

Electronic Health Records (EHRs) and Their Impact on Cancer Programs

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Outline of Presentation

❑ **Electronic Health Records (EHRs)**

- What are they?
- Why adopt EHRs?
- EHRs: Epidemiology, Treatment, and Public Health
- EHR Adoption
- Are they all the same?
- Are there incentives to implement standard a EHR system?

❑ **Standards and Interoperability: Why is this needed?**

❑ **Overview of Cancer Registries and Meaningful Use**

❑ **Overview of electronic Pathology Reporting standards implementation**

❑ **How can other Cancer Programs leverage EHRs?**

What is an Electronic Health Record (EHR)?

- ❑ **Electronic version of a patients medical history, that is maintained by the provider over time, and may include all of the key administrative clinical data relevant to that persons care under a particular provider including:**
 - Demographics
 - Progress notes
 - Problems
 - Medications
 - Vital signs
 - Past medical history
 - Immunizations
 - Laboratory data
 - Radiology reports

Clarification of Common Terms

- ❑ **Electronic Medical Records (EMRs) are a digital version of the paper charts in the clinician's office. An EMR contains the medical and treatment history of the patients in one practice.**
- ❑ **EHRs focus on the total health of the patient—going beyond standard clinical data collected in the provider's office and inclusive of a broader view on a patient's care.... They are built to share information with other health care providers, such as laboratories and specialists, so they contain information from *all the clinicians involved in the patient's care.***

Why Adopt EHRs? (1 of 2)

- **Providers who use EHRs report tangible improvements in their ability to make better decisions with more comprehensive information. EHR adoption can give health care providers:**
 - Accurate and complete information about a patient's health
 - The ability to quickly provide care
 - The ability to better coordinate the care they give
 - A way to share information with patients and their family caregivers

Why Adopt EHRs? (2 of 2)

□ EHRs can also

- Flag potentially dangerous drug interactions (to help prescribing doctors explore alternatives before a problem occurs)
- Verify medications and dosages (to ensure that pharmacists dispense the right drug)
- Reduce the need for potentially risky tests and procedures

EHRs: Epidemiology, Treatment, and Public Health

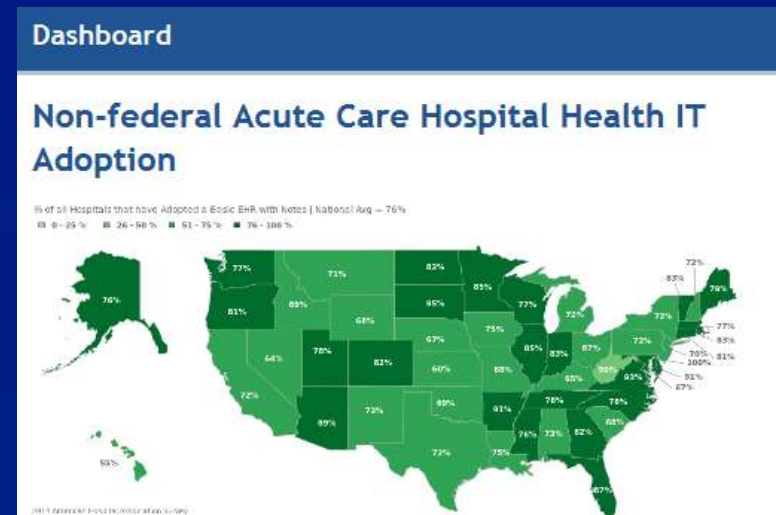
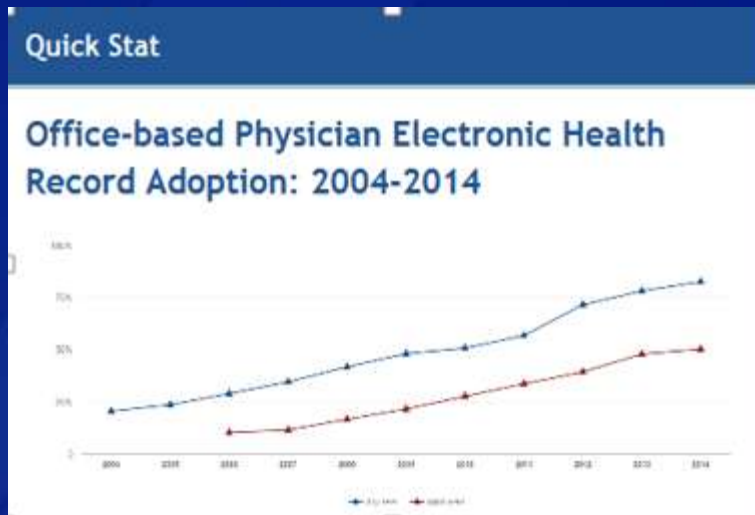
- ❑ Real-time reporting is now possible
- ❑ Reporting can include comorbid conditions with current health status and history
- ❑ Screening history, education, and reminders can be included
- ❑ Precision Medicine cohort initiatives are now being funded by directly accessing EHRs for improvements to treatment
- ❑ *Big Data analytics projects are also being funded using aggregate data from EHRs

EHR Adoption

- ❑ According to the Office of the National Coordinator (ONC) Health IT Dashboard, as of 2014, 83% of office-based physicians and 76% of hospitals have adopted EHR systems.
- ❑ Since 2008, the adoption of any EHR system has nearly doubled for both.
- ❑ If trends continue, nearly all health care providers may adopt an EHR in the next 5 years.

ONC Health IT Dashboard

- ❑ <http://dashboard.healthit.gov/index.php>
- ❑ The Health IT Dashboard is developed and maintained by the ONC. The Dashboard provides access to analysis, research, public datasets, and more on health IT and ONC programs.



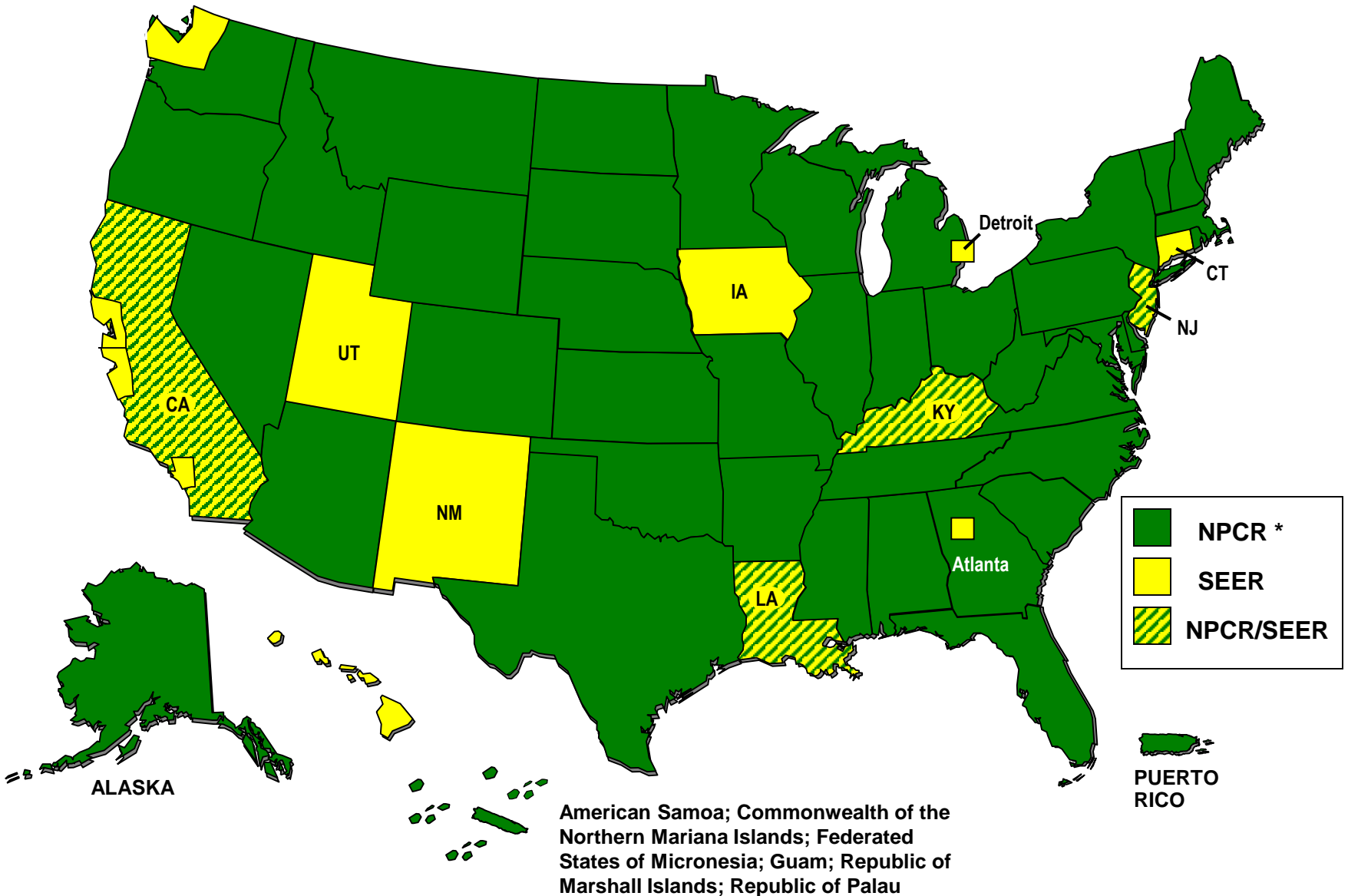
Are all EHR Systems the same?

- ❑ No, EHR systems are not the same**
- ❑ Each EHR vendor may collect and store data elements any way they want**
- ❑ EHR design may differ due to different workflows**
- ❑ These vendors may not collect the same data elements and the granularity may differ by EHR**
- ❑ How can EHR standardization of data collection and reporting be achieved?**
- ❑ Promote interoperability standards for data reporting**

Cancer Surveillance Overview

- ❑ **1992 Cancer Registry Amendment Act, Public Law 102-515, authorized CDC to establish NPCR**
 - Worked with states to develop model legislation and regulations
- ❑ **Cancer is a nationally reportable disease**
- ❑ **Collect data on all cancers diagnosed**
- ❑ **Highly standardized data collection system**
 - Coordinated across multiple agencies (CDC, National Cancer Institute, and American College of Surgeons Commission on Cancer) through North American Association of Central Cancer Registries (NAACCR)
- ❑ **All States have laws that require reporting of cancer data to public health**

National Cancer Surveillance



*National Program of Cancer Registries (CDC)

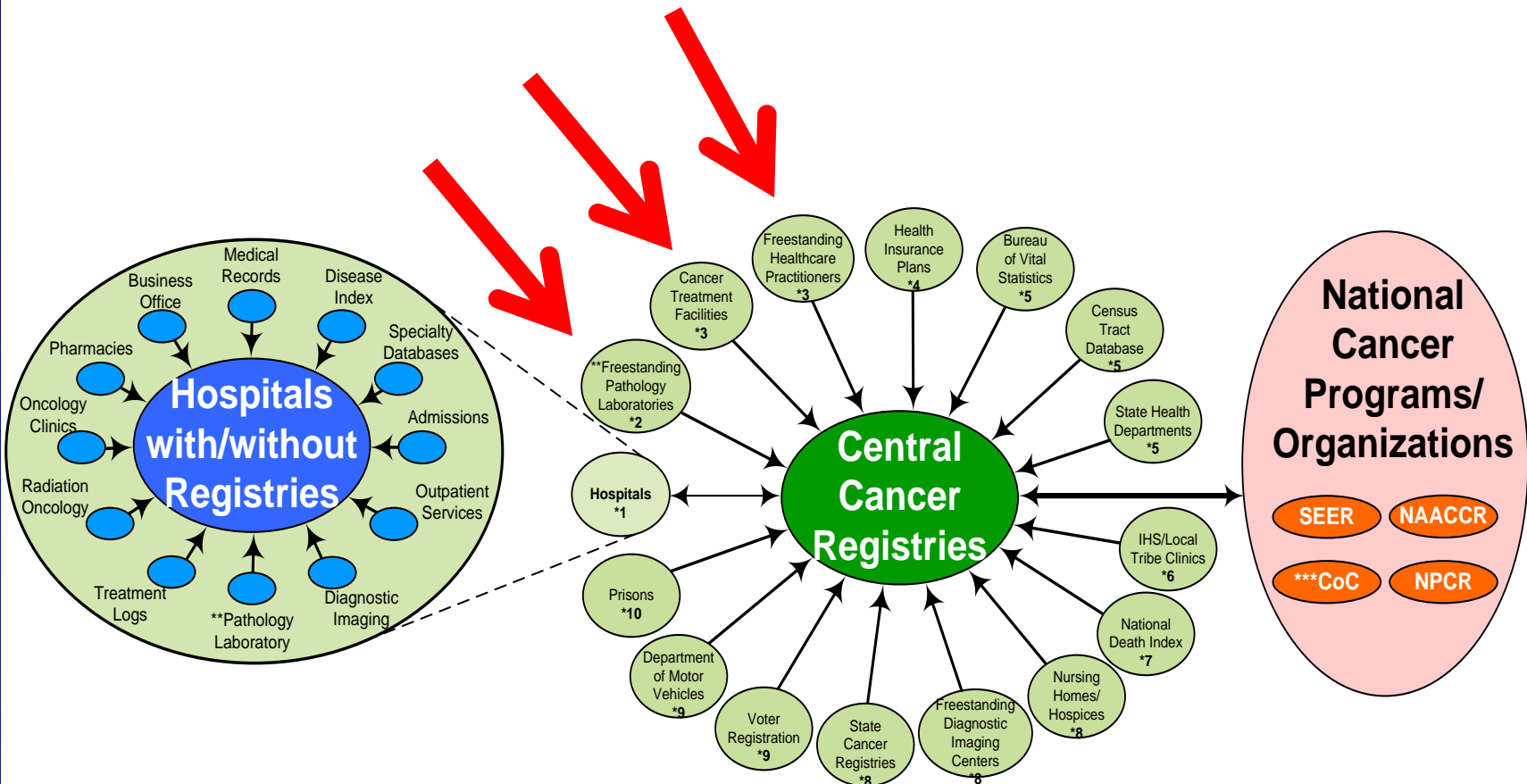
†Surveillance, Epidemiology, and End Results Program (NCI)

Cancer Surveillance

- ❑ Regional, state and territorial Central Cancer Registries (CCRs) are data systems that collect, manage, and analyze data about cancer cases and cancer deaths**
- ❑ Cancer surveillance is a complex system that captures longitudinal data from multiple data sources using a variety of methods**
- ❑ In addition to recording the occurrence of each reportable cancer (or tumor), the reporters provide information to CCRs on the diagnosis, treatment and vital status**
- ❑ Legislation requiring cancer reporting by healthcare providers to state cancer registries exists in all states with some variation in specific requirements**

NPCR – AERRO Scope Diagram

Version 1.0
Revised 12-11-2008



NPCR-AERRO includes cancer data sources and the lines drawn to the Central Cancer Registries and the National Cancer Programs

Numbers rank the data sources on the quality of useful data available on a scale of 1 being the most useful and 10 being the least useful.

*Pathology Laboratories-Freestanding and Hospital-send data to both the Hospital Registries and the Central Cancer Registries

**CoC receives data directly from hospitals.

Physician Reporting: The Problem

- ❑ Traditional data collection for central cancer registries has been primarily from hospitals and anatomic pathology laboratories**
- ❑ As medical advances have occurred, diagnosis and treatment of certain cancers has moved from the acute care setting to being fully cared for within the physician/clinic office.**
- ❑ Because cancer registries have had difficulties getting some physicians to actively report cancer cases, under-reporting or a delay in reporting occurs.**
- ❑ Incidence rates and research are adversely affected by the incomplete data collection.**

Health Care Provider Reporting from Electronic Health Record (EHR) systems

- ❑ **Goal: Implement electronic reporting from clinic and physician office EHRs to central cancer registries (CCRs) using national standards for data exchange, data transmission, and data processing**

- ❑ **Main Objectives:**
 - Improve reporting of cases often missed by traditional reporting sources and obtaining more complete treatment data
 - Reduce health care provider burden to comply with legally mandated cancer reporting at the state and territorial level
 - Focus on vendors and health care providers to implement

Meaningful Use of Electronic Health Records

- ❑ **Established by American Recovery and Reinvestment Act (ARRA) of 2009**
- ❑ **Meaningful Use represents providers' use of certified EHR technology to:**
 - Improve quality, safety, efficiency, and reduce health disparities
 - Engage patients and families in their health care
 - Improve care coordination
 - Improve population and public health
 - All while maintaining privacy and security
- ❑ **Two main parts:**
 - Criteria/objectives for providers to meaningfully use their EHRs (CMS)
 - Requirements for EHR vendors to provide the certified technology (ONC)
- ❑ **Providers**
 - Eligible Hospitals (EH) and Critical Care Hospitals (CAH)
 - Eligible Professionals (EP)

Cancer Reporting in Stage 2 Meaningful Use Final Rule

- ❑ **CMS Stage 2 Menu objective for Eligible Professionals:**
 - Capability to identify and report cancer cases to a State cancer registry, except where prohibited, and in accordance with applicable law and practice.

- ❑ **ONC 2014 Edition EHR Certification Criteria:**
 - Optional---ambulatory setting only—transmission to cancer registries. EHR technology must be able to electronically create cancer case information for electronic transmission in accordance with the *Implementation Guide for Ambulatory Healthcare Provider Reporting to Central Cancer Registries, HL7 Clinical Document Architecture (CDA)*

- ❑ **Implementation began January 2014**

Cancer Reporting in Stage 3 Meaningful Use Final Rule

- ❑ **Medicare and Medicaid Programs: Electronic Health Record Incentive Program--Stage 3 and Modifications to Meaningful Use in 2015 through 2017**
 - 2015-2017 (Modification Years): Cancer reporting by EPs under Specialized Registries objective
 - 2018 (Stage 3): Cancer reporting by EPs under Public Health Registry Reporting
- ❑ **2015 Edition Health Information Technology Certification Criteria...**
 - HL7 Implementation Guide for CDA© Release 2: Reporting to Public Health Cancer Registries from Ambulatory Healthcare Providers Release 1 or “HL7 IG Release 1

Rationale for Cancer Reporting in MU

- ❑ **Cancer surveillance community increasingly concerned with under-reporting of cases diagnosed in ambulatory care setting**
 - Missed cases, especially certain specialties and cancer types
 - Treatment information often under-reported
- ❑ **Reduce healthcare provider burden to comply with legally mandated cancer reporting at the state and territorial level**
 - MU incentive program provides resources for implementers
 - Automation of cancer registry reporting
- ❑ **Priorities: vendors and providers focus on MU requirements**
 - Physician offices want cancer reporting capability
 - MU incentives drive development and uptake

Cancer Registry Readiness

- ❑ **Ability to leverage existing EHR data exchange efforts**
- ❑ **Cancer community has a well-established SINGLE national data standard for case reporting that has been agreed upon and used by all state cancer registries for over fifteen years**
- ❑ **Support within cancer registry community**
- ❑ **eMaRC Plus, CDC-developed, freely available software, receives and processes documents from EHRs**
- ❑ **State Cancer Registries have been receiving electronic pathology reports (HL7 2.3.1 and 2.5.1)**

Pathology Reporting in Cancer Registry

- ❑ **Most cancer diagnoses (over 90%) rely on a pathology report to define that diagnosis**
- ❑ **Increasing number of cancers diagnosed in doctor's offices or other settings rather than in hospitals**
 - Increasing number of pathology reports originate from independent pathology labs
 - Paper based reports
 - Inconsistent reporting of cases to state central registries by physician's office or independent lab

Electronic Laboratory Reporting

- ❑ **Narrative Report – traditional pathology report**
 - College of American Pathologists (CAP) accredited laboratories are required to report specific information in the report
 - Use Natural Language Processing techniques and algorithms to capture valuable data from text

- ❑ **Synoptic Report – CAP electronic Cancer Checklists**
 - Discrete pathology data available in standard coded format

- ❑ **Biomarker Report – CAP electronic Cancer Checklists**
 - ❑ Currently no standards exist for reporting biomarker data

Pathology Reports

- ❑ **Narrative Reports - Collaborate with national laboratories to:**
 - Use standard transmission format: North American Association of Central Cancer Registries Volume V: Electronic Pathology Reporting Guide ~ (HL7 2.3.1 or 2.5.1)
 - Establish filter method to identify cancer cases to report ~ use ICD-10-CM code list that all states agree to
 - Use Public Health Information Network Messaging System (PHINMS) for secure message transport
- ❑ **Synoptic Reports – Collaborate with College of American Pathologists to develop standard reporting templates**
 - Templates implemented in hospital laboratories; expanding implementation to independent laboratories

College of American Pathologists (CAP) Template Development

- ❑ **Form expert panel**
- ❑ **Review evidence and current recommendations (e.g., ASCO, NCCN)**
- ❑ **Draft standardized, structured report templates modeled after the CAP Cancer Protocols**
 - Report template to include results and methods
 - Explanatory Notes
- ❑ **Expert review**
- ❑ **Open public comment period**
- ❑ **Publish and maintain**
 - http://www.cap.org/web/home/resources/cancer-reporting-tools/cancer-protocol-templates?_afzLoop=1464991381627942#%40%3F_afzLoop%3D1464991381627942%26_a df.ctrl-state%3Dxq0fbhntp_4

Challenges with Reporting Biomarker Data

- ❑ **Lack of standardization (inconsistent terminologies, test names, etc. used across laboratories)**
- ❑ **Differences in what is included in the reports (genes tested, probes used, qualitative data, quantitative data, etc.)**
- ❑ **Time delay between diagnosis and molecular test results**
- ❑ **Difficulties in aggregating and analyzing data due to**
 - Disparate reporting practices
 - Lack of structured data

NPCR Current activities (1 of 4)

□ CDC NPCR conducts communications with stakeholders:

- Monthly Collaboration calls with state cancer registries and EHR vendors
- Monthly electronic Pathology (ePath) WG calls with state cancer registries and laboratories
- Weekly technical assistance calls with individual laboratories to address reporting issues
- Bi-monthly State Cancer Registry Physician Reporting WG
- Bi-monthly calls with individual EHR vendors and registries to address vendor-specific issues
- CDC NPCR holds MU Town Hall Meetings
- NPCR Meaningful Use and ePath web sites; updated as needed

NPCR Current activities (2 of 4)

- ❑ **CDC NPCR provides software applications to states for receiving and processing laboratory and physician reports**
 - eMaRC Plus – most recent version with bug fixes and enhancements for ePath and physician modules released in November 2015
 - ePath module first released in September 2006
 - Physician module first released June 2014
 - CDA Validation Plus performs structural and content validation of physician reports
 - First released November 2013
 - Most recent version with bug fixes and enhancements released in November 2015

NPCR Current activities (3 of 4)

- ❑ **CDC NPCR and cancer registry community develop guidance documents, templates, and other communications to assist state cancer registries, EHR vendors, and providers in preparing for Meaningful Use cancer reporting**
- ❑ **CDC NPCR and cancer registry community review and agree upon filtering criteria for pathology laboratory reporting**
- ❑ **CDC NPCR participates in CDC MU Technical Assistance Team**
 - Responds to questions from EHR vendors, providers, and state cancer registries

NPCR Current activities (4 of 4)

- ❑ CDC NPCR participates in Stage 2 and 3 MU PH Reporting Requirements Task Force**
- ❑ Work with national stakeholders to standardize biomarker test data across laboratories**
- ❑ Work with College of American Pathologists (CAP) and PathGroup to implement standard pathology and biomarker reporting templates**
- ❑ Work with Office of the National Coordinator for Health IT to test implementation of:**
 - Integrating the Healthcare Enterprise (IHE) Structured Data Capture (SDC) Profile**
 - HL7 Fast Healthcare Interoperability Resources (FHIR) Structured Data Capture (SDC) Profile**

State Current Activities

- ❑ State cancer registries declared their intent to receive physician reports for MU starting in 2013
- ❑ January 2014: state cancer registries began onboarding providers
 - Registries work with providers and vendors to validate test and real data
 - Once sufficient real data are determined to be valid by the registry, they can begin production reporting with the provider
- ❑ CDC NPCR provides significant support to states for Stage 2 MU cancer reporting and laboratory reporting
 - Technical assistance in interpreting reports and validation issues
 - Training
 - Coordinated communications with laboratories, EHR vendors and providers
 - Respond to process/implementation questions

Lessons Learned

- ❑ **Collaboration and lessons learned from other public health programs: Immunization Registries, ELR and Syndromic Surveillance**
- ❑ **Mature and ready standards (NAACCR Volume II, NAACCR Volume V, HL7 2.5.1, HL7 CDA)**
- ❑ **Laboratory, vendor and cancer registry outreach**
- ❑ **Pilot testing through Comparative Effectiveness Research (CER) and Patient Centered Outcome Research (PCOR) projects was key**
- ❑ **Setting up responsive Technical Assistance**
- ❑ **Communications are KEY:**
 - **Web content updates, tools, software, guidance documents, Town Hall meetings, technical assistance calls**

Success Stories

□ Meaningful Use Physician Reporting

- In FY 2016, at least 16 registries (35% of all registries) electronically received physician cancer reports from EHRs
- 42 EHR vendors (132 total products) certified for Stage 2 cancer reporting criteria
- At least 43 state cancer registries declared readiness and developed registration of intent processes

□ Pathology Reporting

- 18 state cancer registries began receiving electronic narrative pathology reports in 2006 from LabCorp; currently 40+ state cancer registries receiving data from 20+ laboratories; implementations continue...
- State cancer registries will begin receiving electronic synoptic CAP eCC pathology and biomarker reports in 2016 from PathGroup Laboratories

Cancer programs can leverage EHR Data to...

- ❑ **Meet surveillance requirements**
 - Data completeness
 - Improve data quality
 - Timeliness
- ❑ **Inform development of public health guidelines**
 - Appropriate use of screening and diagnostic tests
 - Recommendations for effective treatments
- ❑ **Monitor screening (Breast & Cervical, Colorectal, etc.)**
 - Use existing MU standards to define structure and content
 - Use existing pathology and/or electronic laboratory reporting standards

Take Home Message for Success...

- ❑ Clearly define the problem**
- ❑ Identify, recruit, and COLLABORATE with stakeholders**
- ❑ Be willing to give and take in order to reach consensus**
- ❑ Find a champion**
- ❑ Be at the table and make your voice heard**
- ❑ Review and use nationally adopted standards and tools when possible – Get your community standards on the table for national consideration**
- ❑ Complete pilot implementations**
- ❑ Leverage national initiatives to encourage and support broad implementation**

Thank you!

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