Quantitative Imaging Network Working Group

(Proposed)

NIH NATIONAL CANCER INSTITUTE

Janet Eary, MD
November 7, 2018

Imaging can offer useful information in clinical trials

Information can be gained over many different domains:

Anatomic to molecular

Can be combined with other biomarkers

Disease location & staging

Can reduce (or eliminate) biopsies

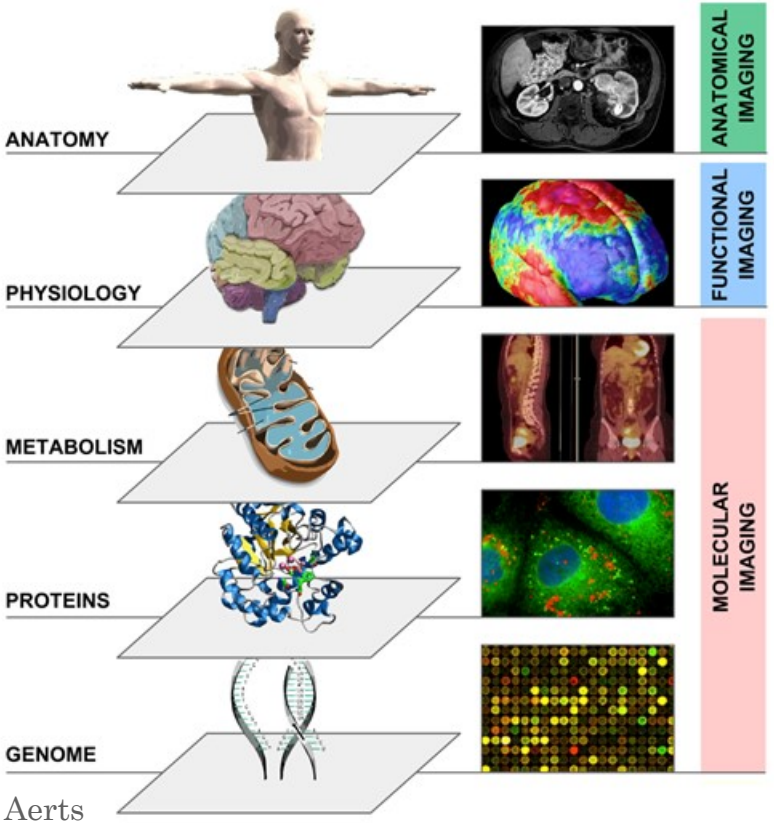
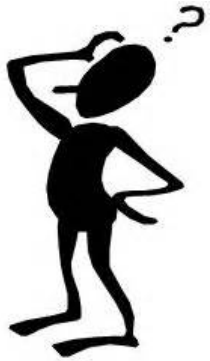


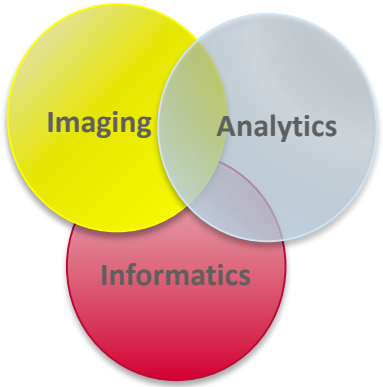
Image from Hugo Aerts

What is Quantitative Imaging?



- **Quantitative imaging:** extraction of quantifiable (measurable) data from medical images for assessment of status or change in a disease.

- It sits at the crossroads of imaging, analytics, and informatics to provide quantitative tools for clinical decision support.



The Quantitative Imaging Roadmap

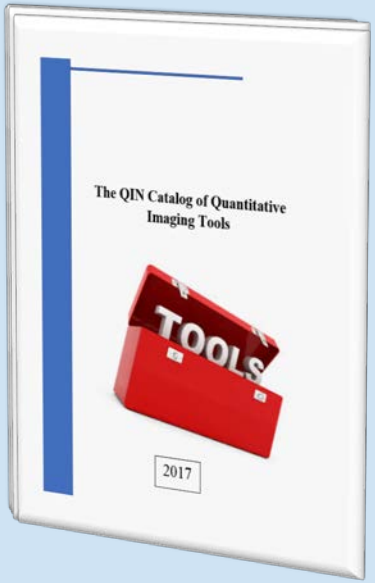
1. Evaluation of imaging hardware performance
2. Creation of harmonization methods (software and protocol)
   - Reduce bias & variance during data collection
3. Creation of robust algorithms to extract quantitative information from images
4. Testing and validating performance of algorithms
5. Introducing candidate algorithms into clinical workflow
   - FDA and industrial interactions

The Tool Catalog & Benchmarking

1. Pre-Benchmark ★
2. Basic Benchmark ★★
3. Technical Test Benchmark ★★★

---

4. Clinical Trial Benchmark ★★★★ ⟵
5. Clinical Use Benchmark ★★★★★ ⟵



What more can QIN do to distribute tools?

- We are publishing and promoting tools at all possible opportunities.
- We are motivating teams to move to test validation as quickly as possible.
- We are increasing industry and FDA participation in the network.
- ***We look to CTAC for additional ideas.***
  - How can we facilitate testing and imaging tool implementation in clinical trials? (for eventual clinical use in cancer)

Quantitative Imaging Network Working Group Function *(proposed)*

Purpose:

- Advise on strategies for enhancing the integration of Quantitative Imaging Network tools into clinical trials.
- Assess the current status, identify barriers, and recommend strategic approaches for enhancing integration.

Members:

- Select CTAC members and *ad hoc* experts as needed.

Quantitative Imaging Network Working Group

- Motion to form a CTAC Quantitative Imaging Network Working Group as proposed *(or modified)*