Last Resort Clinic Working Group
Class 1 Agenda: Welcome, Introductions, and Team Assignments

1. Welcome and overview of the LaRC seminar (Andrew, 10 min)
2. Overview of the cancer challenge and the vision of LaRC (Vikas and Vidula, 15 min)
3. What already exists and why LaRC is within reach (Marty, 5 min)
4. The power of crowdsourcing, information sharing, and technology (Karim, 5 min)
5. Why consider private-sector solutions? (Tom, 5 min)
6. Organizational structure of the course (Andrew, 5 min)
7. Introduction of participants (everyone, 45 min)
8. Pizza Break
9. Define working groups within and across topics (see Topic Challenges below):
    a. science/medicine/technology
    b. operations and business models
    c. branding, advertising, and financing
    d. legal, regulatory, insurance issues
    e. ecosystem issues
10. Define deliverables for each group
    a. 4 to 6 powerpoint slides for final deck
    b. write-up for business plan (1000 words)
11. Define timeline
12. General discussion

Readings

1. David E. Fagnan, N. Nora Yang, John C. McKew, Andrew W. Lo, 2015, "Financing translation: Analysis of the NCATS rare-diseases portfolio", *Science Translational Medicine* 7, DOI: 10.1126/scitranslmed.aaa2360.
2. Eva Guinan, Kevin J. Boudreau and Karim R. Lakhani, 2013, "Experiments in Open Innovation at Harvard Medical School", *Sloan Management Review* Spring, 45–52.
3. Alexander Nazaryan, 2013, "World War Cancer", New Yorker June 30.
4. Jeff Shrager and Jay M. Tenenbaum, 2014, Rapid learning for precision oncology", *Nature Reviews Clinical Oncology* 11, 109–118, doi:10.1038/nrclinonc.2013.244.
5. Vikas P. Sukhatme and Vidula V. Sukhatme, 2015, "A Special Cancer Clinic", preprint.

Topic Challenges

1. Science/medicine/technology

a. Setting criteria for prioritizing treatment options.

b. Should clinic try to obtain non-FDA approved drugs for patients (i.e. drugs in clinical trials but not yet approved)?

c. How to best obtain input from external world: e.g. use existing crowdsourcing platform(s) or build our own?

d. Metrics of patient benefit: QALYs or survival (databases for baseline information?).

e. How to integrate LaRC with a patient's current medical team?

f. What decision-making processes does/should the patient use in choosing various options, should LaRC be involved, and if so, how?

g. Product prototype: create clinical trials.gov like 1-2 page template and illustrate with 2 to 3 examples of potential clinic treatments.

h. Maximizing patient benefit and minimizing risk through predictive models (*in vitro*, *in vivo*, and *in silico*).

i. Informatics platform requirements and sourcing, e.g., organizing the world's knowledge of cancer, capturing and mining data across media (journals, conferences, patient registries), treatment decision support tools, biocomputing tools for clinical use.

2. **Operations and business models (must coordinate with Team #3)**
    a. For-profit versus not-for-profit.
    b. Clinic facilities: outpatient with staff privileges at existing inpatient facility (legal input needed here as well) vs self-contained inpatient and outpatient facility.
    c. Pay-for-performance idea vs. other models: ethics, optics, how to determine metrics to be used.
    d. Alignments with nearby academic medical centers, community MDs etc.
    e. For-profit detailed business plan capital needed and sustainability etc.; will insurance cover off-label use?
    f. Secret sauce: how much of the treatments to reveal to public—and when? Will this undermine sustainability or will clinic always have an edge via new ideas?
    g. Intellectual property: types of IP that might arise (e.g. combinations of drugs that prove efficacious, or gene profiling biomarker(s) predicting response to a targeted therapy, etc.); filing IP; monetization of IP (e.g., selling samples to industry).
    h. Comparison to other clinics? Competition vs. collaboration (e.g., to create the world's leading cancer network)?
    i. Metrics of success: patient benefit, cost-effectiveness of treatments, slashing the time and cost of drug development, etc.
    j. Internal and external oversight?
3. **Branding, marketing, financing (must coordinate with Team #2)**
    a. Name/logo, advertising, marketing (including channel partners, referral networks to community hospitals, etc.).
    b. Ideas for raising initial capital and identification of key potential investors (philanthropists, patient advocacy groups, hedge funds, etc.).
    c. Financial projections.
4. **Legal/regulatory/insurance issues**
    a. How do we address federal and state rules on off-label use, restricted access to investigational drugs not yet approved, and combination therapies?
    b. Minimizing risk of patient initiated litigation: for example, use of patient consent forms for all patients; to the degree possible enrolling patients in IRB-approved protocols.
    c. US versus rules outside of the United States: Cayman islands and Mexico in particular; the idea of an offshore clinic on a boat.
    d. If litigation occurs and is successful, minimizing impact on the clinic and affiliated staff; one solution is to have an insurance policy/rider specifically designed for certain categories of off label use.

e. Review boards: internal and external. Requirement that patients contribute/share their data in anonymized form with others who come to the clinic.

f. Operation of the compared to what would be allowed by the Saatchi Bill currently under discussion in the British Parliament.

g. Can we develop partnering models and align incentives so that tests and off-label uses will be covered by payers?

5. Ecosystem issues

a. Sourcing compounds and tests from academia, biotech, pharma, and commercial labs.

b. How to stimulate supply for leading edge treatments? How to make them more visible to the clinic?

c. Ethical, social, and political considerations.

d. Relationship with patient advocacy groups.

e. Relationship with government (NCI, NCATS) and professional organizations (ASCO, AACR).

f. Relationship with other LaRC initiatives (development of a shared ecosystem for precision oncology).

g. Relationship with the FDA.