

RE-THINKING PAEDIATRIC RESEARCH IN THE CONTEXT OF OUR CHANGING SOCIETY

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RE-THINKING PAEDIATRIC RESEARCH

- Both society and science have changed
 - Society expects results across the continuum of research
 - Complex diseases and the new clinical sciences
 - Training model must be revisited
 - From ideas and data to policy
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RELATIONSHIP BETWEEN SCIENCE & SOCIETY

Then

Now

- Science  Society

- Autonomous & external to society

- Reliable knowledge

- Enthusiasm for novelty & innovation - From ambivalence to anti-science

- Society speaks back to science

- Dependent and integrated

- Contextualized & socially robust knowledge

(Nowotny, Scott, Gibbons. Re-thinking Sciences. Blackwell publications, Malden, MA, 2001)



"No Chiclets? When did you people stop passing out Chiclets?"

**“L’avenir n’est
plus ce qu’il était”**

Paul Valéry

NEEDS AND EXPECTATIONS OF SOCIETY

20th Century

21st Century

Model

Biomedical

Holistic

Health care
patient

Centered on the MD

Delivered by a team &
centered on the

Health care
System

Reactive

Proactive

Research
enough,

*“Knowing is not enough, we must apply, willing is not
we must do” (Goethe)*

SOCIETY EXPECTS RESULTS ACROSS THE CONTINUUM OF RESEARCH

- **Integrative research from molecules to populations**
- **Priority to clinical research for knowledge transfer and technology assessment**
- **Emphasis on outcomes research**
- **Accentuation of research on prevention and health promotion**

MEDICAL INNOVATION: KEY ROLE OF HEALTH TECHNOLOGY ASSESSMENT

- **Medical technologies are major driver of increased health expenditures**
 - **Appropriate utilization is critical**
 - **Efficacy in terms of outcomes**
 - **Safety**
 - **Cost-effectiveness**
 - **Technology is not a one time exercise**
 - **Re-visiting old technologies is critical**
 - **Technology is more than devices and health care programs**
 - **Physicians' practice patterns need to be critically evaluated**
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COMPLEX DISEASES AND THE NEW CLINICAL SCIENCES

Last 25 years

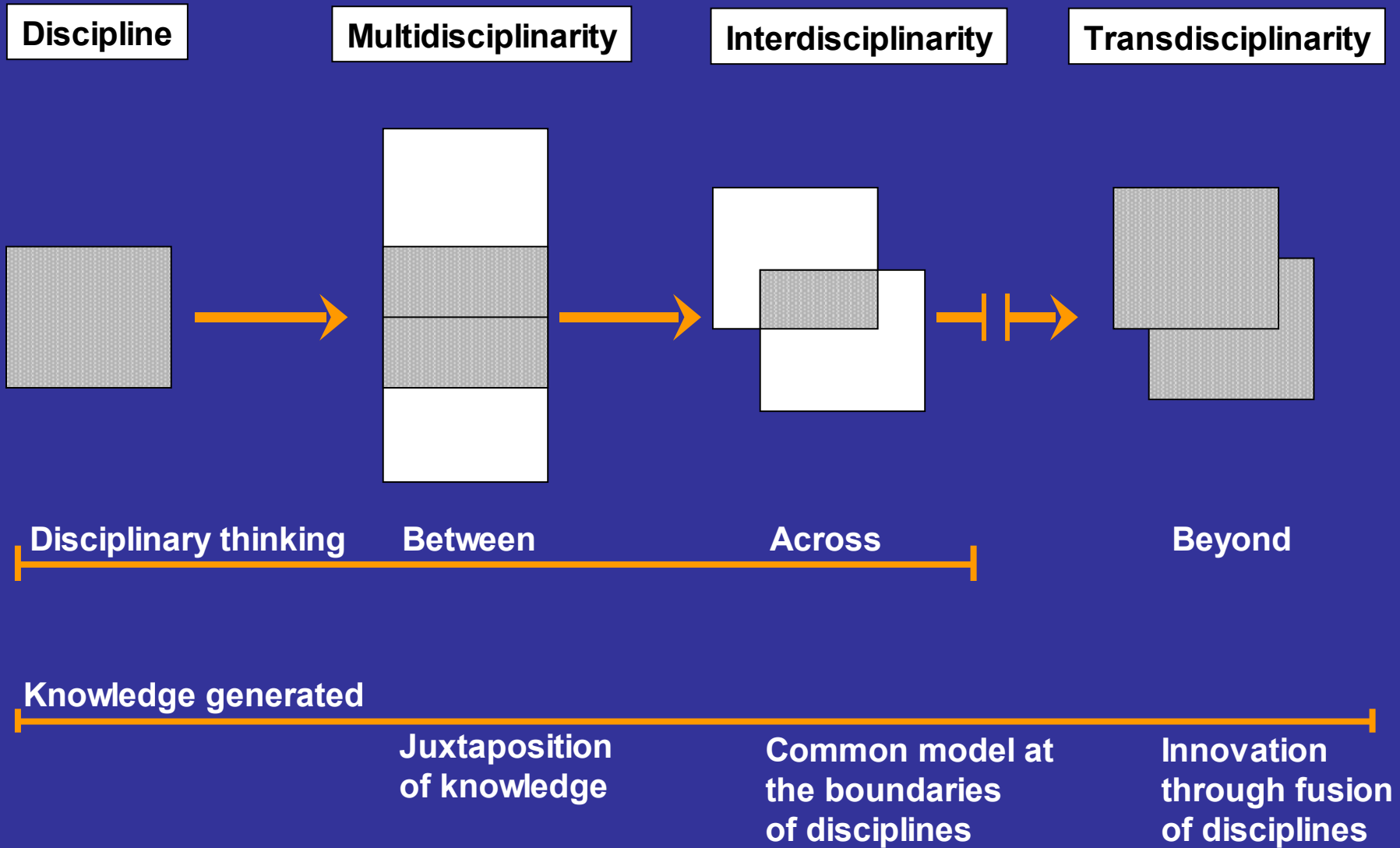
- **Genocentric view of discovery**
- **Biomed research partners with natural sciences**
- **Bottleneck between basic and clinical research**
- **Training for scholarship of discovery**

The 21st Century

- **“OMIC” approaches of systems and structural biology**
 - **Integration of natural and social sciences**
 - **“Translational research” is the new buzzword**
 - **Broader culture training for scholarship of integration**
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“COMPLEXITY CAN ONLY BE APPROACHED THROUGH TRANSDISCIPLINARITY”

- **Complexity of unsolved biomedical problems requires to go beyond the multi- and inter-disciplinarity approach**
- **Transdisciplinarity implies integration of disciplines from the conceptual to the interpretative phase of research**
- **It leads to the fusion of disciplines ie bioinformatics, neuropsychimmunology and to an integrative approach to specific problems**



(Modified after T. Ramadier, Futures 2004;36:423-439)

TRANSDISCIPLINARITY IN ACTION

Specific problem

Disciplines

Autism

**Developmental Peds-Neurology
- Psychiatry-Bioinformatics**

Scoliosis

**Orthopedics-Engineering
- Imaging-Bioinformatics**

Leukemia

**Oncology-Pharmacogenomics
-Psychiatry-Bioinformatics**

ADAPTING TRAINING TO SCIENCE IN THE 21ST CENTURY

Challenges for the trainees (1)

- Pace + efficiency of research
- New knowledge and skills for trans-disciplinary research
- Networking with people of different backgrounds
- Competition for funding

Scholarship of integration (2)

- “Hot lab” vs one at the boundaries between disciplines
- Forefront of technological innovations
- Multiple mentors may be necessary
- Take home project

“MENTORING HAS NEVER BEEN SO IMPORTANT...”

It is critical professional activity requiring commitment + competency

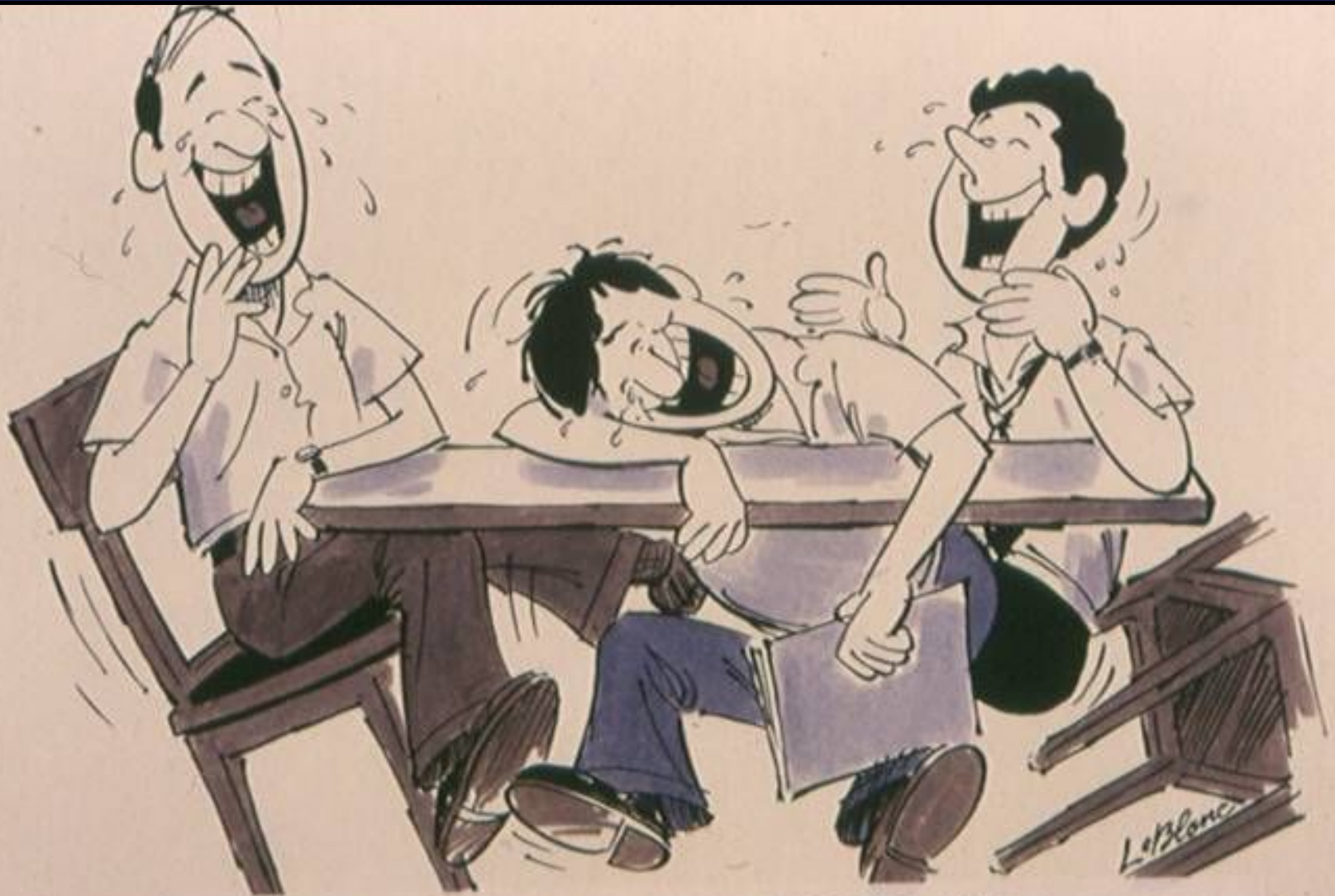
- Mentor-protégé pairings
- Mentoring across differences
- Participative approach
- Focus on outcomes

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"Listen, buster, I didn't sit on your hard little egg in the blazing sun for six weeks just to hear you say, 'Ewww, I don't like regurgitated yak carcass.'"

"The adviser does not own the Post Doc who in learning a new field often benefits from several mentors"

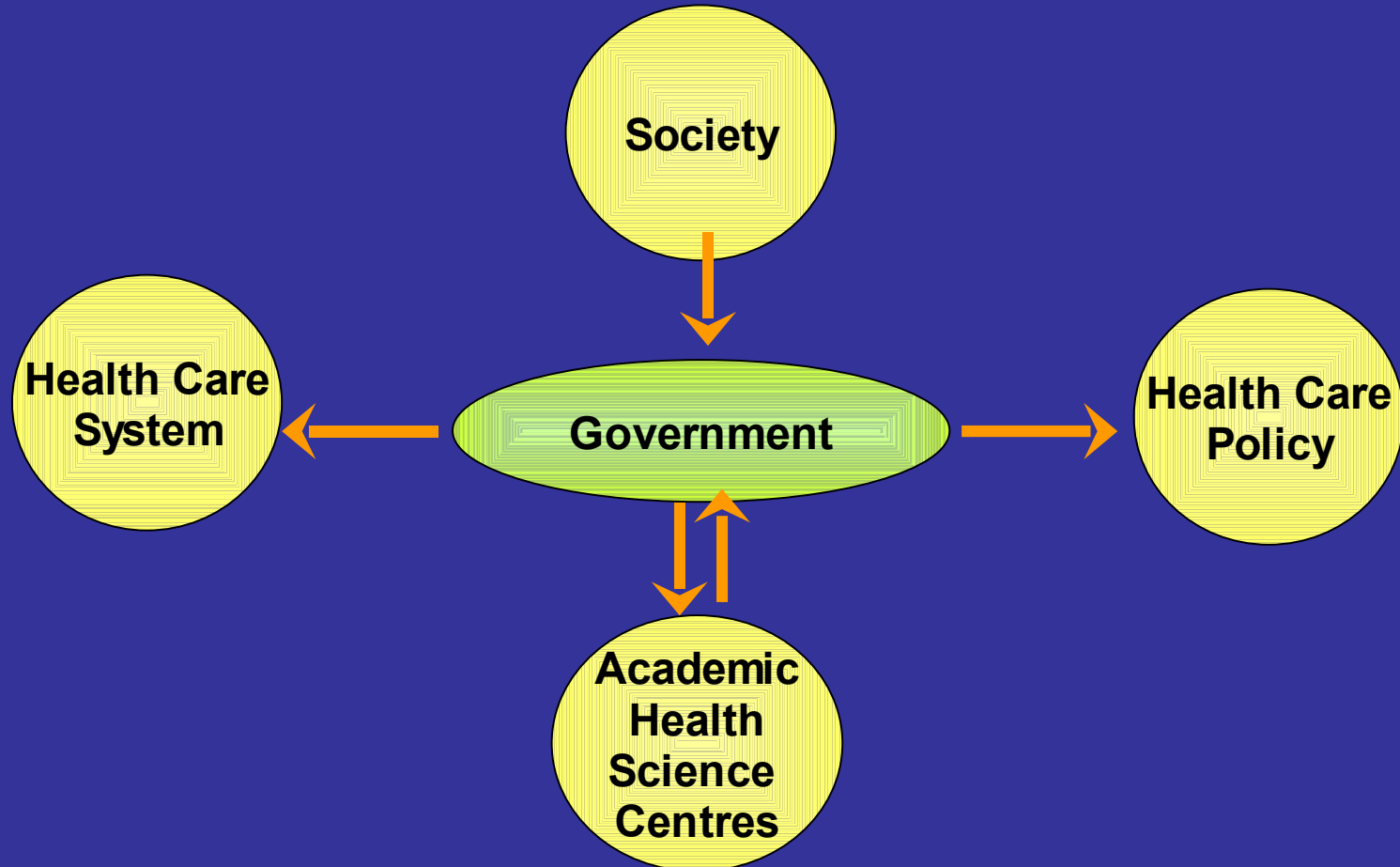


"WE HAVE STUDIED YOUR PROPOSAL AND
ARE GIVING IT SERIOUS CONSIDERATION"

**“Medicine will change
more in the next 20 years
than in the past 2000”**

(Lord Turnberg, Former President of the RCP)

WHO WILL LEAD THIS TRANSFORMATION?



The successful application of new knowledge and technologies will require a new approach to policy making:

- **Agile problem-solving environment**
- **Improved understanding of people, cultures and organisations**
- **Changes in research cultures**

FROM DATA TO POLICY: WE NEED TO DO BETTER

- **From knowledge support to decision support**
 - **Contextualisation of “what works”**
 - **Traditional biomed and clinical research**
Must engage social and health services research
 - **Close partnership between researchers**
Managers/policy makers and stakeholders
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