Optimize "Data" Sharing

Eric Boerwinkle, PhD

- **Optimize Data Sharing: HealthConnect**
- Optimize Results/Experience Sharing: Standards of Evidence
- Optimize Resource Sharing: An Analysis Commons

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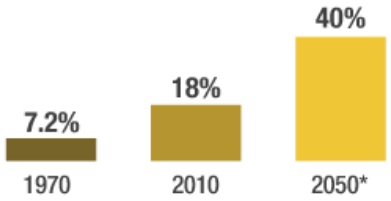
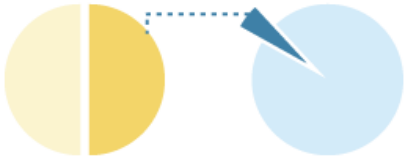
Health Care is an Integral Part of the US Economy

Health care costs as a percentage of U.S. GDP



Annual U.S. health care spending

About **5% of the U.S. population** is responsible for almost half of all health care spending.



Average amount spent on health care in the U.S.

Business Models of the Sharing Economy

More Traditional ← → Less Traditional

WHAT IS IT?	Business-to-Individual Collaborative Consumption	Redistribution Marketplaces	Shared Ownership	Peer-to-Peer Systems
HOW DOES IT WORK?	A business rents out its goods to individuals	People sell, swap, or give away pre-owned goods	Individuals own the same asset (buying it directly or buying shares in a business)	People provide products, services, and information to other people
WHAT DOES IT LOOK LIKE?	For a monthly fee, get a car, bike, or movie when you want one	Via website, sell what you no longer want and buy what you need	Become a part-time owner of a vacation home, or even a private jet	Connect with others to share and access [illegible], apartment, loans, and even data on health

The Texas Medical Center

1. Texas A&M Health Science Center
2. Shriners Hospital for Children –Houston
3. Houston Community College, Coleman Campus
4. UTHealth Sarofim Research Building
5. UTHealth University Center Tower
6. Texas Woman's University
7. Texas Children's Hospital
8. Texas Children's Hospital Pavilion for Women
9. Texas Children's Hospital O'Quinn Medical Tower
10. Houston Methodist – Scurlock Tower
11. MD Anderson – Duncan Building
12. MD Anderson May's Clinic
13. Baylor St. Luke's Medical Center
14. CHI St. Luke's
15. Houston Methodist – Department of Neurology
16. Houston Methodist Research Institute
17. Texas Heart Institute
18. UTHealth School of Nursing
19. UTHealth School of Public Health
20. Thermal Energy Corp. (TECO)
21. MD Anderson – T. Boone Pickens Academic Tower
22. MD Anderson Cancer Center
23. Baylor College of Medicine Department of Neurology
24. Houston Methodist West Pavilion
25. Rice University
26. Prairie View A&M University College of Nursing
27. Kindred Hospital – Houston
28. Texas Medical Center Executive Offices
29. Jan & Dan Duncan Neurological Research Institute
30. McGovern Medical School at UTHealth
31. Memorial Hermann Medical Plaza
32. Memorial Hermann & Children's Memorial Hermann
33. TMC Library
34. Baylor College of Medicine
35. Jesse H. Jones Rotary House International
36. MD Anderson – Zayed Building
37. TIRR Memorial Hermann
38. Ben Taub General Hospital
39. University of Houston College of Pharmacy
40. Houston Hospice
41. Ronald McDonald House Houston
42. Michael E. DeBakey Veterans Affairs Medical Center Houston
43. Baylor College of Medicine: Division of Plastic Surgery
44. Baylor St. Luke's McNair Campus
45. Harris County Institute of Forensic Sciences
46. MD Anderson 1MC Building

TMC: Overview

10 million
patient visits per year

59
member institutions

180,000+
annual surgeries

9,200
total patient beds

$2 billion +
Extramural funding

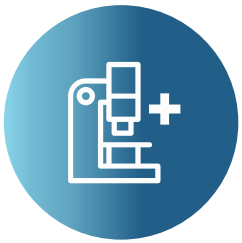
8th largest
Business district in the U.S.

Key Areas for Collaboration

GENOMICS

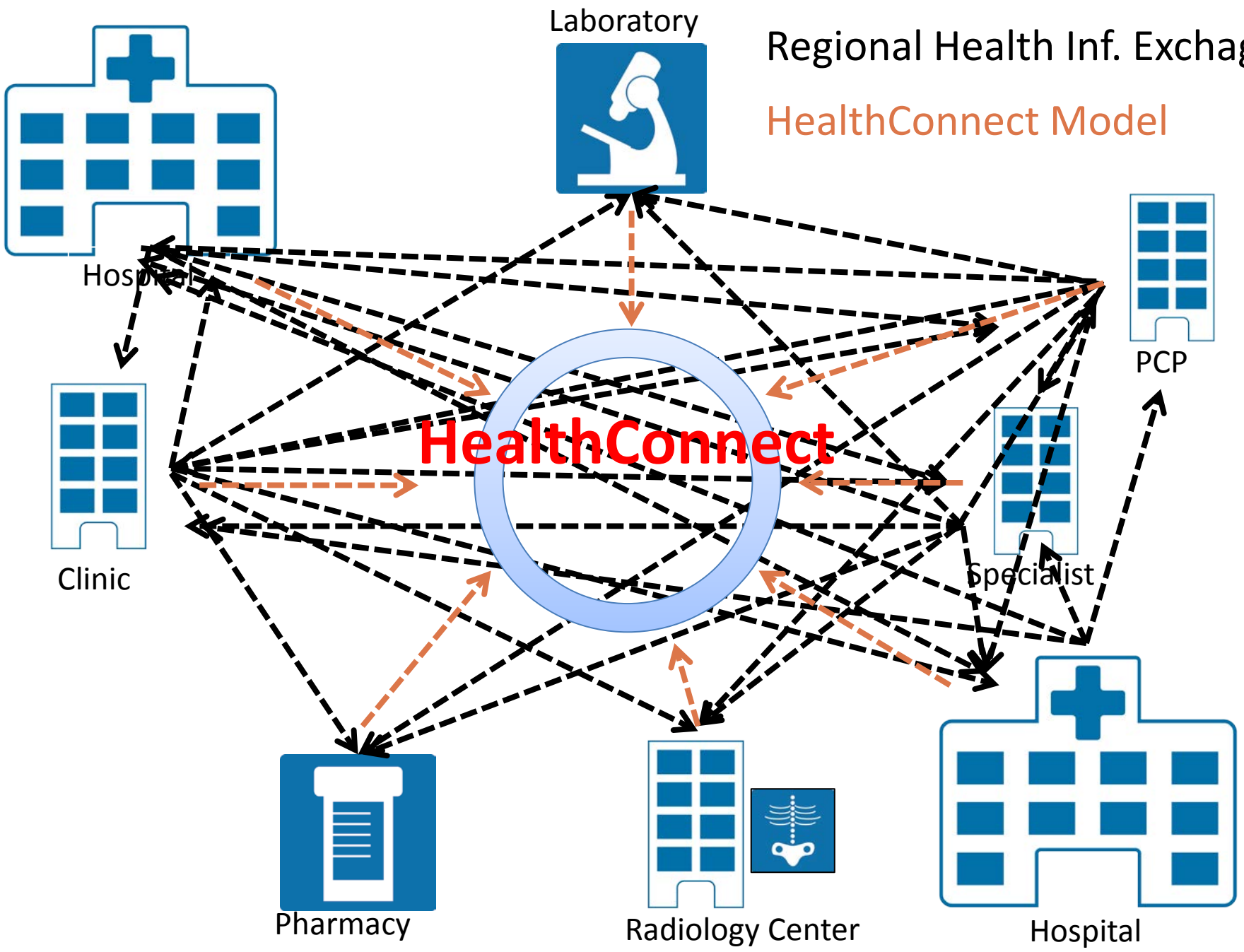
REGENERATIVE MEDICINE

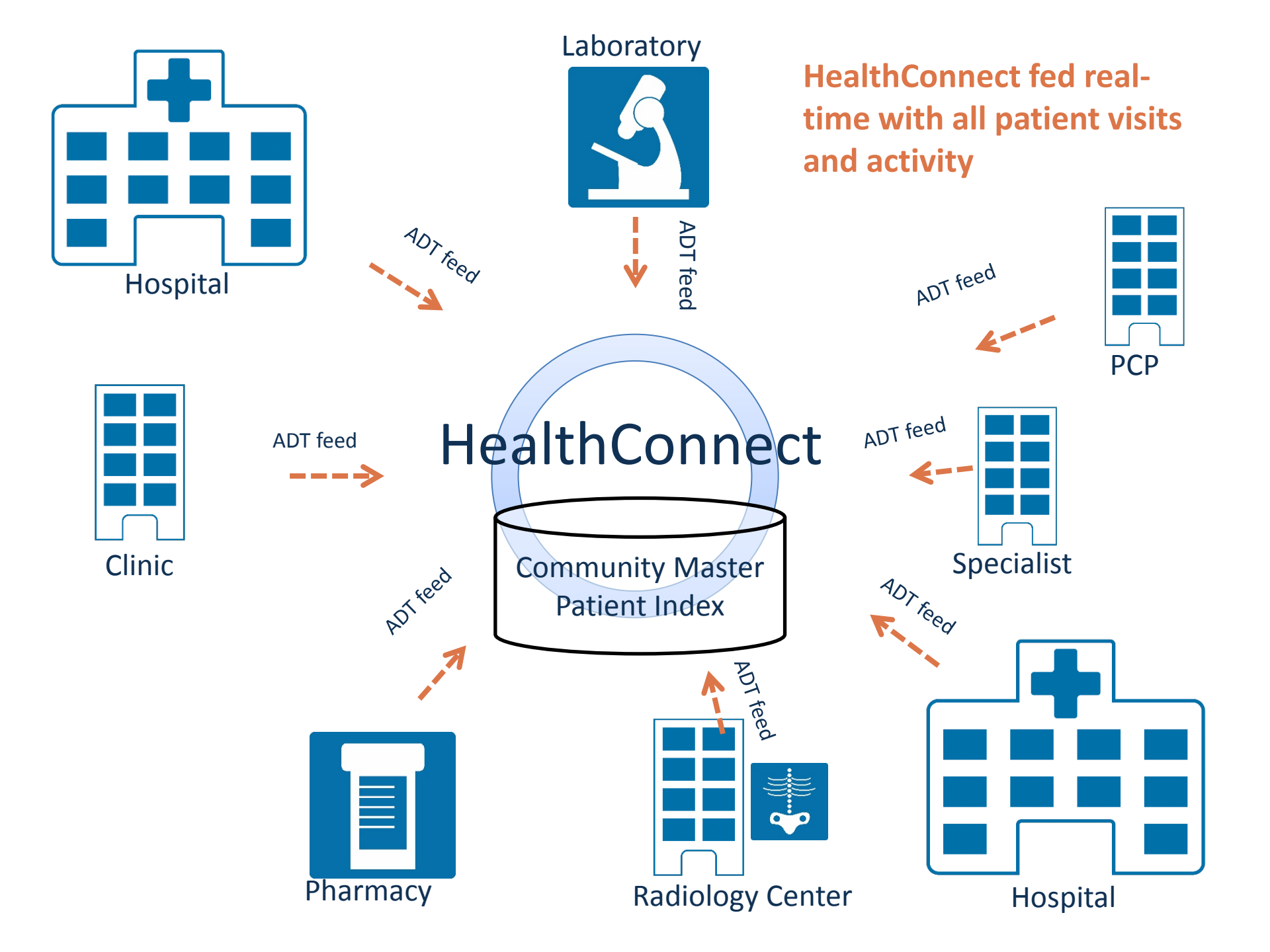
HEALTH POLICY

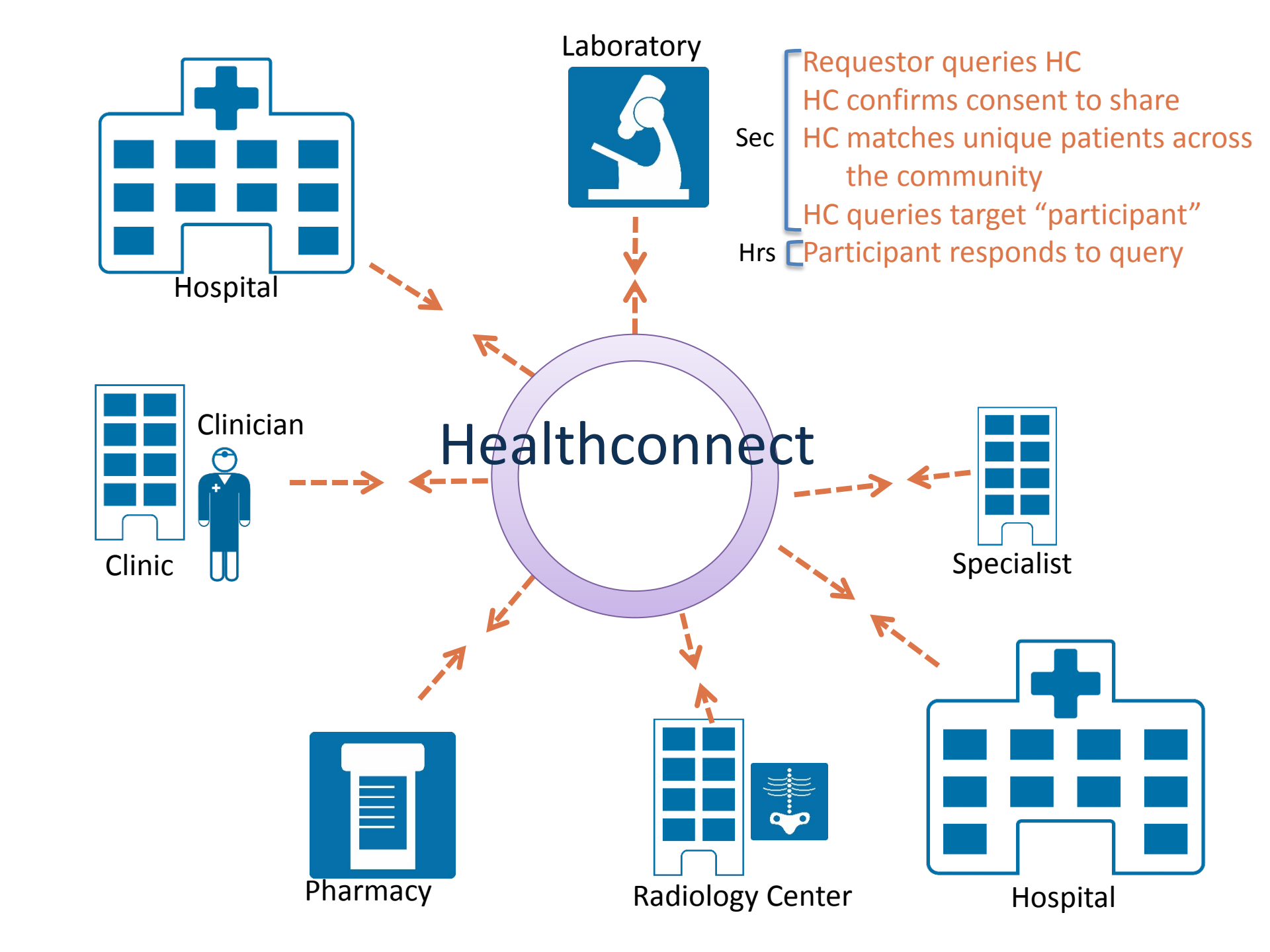


CLINICAL RESEARCH

Vision/Need : To Connect All Healthcare Providers


Laboratory
Regional Health Inf. Exchage
HealthConnect Model
Hospital
PCP
HealthConnect
Clinic
Specialist
Pharmacy
Radiology Center
Hospital


Laboratory
HealthConnect fed real-time with all patient visits and activity
Hospital
ADT feed
ADT feed
ADT feed
PCP
ADT feed
HealthConnect
ADT feed
Clinic
Community Master Patient Index
ADT feed
Specialist
ADT feed
ADT feed
ADT feed
Pharmacy
Radiology Center
Hospital


Laboratory
Requestor queries HC
HC confirms consent to share
Sec
HC matches unique patients across the community
HC queries target "participant"
Hrs
Participant responds to query
Hospital
Clinician
Healthconnect
Clinic
Specialist
Pharmacy
Radiology Center
Hospital

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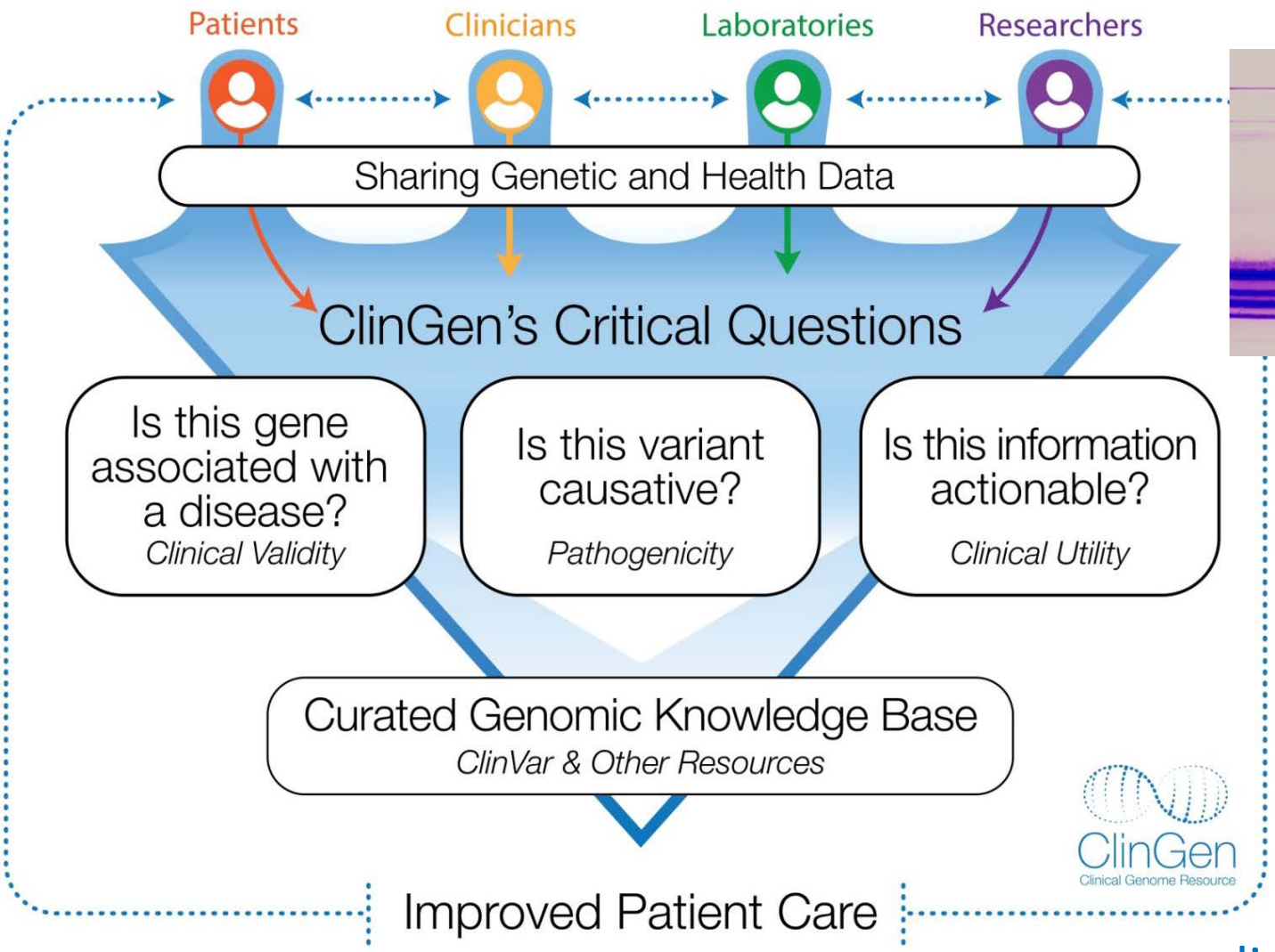
Clinical Genome Resource



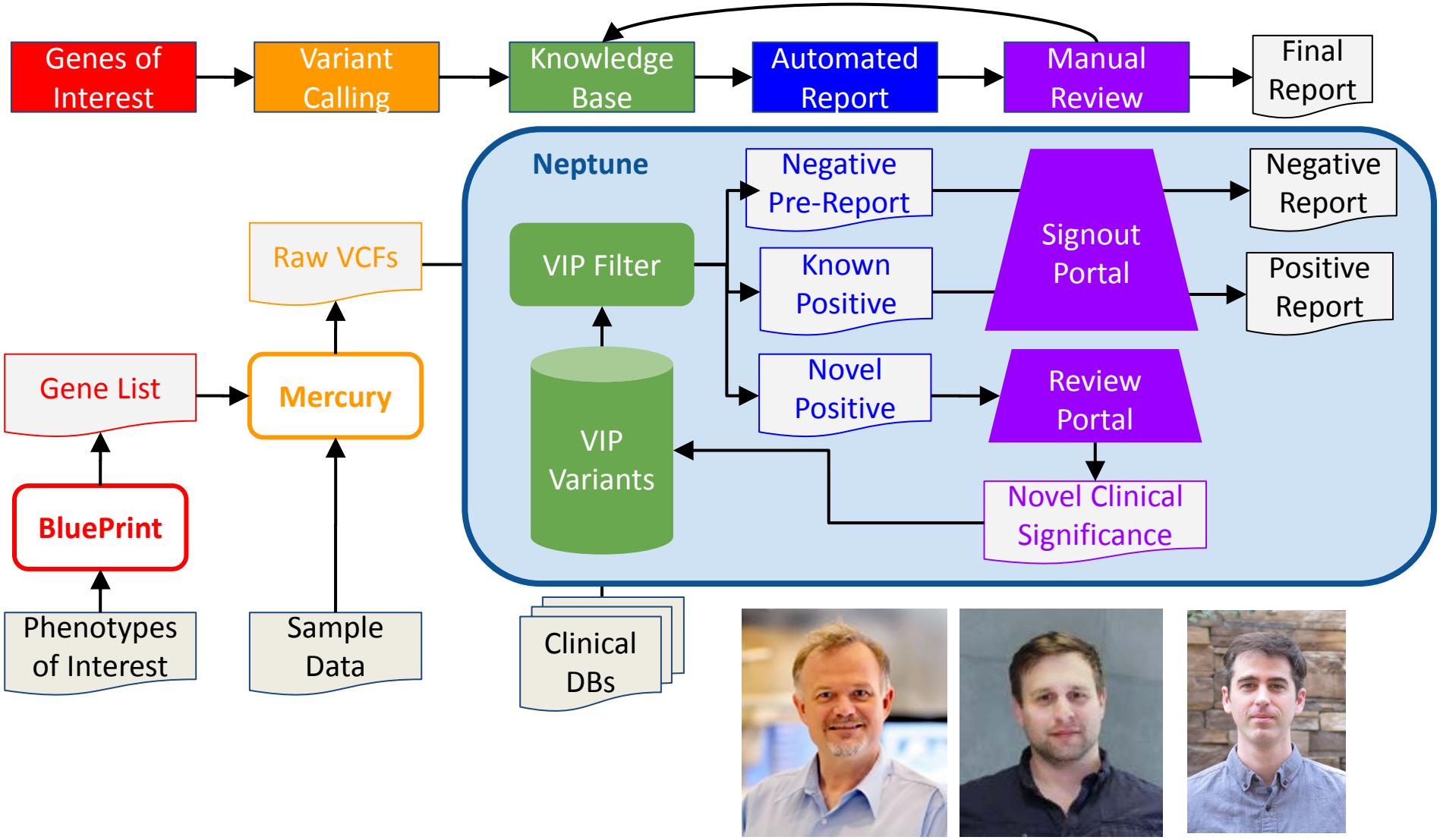
Rehm et al. ClinGen. NEJM 2015

www.clinicalgenome.org

What we have seen so far is great, but……

…. it doesn't scale.

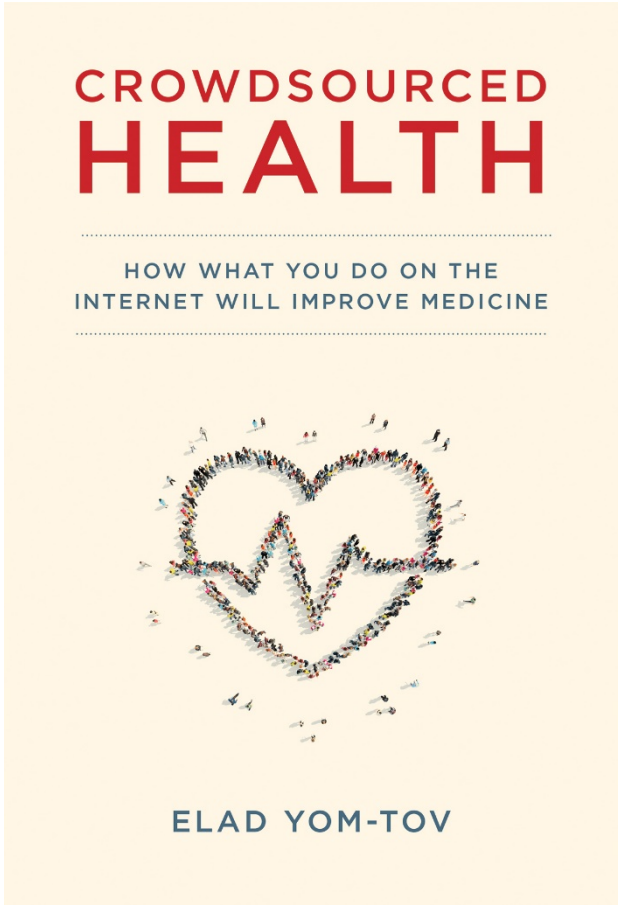
Neptune: Automated Clinical Reporting



How can expert curation be scaled?

Developing national healthcare services with crowdsourcing

Paradigm shift we've been waiting for?



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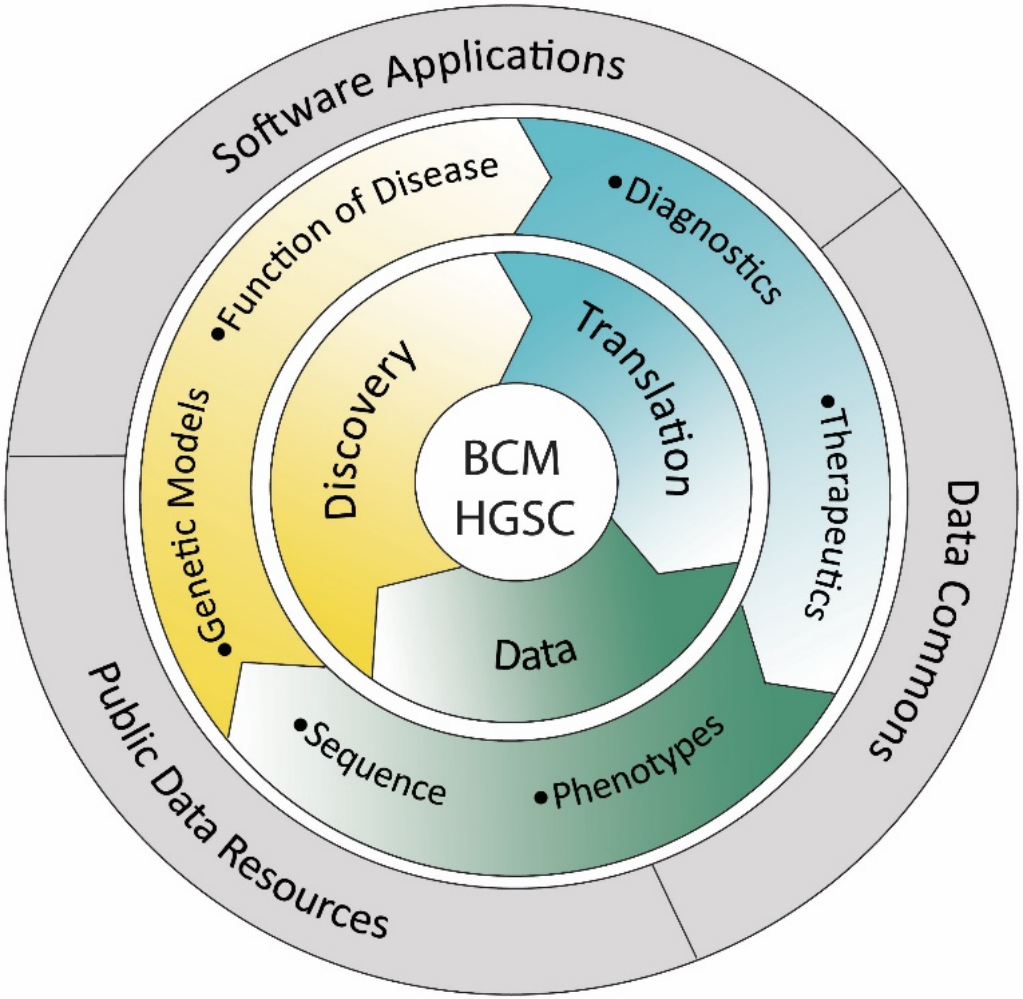
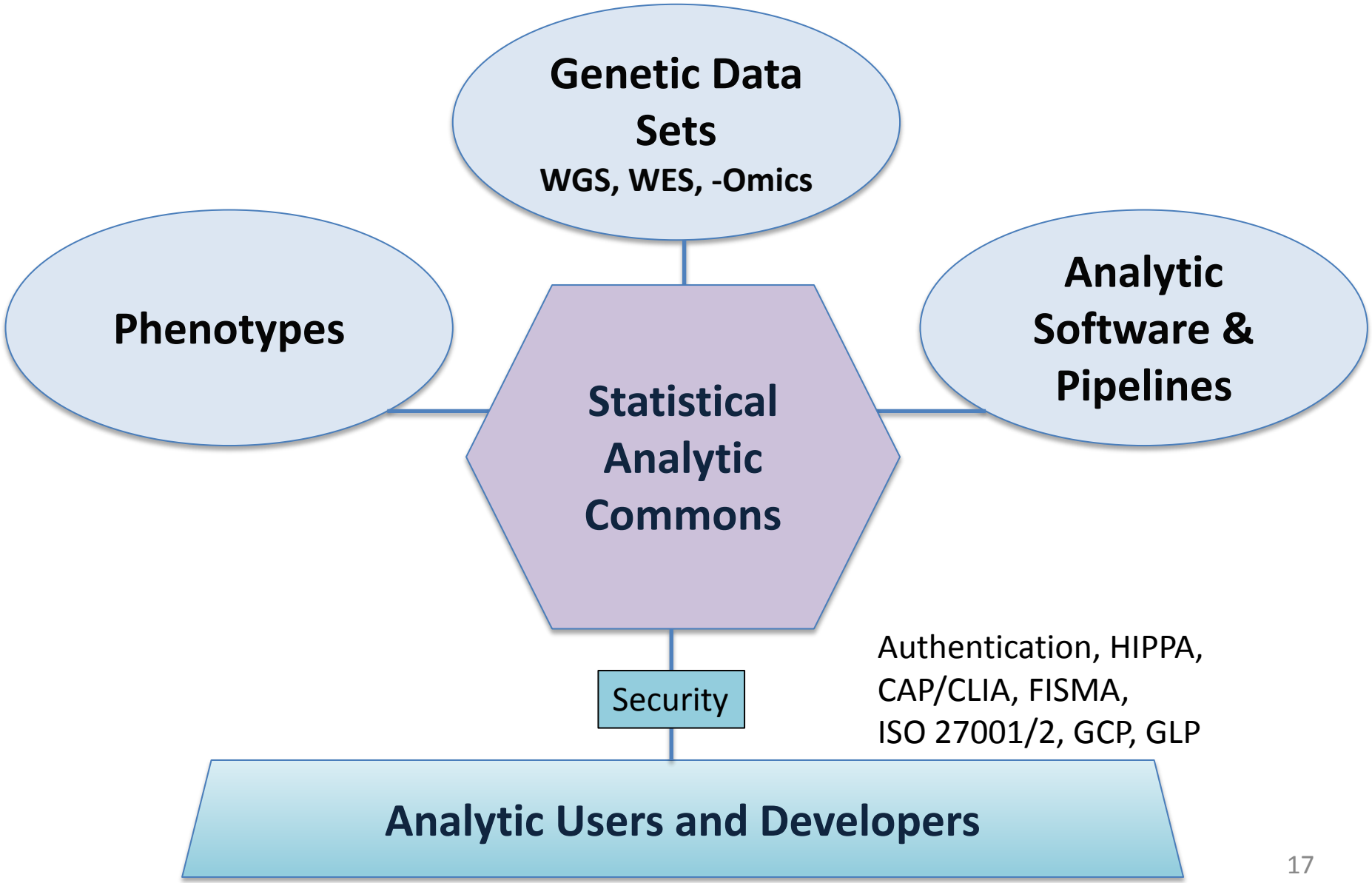
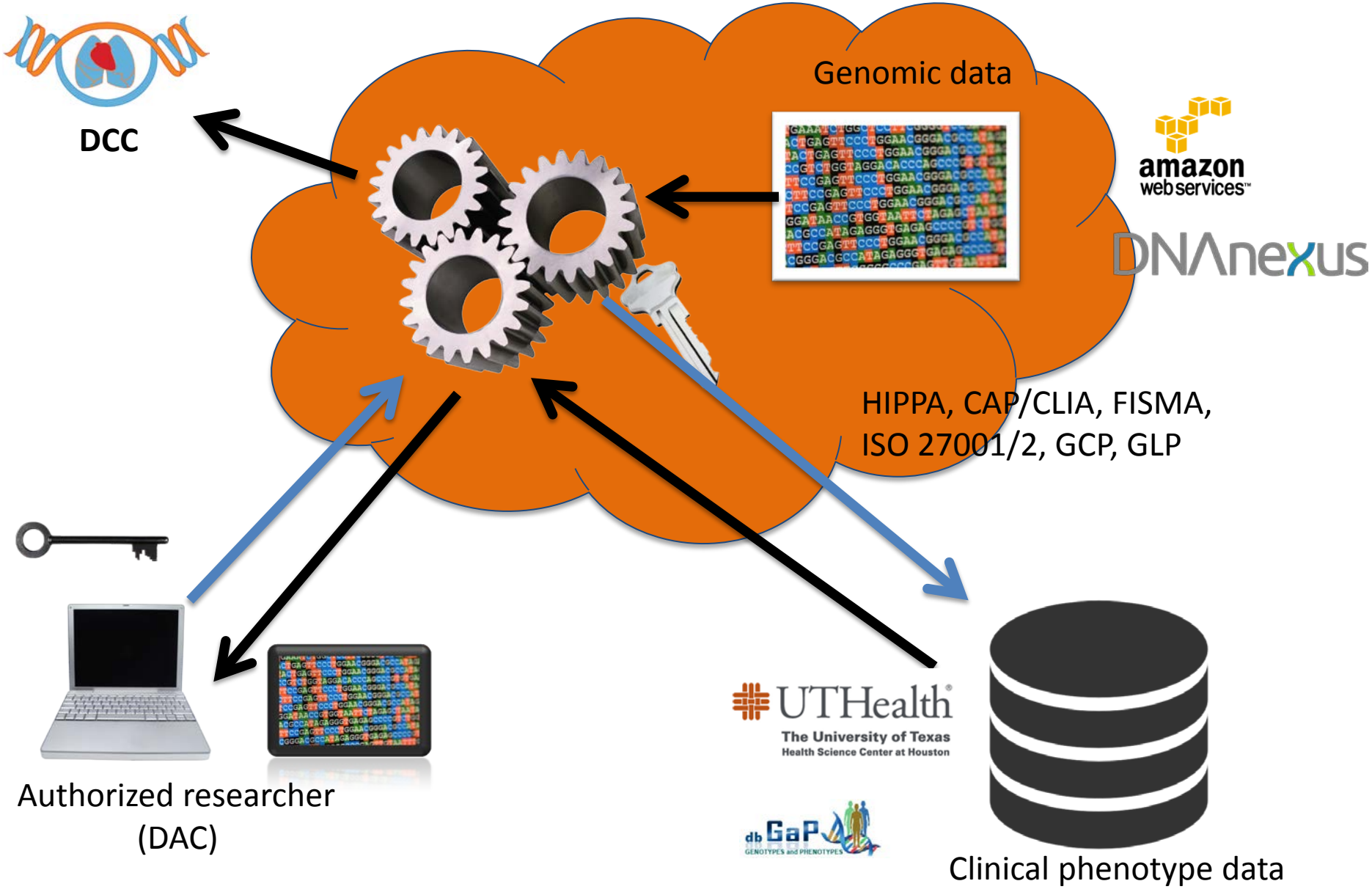
Clinical ⇔ Research Enterprises
A Virtuous Cycle



Basic Components of the Commons



Secure harmonization of genomic and clinical phenotype data



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