Alliance for Biomedical Research in Europe

Future of health research & innovation in Europe

Revolutionising disease understanding for a healthier Europe

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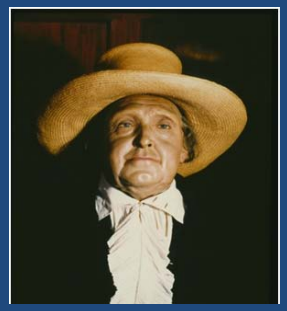


23 May 2012, Brussels

HORIZON 2020:

Now is the time to step up & accelerate research

Vitally important to sustain health research in Horizon 2020

- Shift towards preventative medicine
- Need to uncover mechanisms of disease at molecular level
- Need to embrace personalized medicine
- Need to translate research into innovations for improved health & quality of life

HORIZON 2020:

Now is the time to step up & accelerate research

Need strategic coordination amongst disease areas

Chronic diseases occur together, particularly in the elderly

Shared common molecular/cellular mechanisms across disease areas

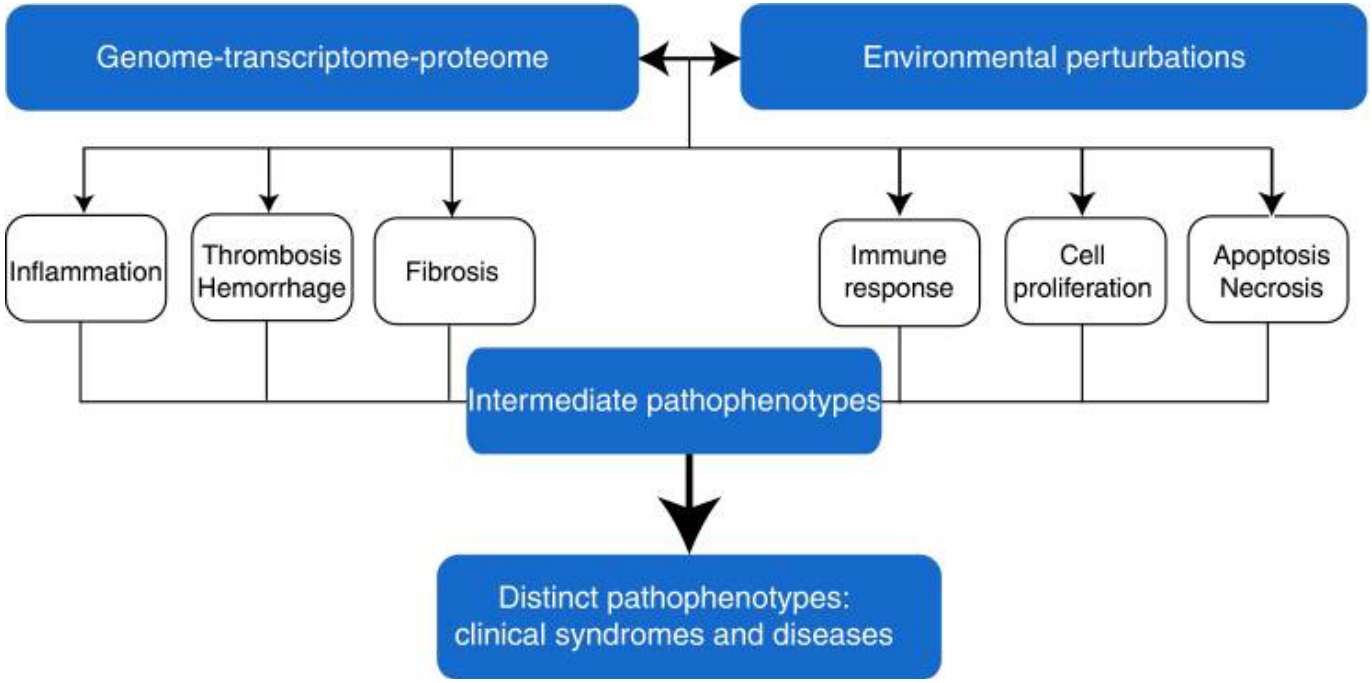
To bridge biological knowledge into clinical progress will require a new generation of resources & support systems

Challenges facing clinical research

- **Medical disciplines have traditionally worked independently of each other.**
  - Need to improve cross-talk & networking between different disease areas in basic research

- **Entire scientific community must have opportunities to share common tools & infrastructural resources e.g. bioinformatics, systems biology, the '-omic' platforms**
  - Need to embrace these resources to bridge the gap between clinical studies & basic science.

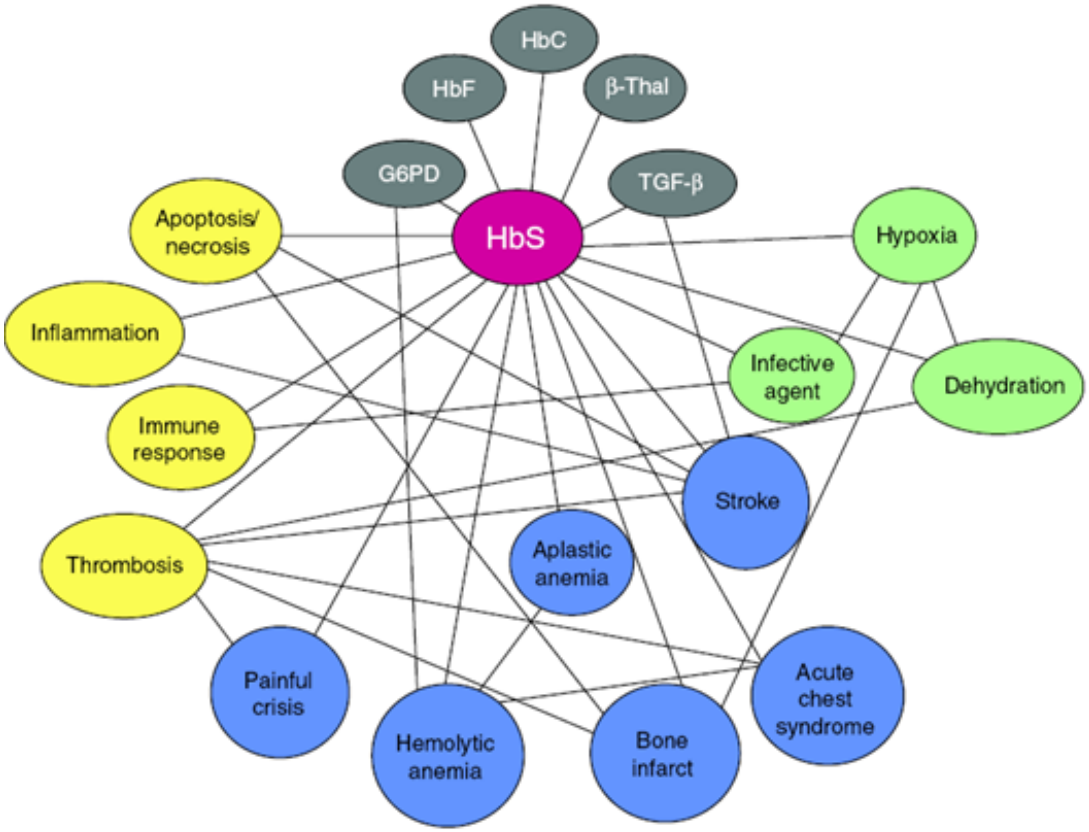
Common chronic diseases often share similar underlying basic cellular & molecular mechanisms



Source: Loscalzo J et al *Mol Syst Biol* 2007; 3:124

Need to link up basic science discoveries to clinical research

- Mechanisms explored in one disease area are relevant to other diseases
- Enormous synergy to be gained by bringing the different clinical disciplines together



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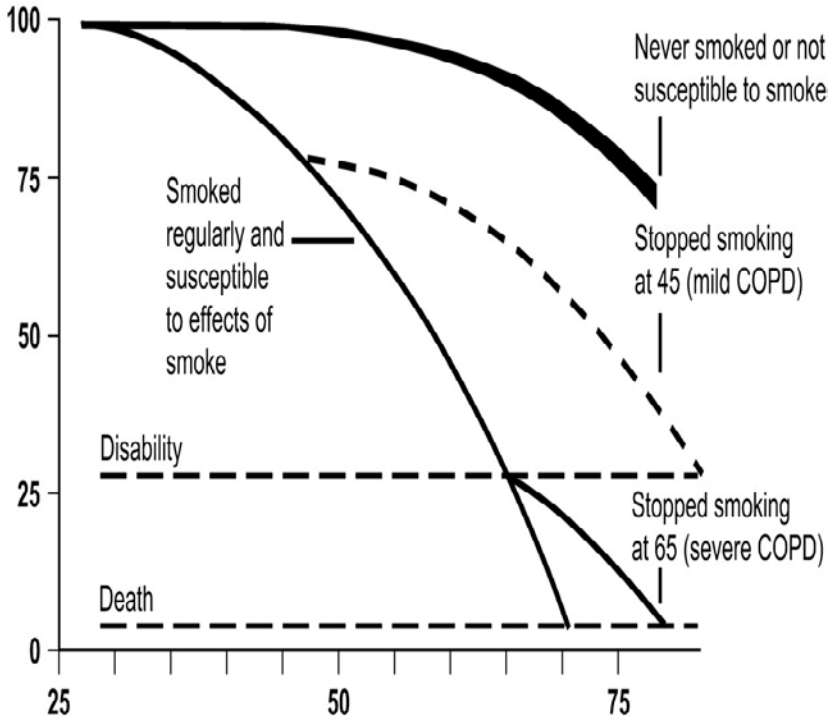
LUNGS, SMOKING AND LONGEVITY



Adapted from Rennard and Vesbo Proc Am Thorac Soc,15*, 2008 ,5: 878-883*

Translational research gap in chronic diseases

Chronic Obstructive Pulmonary Disease (COPD)

1. **COPD is characterised by a high prevalence of co-morbidities** e.g. heart disease & lung cancer, complicating its management.

2. **No effective therapies for COPD** to slow its progression, reduce mortality, or to treat exacerbations.

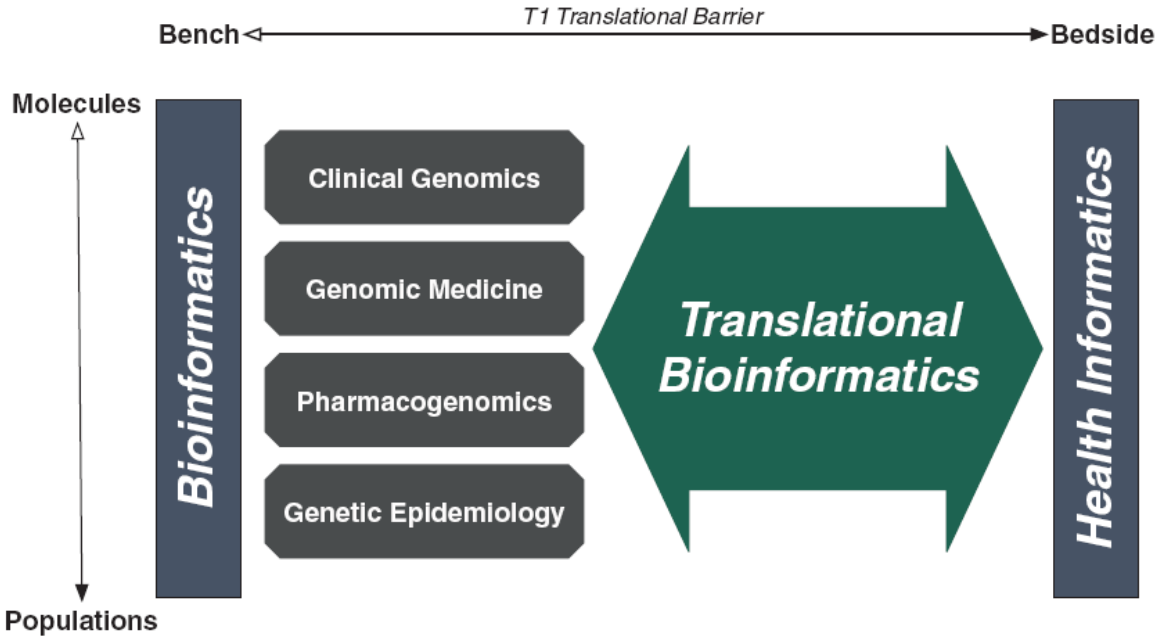
⇨ Understanding co-morbidities requires a multi-disciplinary approach & greater interaction between scientists and physicians in different disciplines.

⇨ Greater investment to link clinical studies & basic science is crucial.

Translational bioinformatics - A tool for linking biological & clinical knowledge

Study of complex diseases requires a new paradigm for knowledge integration & a deeper understanding of biology.

Clinical progress will depend on development of new approaches to interpret these data.



Source: Sarkar I *et al*. *J Am Med Inform Assoc* 2011; 18:354-357

Strategies for future EU health research agenda:

- Avoid fragmentation
- Sustainable investments in excellence
- Involve all stakeholders
- Build on unique European competence
- Strong science-driven platforms