

Your Charge!

- Engage, participate, invigorate!
- Think provocatively and creatively about the future of cancer epidemiology and how the discipline needs to evolve with a changing landscape
- Engage online and tweet about the meeting
 - Email questions to nciepimatters@mail.nih.gov
 - Ask questions on Twitter (Follow @NCIEpi; #TrendsInEpi)
- Engage others and continue the conversation after you leave tomorrow

WHAT WE HAVE LEARNED FROM EPIDEMIOLOGY COHORTS AND WHERE SHOULD WE BE GOING NEXT?

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NCI Cohort Consortium

- **NCI Cancer Consortium annual Symposium, October 2012.**
- **Took a hard look at ourselves, 12 years later.**
- **Formed by NCI's intramural and extramural staff, with cohort PIs. Currently includes 46 cohorts, 15 countries, 4 million study participants, 2 million DNA samples.**

NCI Cohort Consortium

- **Mission:**
 - Foster **communication** among investigators leading cohort studies of cancer
 - Promote collaborative research projects for topics **not easily addressed** in a single study
 - Identify **common challenges** in cohort research and search for solutions

NCI Cohort Consortium

- **Strengths and limitations** to accomplish mission?
- Focus has been on etiology of cancer. Should we **expand or extend** our activities over next decade?
- **Gaps in knowledge** we could best next address?
- **Obstacles?** How can we overcome?

Are Epidemiologic Studies Relevant?

- **Increasingly so**, as focus on complex interactions of genes and environment. Multi-level, systems, networks. Low level risks.
- Cohort studies **unique strengths**:
 - Prospective data, large sample sizes
 - Multi-ethnic composition
 - Extensive phenotyping, with serial measurements over time
 - Biobanks, genetic and biomarkers components

Expand or Extend Cohorts? Gaps in Knowledge

- **For cancer....**
- Detailed molecular characteristics of cancer subtypes; assess ability to obtain tumor tissue if not already obtained, with issue of time since diagnosis.
- Extend to recurrence, second cancers, survivorship; cancer treatment.
- Consider the lifecourse; inclusion of children and adolescents.
- Further methodology to validate, improve, adapt, extend exposure assessments (PA – actigraphy; use of social media).
- Implications: Revisit stored samples? Recontact? IRB issues. Legacy consents.

Expand or Extend Cohorts? Gaps in Knowledge

- **Beyond cancer...**
- **Compelling imperative to extend beyond cancer to multiple disease endpoints within cohorts.**
- **Mission (communication, collaborate, challenges) not unique to cancer.**
- **Value added; scientifically worthwhile; cost-effective.**
- **Achievable? We believe yes...**

Multiple Outcomes

- Many major risk factors for cancer are major risk factors for multiple diseases.
- Many cohorts jointly funded.
- Multiple outcomes assessed same rigor as cancer. (WHS: cancer and CVD (MI, stroke, CV mortality); CHF, AF, PE/DVD, diabetes, cognitive function, vision, neuro, etc)
- Cancer cohort members also members of other non-cancer consortia.

Multiple Outcomes

- **Proposed first step: proof-of-principle by cohorts validated non-cancer outcomes (eg. CVD).**
- **If feasible, extend communication (marketing) begun at October meeting to other Institutes: think of us, we can be part of solutions.**

Obstacles to be Overcome

- Many – but can be overcome - and progress already being made.
- Cannot overstate: **NIH is critical** to assist with and accelerate the process.
- Some obstacles are **structural**:
 - For joint outcomes, need facilitating joint funding by multiple Institutes. **Critical!**
 - Need non-disease specific funding mechanisms, to deal with disease-specific study sections.
 - Integrated NIH management of cohorts.

Obstacles to be Overcome

- **#1 concern of cohort leaders: need financial support for basic infrastructure: maintain data collection, blood repository, validation endpoints.**
- **Critical to continue to contribute to consortium. Cannot underestimate never-ending concern, time-consuming.**
- **Can't be unfunded activities. Consider preparation of numbers events, consortium datasets, standardized defns, multiple requests concurrent. No sources for funds.**

Obstacles to be Overcome

- **Beyond maintaining, support to add new methodologies and technologies as needed to improve cohort.**
- **Central assistance for cross-cohort projects, such as harmonization.**

Obstacles to be Overcome

- Some obstacles are **methodologic**:
 - NIH serving as liaison for cohorts to get low-cost opportunities to access record linkage, like Medicare/Medicaid (CMS).
 - Driver to overcome hurdles for new record linkage opportunities, such as for those under 65, or mechanisms (EMR).
 - Tracking cancer or mortality outcomes in accessible, cost-effective way.
 - One stop shopping. WHS: IRB applications for many states.

NCI New Initiatives

- **Facilitated harmonization of data by outside group. It worked! Time and cost reasonable, trauma low.**
- **NCI Cancer Epidemiology Cohort Funding Opportunity Announcement.**
- **Interagency agreement re NDI; streamlining, improvement mortality assessment.**
- **Pilot of National Virtual Cancer Registry, not centralize storage of data, but centrally link all cohort registries.**

Success of Consortium

- **Bob Hoover said development and first successes of consortium was grass roots effort.**
- **True at first, but would not have been enough to continue, without active participation of NCI. True collaboration (R01), and progress on obstacles.**
- **Never forget how much cohorts want to be collaborating for scientific reasons – just need help.**

Maintaining the Pipeline

- Some obstacles are **human resources...**
- Have to address career development of young investigators. Consortia are problematic.
- Promotion committees appreciate consortium scientific contributions, but don't know how to recognize an individual's contributions to consortial activities, especially if co-author 20 of 40.
 - Role of senior investigators to educate
 - Annotated CVs regarding middle authorship, contribution

Maintaining the Pipeline

- **Renewal of grants – what is Progress Report?**
- **Data sharing with outside collaborators, broader public.**
- **Resource intensive to set up: data updated yearly, data definitions, policies, forms and procedures. Again, unfunded mandate– unless can include in infrastructure grant mechanism.**

The Future Perfect

- **Jointly funded so can cross multi-disciplinary lines, maximize impact.**
- **Have cohorts that in present have been harmonized centrally to the extent possible; new cohorts have anticipated need in design.**
- **Design/conduct of study not harmonized; distinctive reflecting population to be addressed.**
- **Have facilitated access to inexpensive common data sources to ascertain events/exposures.**
- **Leveraged innovative methods: digital age**

The Future Perfect

- **Have a reliable source of continued infrastructure funding.**
- **Focused on “better, faster, cheaper”. Conduct of studies as resources routine, business-like.**
- **Makes cohorts very flexible.**
- **Provides ability for us to concentrate on doing our scientific job, to be a cornerstone and push the field.**
- **Think ahead when beginning observational study or trial – can we piggy-back, how will use, can we embed, etc**

Use Synthetic vs. Form Mega Cohorts?

- Longstanding discussion – but one does not preclude the other.
- Leverage existing cohorts while developing new ones appropriate to fill identified gaps.
- Don't need to wait.
- Won't have everything needed, taking all cohorts together - but no perfect new cohort either . Do have **enough to establish rich research portfolio** on environmental, lifestyle and genetic factors on cancer and other diseases.