Background

Each AHIC Workgroup has unique expertise and perspectives to address different aspects of CDS. An Ad Hoc CDS Planning Group was formed to ensure that a common framework to address CDS would be used across Workgroups, while identifying unique and complementary contributions that would result in recommendations that would advance the implementation of robust and workflow sensitive CDS. The Ad Hoc CDS Planning Group could also oversee the development of actionable recommendations that address common enablers and barriers. Chaired by John Glaser of Partners HealthCare, the group includes a number of the co-chairs and thought leaders across the Workgroups along with ONC and HHS leadership involved with AHIC.

To inform Ad Hoc CDS Planning Group action, Workgroups were solicited for input on priority areas. The CDS Roadmap identified three essential elements for achieving the promise of CDS: 1) access to the best knowledge available; 2) widespread adoption and effective use; and 3) continuous improvement of knowledge and CDS methods. Ideally, the overall goal is to accelerate and broaden the use of CDS to yield measurable endpoints, particularly for high priority outcomes.

Questions to AHIC Workgroups:

Given respective Workgroup charges and goals related to CDS:

1. If pilot projects were being funded to demonstrate the value of CDS, what kinds of things should be funded (i.e., what should those projects focus on)?

2. If the Workgroup could get one or more outcomes or a "wish list" of targets that CDS can affect, what would they be?

Following are preliminary comments collected from the Personalized Health Care (PHC) Workgroup.

PHC Workgroup

- A CDS module built around a family history risk in conjunction with other information to perform risk stratification that would trigger evidence based best practice rules.
- Use of family history to risk stratify and modify preventive health messages to practitioners in the EHR and patients in the PHR. Integration of genomic test results with other patient specific information to power an evidence-based best practice guideline for a common condition.
- One of the crucial elements is recognition of the context so that high value relevant context specific CDS is presented when needed, as opposed to reminders (like drug interactions) that appear endlessly.

- Pilots must focus on demonstrating how 'evidence based, just in time' clinical decision support information can be delivered via the EHR at the point of care between patient and doctor. It should 'inform' the encounter to achieve better quality and outcomes - both for disease management as well as preventive services.

- It will be important to demonstrate that the CDS actually improves care. So whatever topic is selected and assuming that someone will examine the feasibility of implementation, we need to examine whether CDS actually drives appropriate use, changes in decision processes at the patient, provider, or system level. There are a series of related issues directly and indirectly related to this, including:
  - Active vs. passive decision support. If active, how to titrate the number of actions (e.g., reminders). Especially for PHC, the number of potential decision support opportunities is limitless and we know that providers tend to ignore information if too much is provided too often. So it is important to see decision support as part of an overall system, not just as individual items.
  - How to present information in the most impactful way to drive action.
  - Assessment of the actions taken by patients/ providers. Does it lead to better decisions (e.g., adherence to guidelines, better satisfaction, greater adherence)?

- Trying to deliver CDS to docs in every medical specialty and subspecialty, adoption is the core problem, and it can be parsed into two sub-problems that deserve study.
  - First, where in a physician's or nurse's workflow is a specific rule going to be the most helpful (obverse: least disruptive).
- Second, if physicians do not themselves have a role in rule development and no one they know has had a role, what will cause them to adopt it without wanting to make significant changes to it? These two areas desperately require study, and we should support proposals that address them.

- As far as a specific endpoint for the "wish list", suggest considering enhanced uptake of CRC screening, for both average and elevated-risk individuals. In general, rates for CRC screening in the population are low and many feel that raising the overall uptake of CRC screening would be a major public health benefit. A CDS tool encompassing family history data could be designed to not only ID and advise those with increased risk, but to deliver general screening recommendations for those at average risk at the point of care.

- Suggest a case study for clinical decision-making around newborn screening using a metabolic disorder.
  - HRSA has already done some work in this area developing tools for decision-making which could be incorporated (the ACT sheets; http://www.acmg.net/resources/policies/ACT/NB-Screen-Act-Sheet-Primary-TSH-4-28-06_ljo.pdf).

- Although these conditions are generally rare, every infant receives a screen and that screen needs to be reported whether positive or negative so the event of the screen is more common than any other genetic test, and the decision support needs to be there for the screen event whether positive or negative.

- Pilot projects might begin with CRC or other prevalent disease process and examine the continuum of patient care with emphasis on:
  - Identifying, differentiating, and articulating various types of information needs.
    - Researching differential diagnoses would represent a different information seeking behavior; for example, from looking for treatment algorithms where evidence-based standards already exist.
  - Differentiating (and possibly weighting, according to depth/breadth/scope?) the types of information that is purveyed in various settings.
    - For example, explore the idea of offering concentrated, evidence-based data "packets" into rural or community settings where there is often less exposure to research.
  - Ascertaining how existing "baked in" CDSs (such as the one that Partners uses at The Brigham) might actually discourage users from taking that "next step" to reach out to the literature / data.

- Leading a project to develop a personalized medicine clinical decision support roadmap in Partners Healthcare. Some general thoughts to date:
  1. First, divided genetic testing into several groups with future primary physician consumer groups:
     - carrier / pre-natal screening – obstetricians
     - diagnosis of congenital or predictive risk of early on-set conditions – pediatricians
     - molecular diagnostics for disease stratification – specialists
     - predictive risk of later onset conditions - primary care physicians
     - pharmacogenomics - will be present throughout
  - Thinking the big long-term win and biggest challenge will be in predictive risk and broad pharmacogenomic tests (e.g. P450), due to their long-term, far reaching usefulness. Additionally, with the increased stress on the healthcare system, brought on by our aging population, it'd be great to focus on predictive risk scenarios that would enable the "worried well" to remain in the care of their PCP. Thereby, reducing stresses on the system of specialists taking care of patients with disease. Hand-over to the specialist would occur if and when the condition is diagnosed through screening mechanisms.

2. Second, categorized CDS into two high-level types: Patient and Population based CDS
    - Patient based CDS is primarily presented to the clinician or patient when accessing the record. A data pull of information.
    - In contrast, population based CDS is generated through a query of a population management database that supports the management of patients fitting a disease risk profile or patient population with a particular disease. A push event triggers action. For example, a monthly report identifying all patients overdue for mammogram filtering out patients where the reminder is inappropriate due to double mastectomy or death, etc. (Working with someone at MGH to better understand how population based CDS can be leveraged with genetic/genomic information that enables early identification of risk populations.)

- Recommendations for funded pilot projects to demonstrate value:
    - Pilot focusing on CDS for genetic counselors, geneticists, etc.
        - This might first focus on human consumption of information from the knowledge bases recommended in our AHIC report for genetic testing and structured reporting. In a later phase, these systems would mature to become programmatically accessible for machine readable usage.
    - Pilot project that would demonstrate the ability for a provider to maintain current clinical meaning of genetic test results in the clinical environment (e.g., BRCA1/BRCA2 tests) THROUGH usage of national knowledge bases, particularly one defining current clinical significance of variants/mutations.
        - This should have the greatest value for predictive risk genetic testing. Additionally, this might best be done in a combined population oriented (relational db) and patient oriented (hierarchical db) fashion.
    - Pilot project that would focus on the communication of positive genetic test results in the area of familial inheritance in a manner to successfully increase familial testing.
        - This would include sample letters serving as a model for patients to communicate potential increased risk running in the family and genetic testing, family members can receive, that is effective in assessing inheritance/risk.
- Outcomes:
    - Knowledgebases to support genetic testing
    - Informational views valuable for genetic counselors (and others as clinicians become more capable in this area)
    - CDS knowledge assets that are effective in encouraging familial testing beyond the original patients and effective in encouraging patients to manage health when identified as being at increased risk (including regular screening exams and lifestyle changes).