skin 1986



Laying Sod



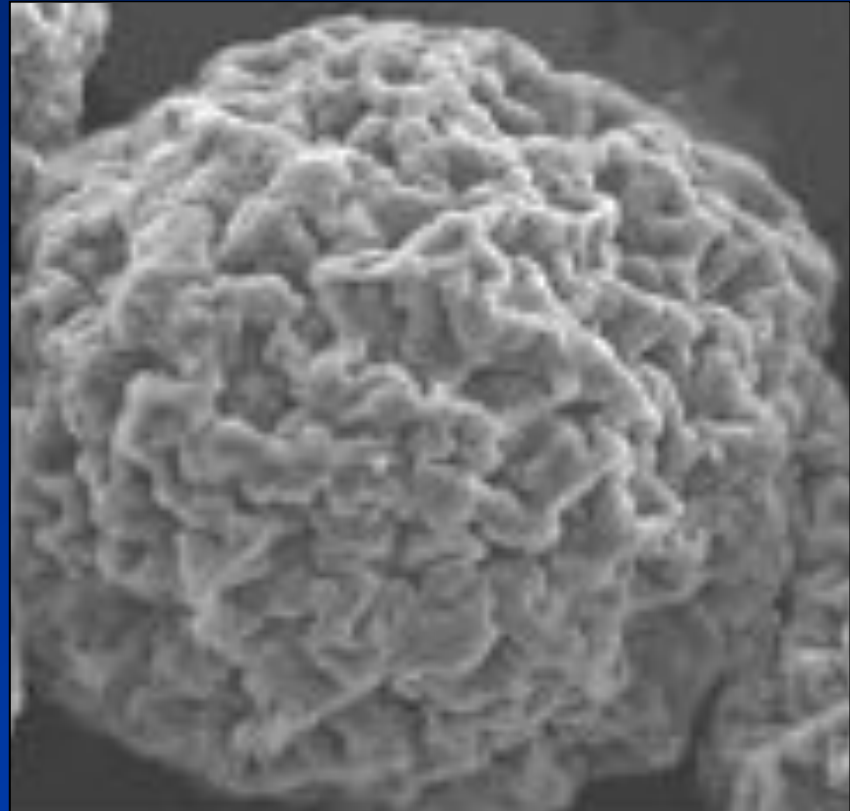
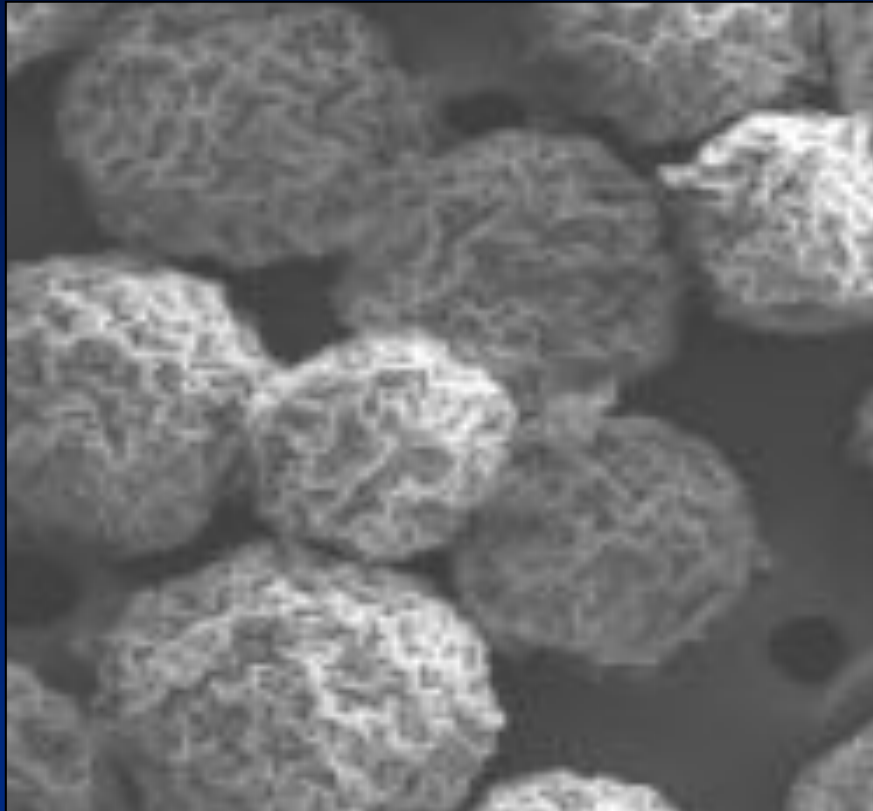
Acknowledgements

- Surgeon Scientist Program, University of Toronto
- Materials and Manufacturing Ontario
- Rimon Therapeutics Ltd.
- Johnson & Johnson



Polymer Beads

. pro-angiogenic



BioDiagnostic Research



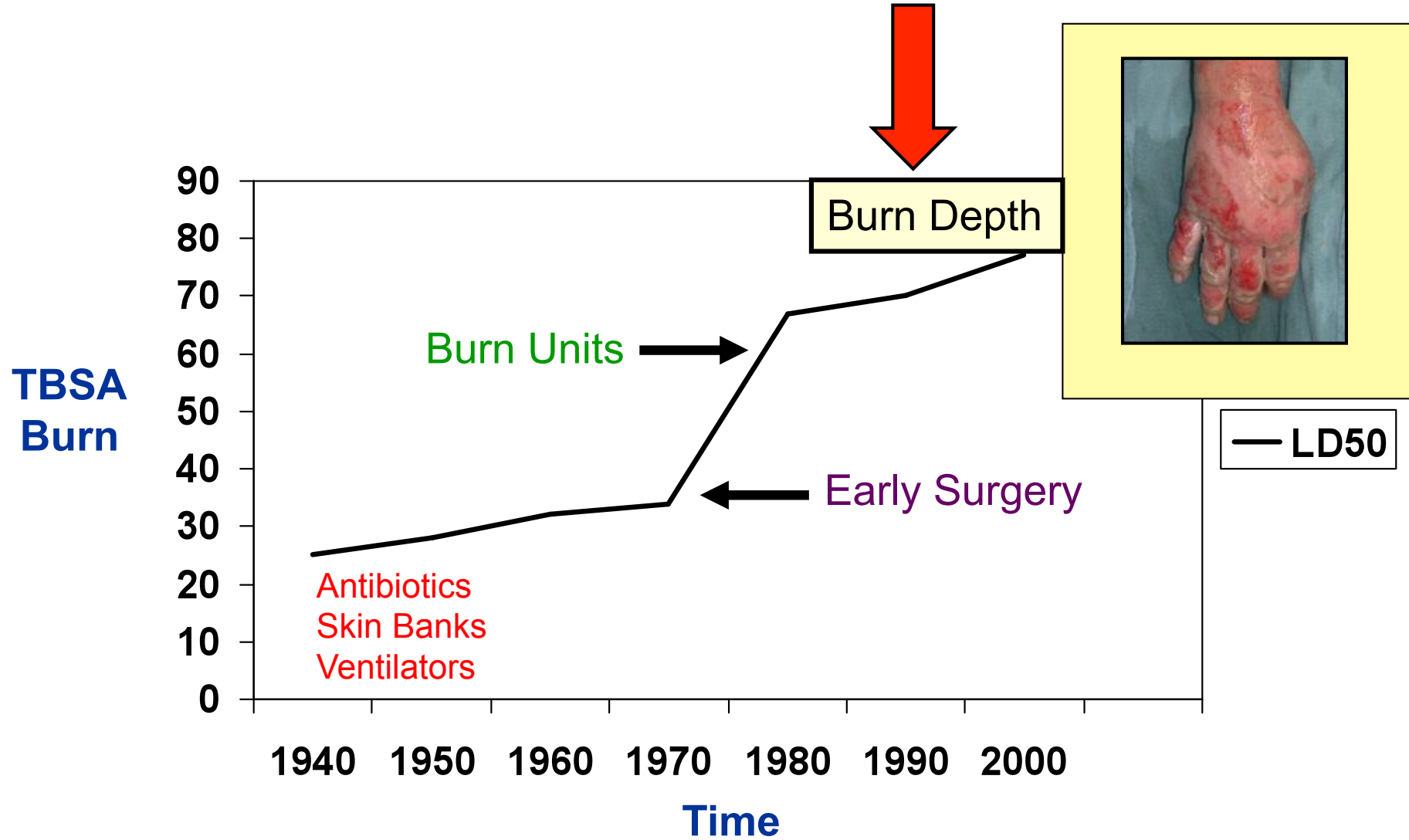
Spectroscopy
MR Technology
Biosystems

Informatics
Business Development Office
Surgical Services

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**Can we predict the
depth of a burn earlier
using near infrared
light ?**

Survival from Burn Injury



Near Infrared

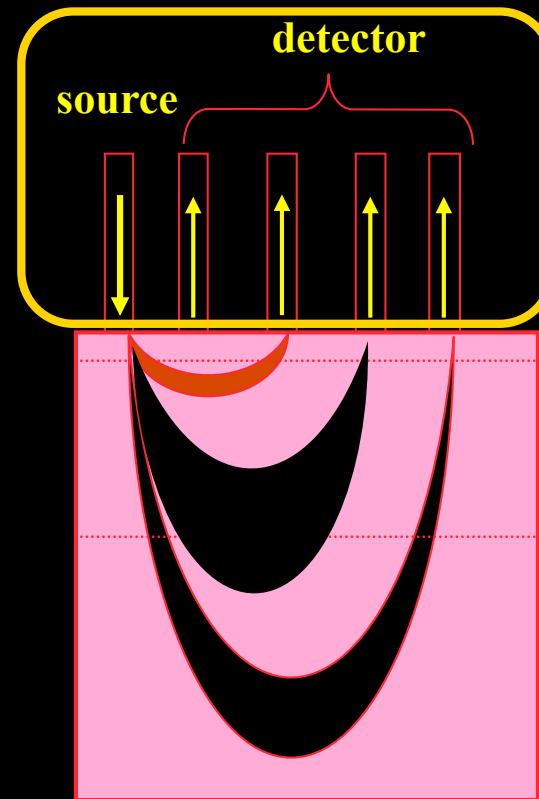
“Seeing” what our eyes can’t see

Skin

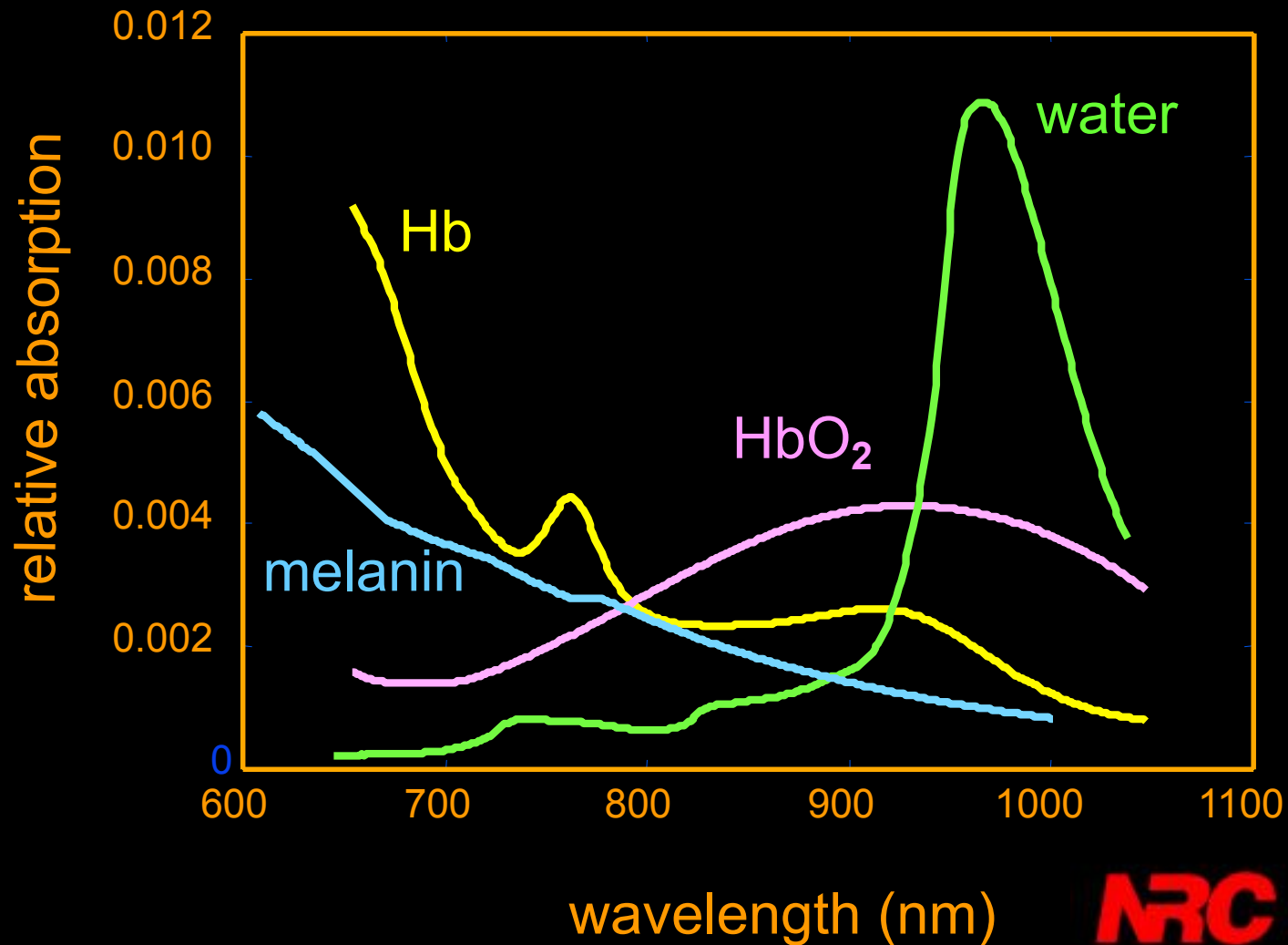
First Degree

Second Degree

Third Degree



Near Infrared Information



Probe in Use



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Purpose

To develop non-invasive tools that can assess tissue viability (thermal injuries).

Oxy-hemoglobin



Deoxy-hemoglobin



Perfusion

Oxygenation

O₂ Utilization



NIR Point Spectroscopy

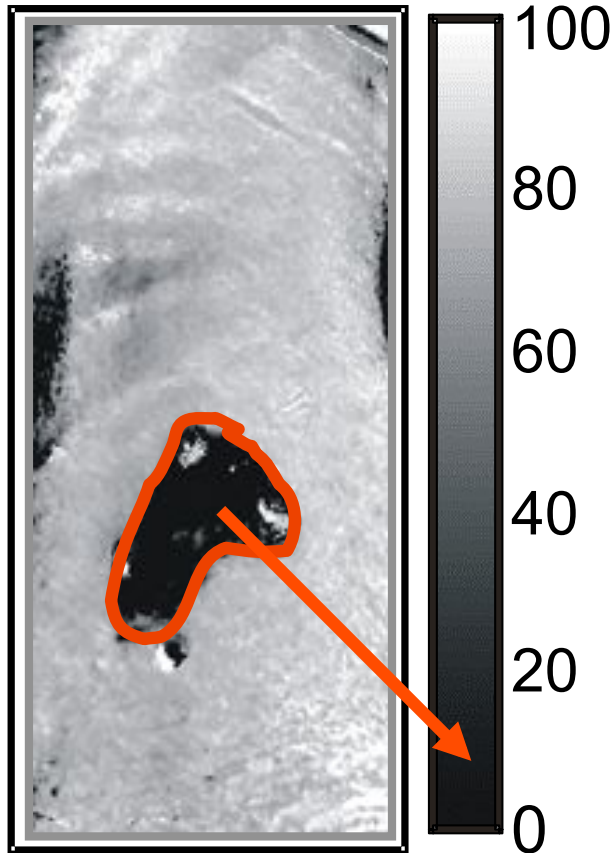


NIR Imaging Spectroscopy

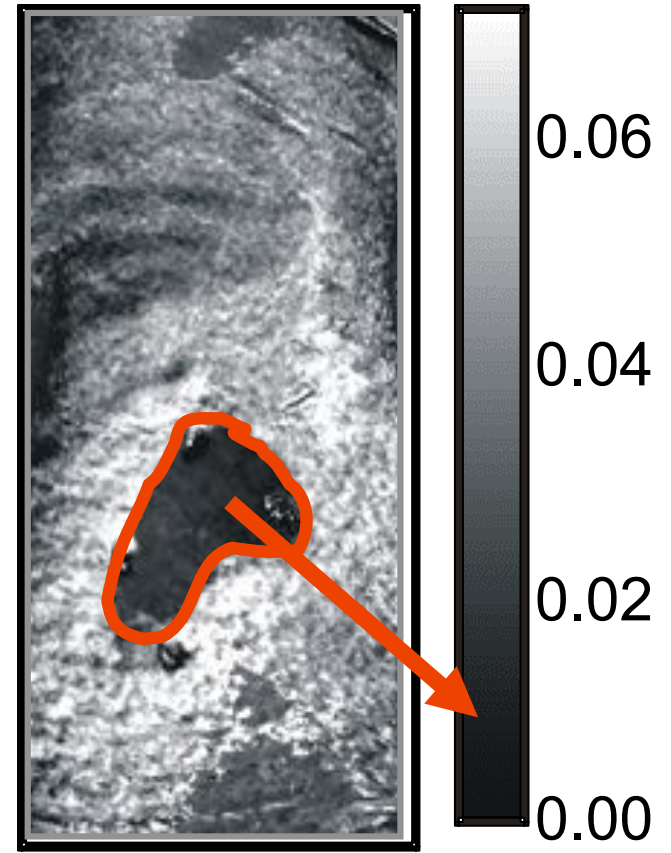
Digital Photo



Oxygen Saturation



Total Hemoglobin



Full Thickness Burn

Royal College Clinician Investigator Program

Faculty of Medicine, University of Toronto



NRC-CNRC



PSI
PSI FOUNDATION

 UNIVERSITY of TORONTO
DIVISION of PLASTIC SURGERY



UNIVERSITY of TORONTO

DEPARTMENT OF SURGERY • FACULTY OF MEDICINE

THE
SURGEON
SCIENTIST
PROGRAM

Connecting with other Clinical Disciplines

- Medical
Subspecialization
- Publications
- Organization
- Medical Experts
- Attitudes

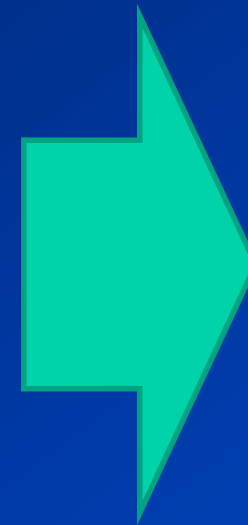


Medical Subspecialization

- Canada – 60 recognized medical specialties
- Multiple Societies within each specialty
 - Impossible to tell which are Bonafide

Tissue Probe – Symposium Visits / Presentations

- Vascular Surgery 4
- Plastic Surgery 4
- Critical Care/Trauma 4
- Dermatology 4
- Emergency Medicine 5
- Anesthesia 3



24

Peer Review Journals / Online Journals

- Push to Reject and Increase Impact Factor
- 80% rejection rate
- Where to publish for dissemination of Knowledge ??
- Impossible Volume of new Information
- Who reads the Journals ??

Innovation in Clinical Medicine Crosses Boundaries



Research Themes

CIHR provides funding opportunities for four themes of health research:

- Biomedical
- Clinical
- Health systems services
- Social, cultural, environmental and population health

Problems with Sharing Information

- Online Thesis listing
- Granting Agencies to register in one place
- Needs to be done outside University
 - Psychology Department
 - Cardiac Surgery
 - Neurology

Need a Medical Expert: Champion

Attitudes

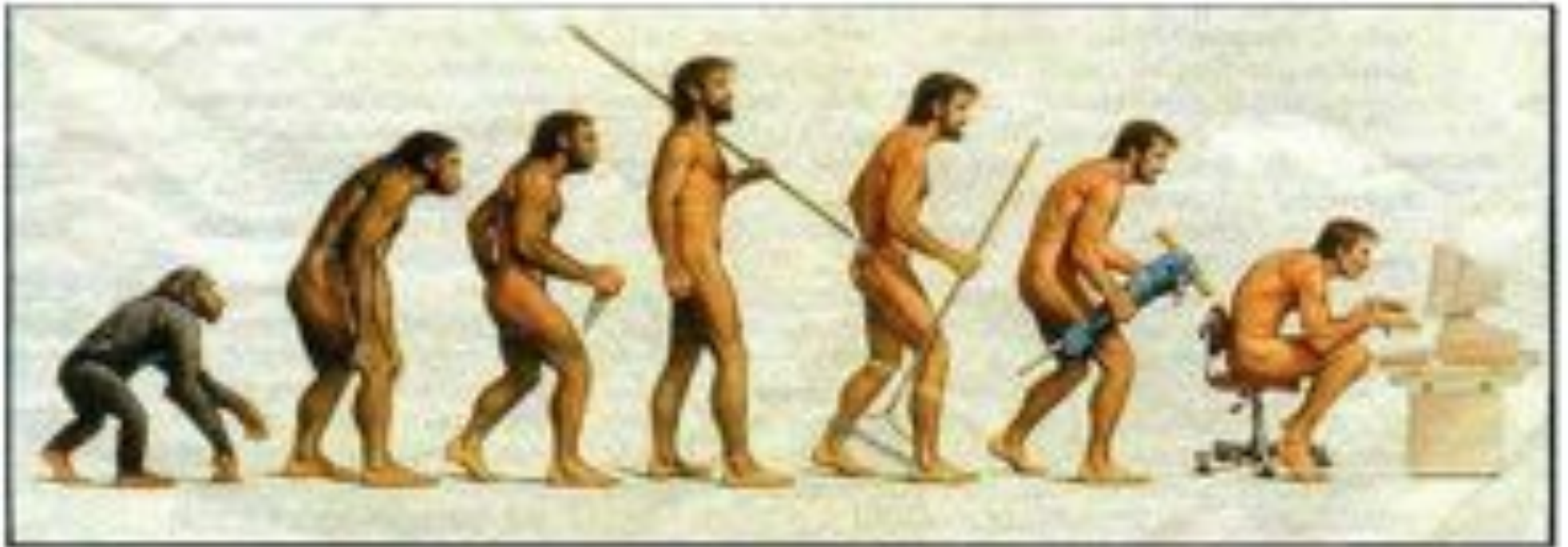
- There is natural scepticism among clinical groups

TELEPHONES



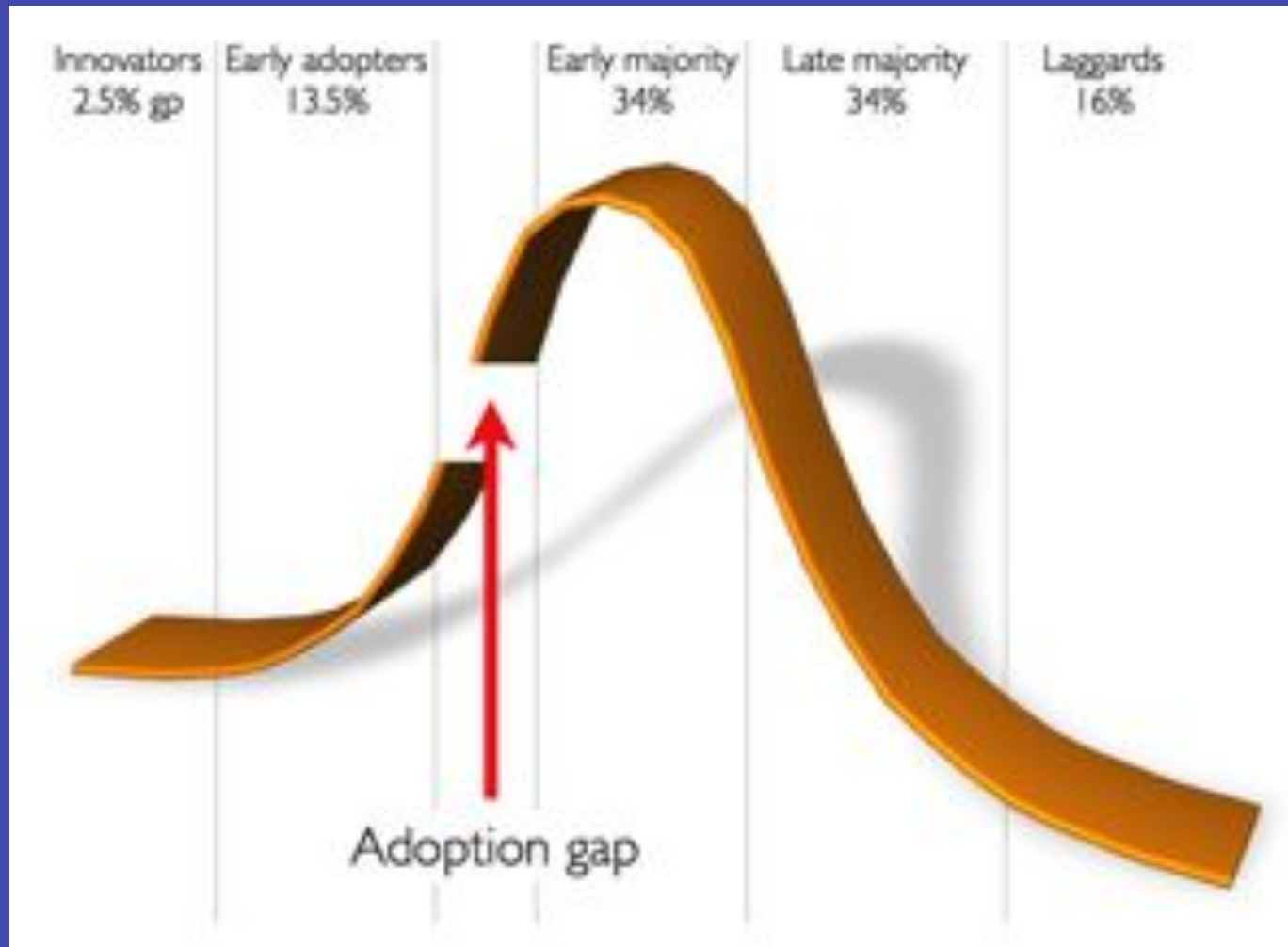
“This ‘telephone’
has too many
shortcomings to
be seriously
considered as a
means of
communication.”
Western Union
internal memo,
1876

Personal Attitudes and Technology



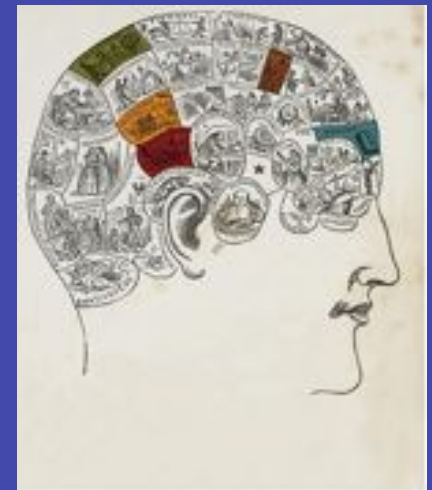
Somewhere, something went terribly wrong

Technology Adoption Curve



New Technology Personality Types

- Consumer – Try Everything
 - “Latest is the Greatest” Motto –
 - Ahead of the wave
- Wanabee Consumer – Wants to Try Everything
 - Considers everything and then buys selectively
 - Rides the wave



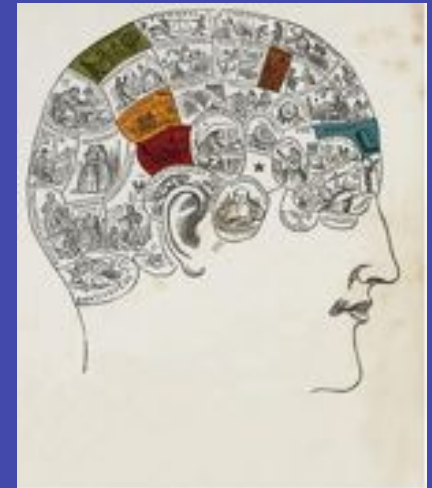
New Technology Personality Types

Pretend Consumer – Wants to appear cool

- “Waits for the price to come down”
- “gets in after the wave is long gone”
- Very safe

- Pencil and Paper Champion

- Lives with what they have
- Last to adopt anything “grudgingly”
- “aware of the negative effects of technology”



Responding to the Needs of Remote and Rural Communities

Telemedicine



