Hands on P4 "*Digital* Medicine"

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P4 Medicine needs P4 Education

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ness (1-3). The effective development of Predictive, Preventive, Personalized and Participatory (P4) Systems Medicine requires harmonization of experimental and computational methods for data, information and knowledge collection, storage, mining, integration, modelling and sharing. Our prediction is that in 10 years each patient will be surrounded by a virtual data-cloud of billions of data-points and that we will have the computational tools to reduce this enormous data dimensionality to simple hypotheses about how to optimize wellness and avoid disease for each individual patient.

For the socio-economical system to be ready to welcome this paradigm change we believe that a process of education for the Patients, the Public at large, the Professionals involved in medicine as well as the Politicians concerned with healthcare, as to the technological, medical and societal issues of P4 Systems Medicine, is essential.

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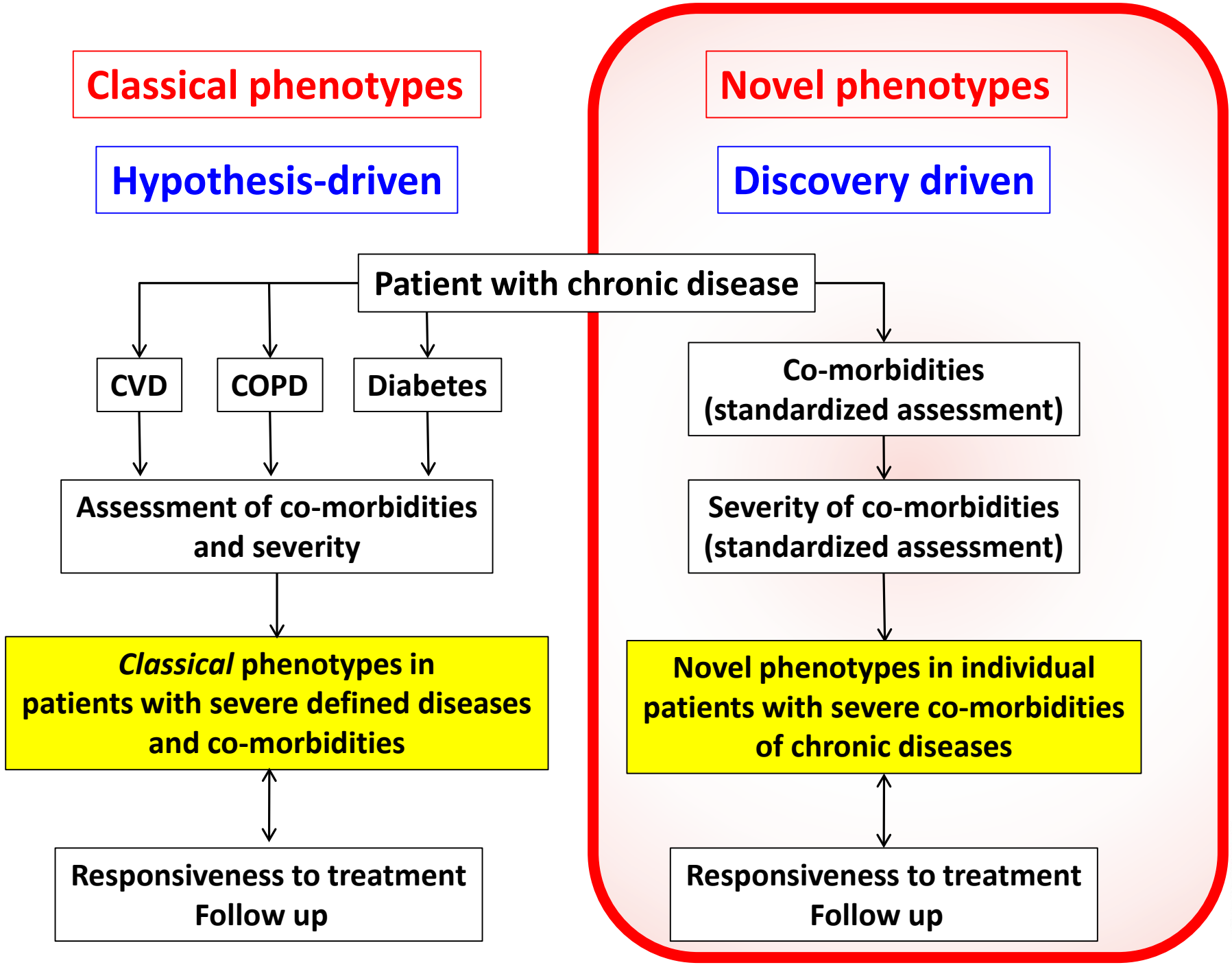
Classical phenotypes
Novel phenotypes
Hypothesis-driven
Discovery driven
Patient with chronic disease
CVD
COPD
Diabetes
Assessment of co-morbidities and severity
Classical phenotypes in patients with severe defined diseases and co-morbidities
Responsiveness to treatment Follow up
Co-morbidities (standardized assessment)
Severity of co-morbidities (standardized assessment)
Novel phenotypes in individual patients with severe co-morbidities of chronic diseases
Responsiveness to treatment Follow up

Genome Medicine
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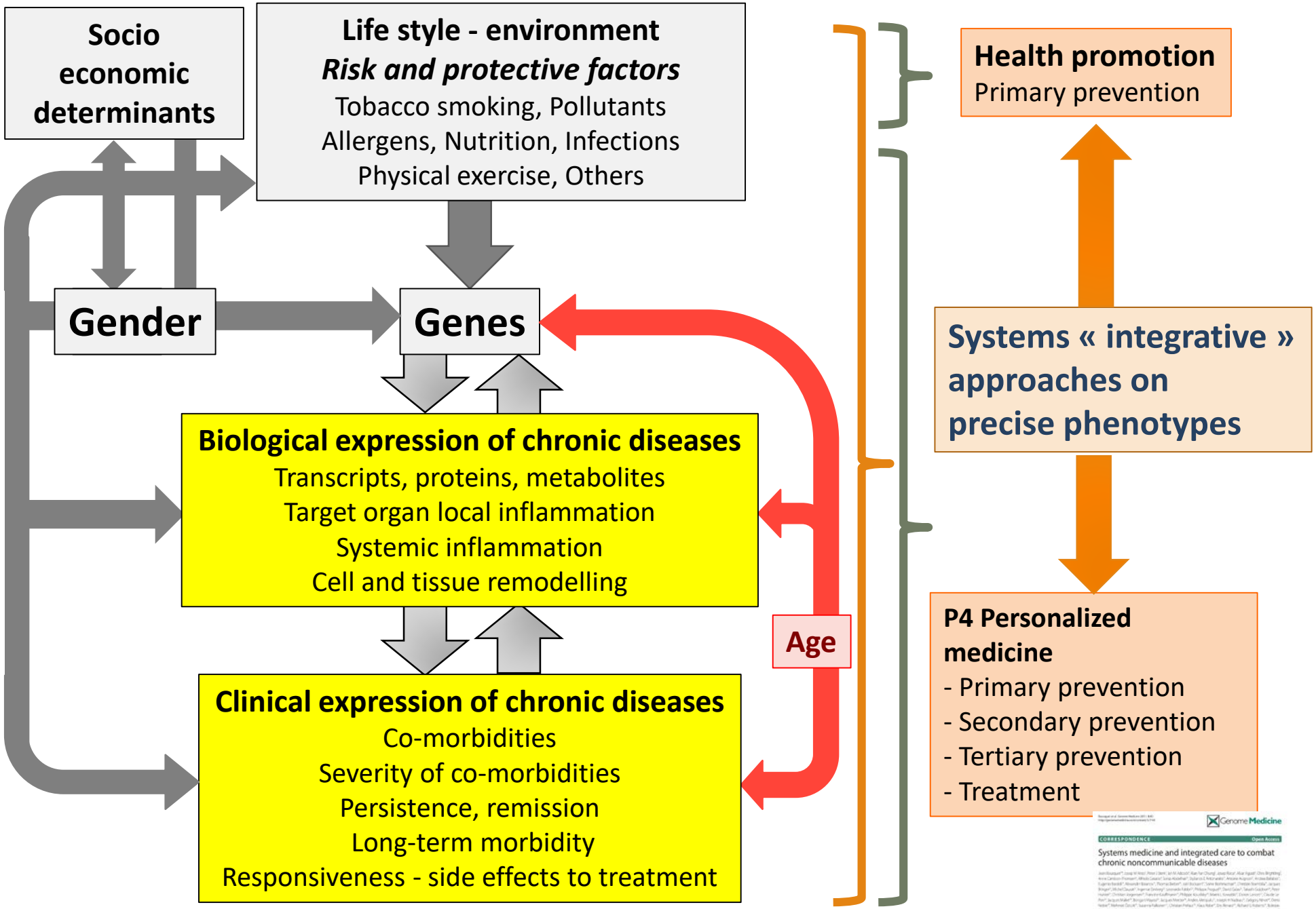
Systems medicine and integrated care to combat chronic noncommunicable diseases


Socio economic determinants
Life style - environment
Risk and protective factors
Tobacco smoking, Pollutants
Allergens, Nutrition, Infections
Physical exercise, Others
Gender
Genes
Biological expression of chronic diseases
Transcripts, proteins, metabolites
Target organ local inflammation
Systemic inflammation
Cell and tissue remodelling
Age
Clinical expression of chronic diseases
Co-morbidities
Severity of co-morbidities
Persistence, remission
Long-term morbidity
Responsiveness - side effects to treatment
Health promotion
Primary prevention
Systems « integrative » approaches on precise phenotypes
P4 Personalized medicine
- Primary prevention
- Secondary prevention
- Tertiary prevention
- Treatment
Genome Medicine
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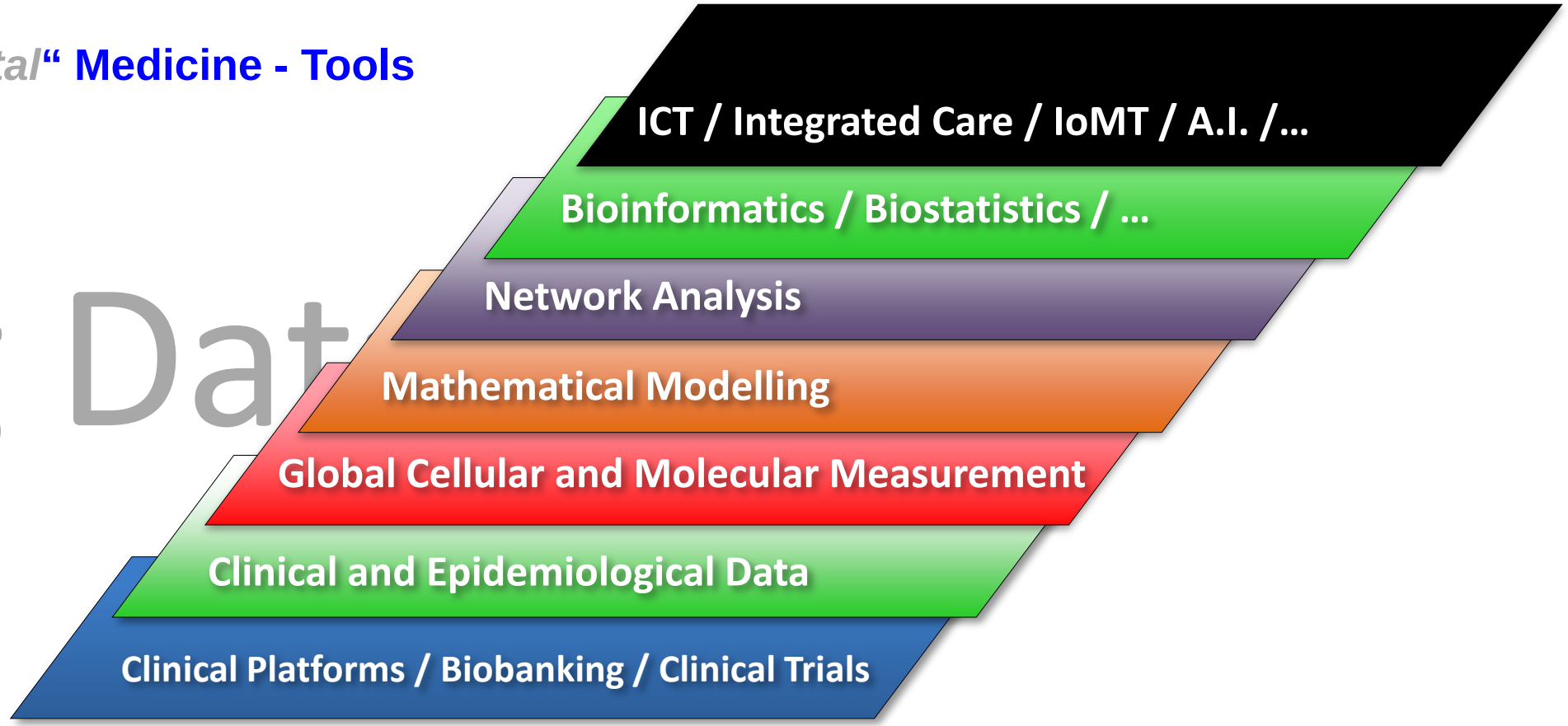
P4 "*Digital*" Medicine - Tools



- Vast clinical platforms, capable of longitudinal follow up of individuals, IoMT / A.I. supported, with central administrative coordination (highly homogeneous "Big" Data);

- *Centralised biobanking activity (uniform SOPs for biosamples handling);*

- Ethical processes & clearance obtained for a "global P4 "Digital" Medicine Approach"

- **Routine implementation of innovative "IoMT" clinical trials** (commercial and non-commercial) -> impact on Regulatory Sciences → Clinical Research legislation → Improved Outcomes → Socio-Economic layer

Thank you