National Program of Cancer Registries

Electronic Pathology (ePath) Reporting

The CDC's National Program of Cancer Registries (NPCR) was established in 1992 through the enactment of the Cancer Registries Amendment Act. Section 301 of the Public Health Service Act [42 U.S.C. 241] authorized NPCR to fund central cancer registries (CCRs) in 46 states, the District of Columbia, Puerto Rico, the U.S. Pacific island jurisdictions, and the U.S. Virgin Islands to collect cancer data to measure progress, drive action, prevent cancers, and improve treatment for all people.

Pathology Standards

Medical facilities such as hospitals, doctor's offices, and pathology laboratories send information about cancer cases to CCRs. Because most cancers are first diagnosed by histology, CCRs often rely on laboratories to submit pathology reports that identify cancer cases and the type of cancer diagnosed.

The North American Association of Central Cancer Registries (NAACCR) community developed a standard electronic format for reporting cancer pathology data to all CCRs. This standard is known as the **NAACCR Pathology Laboratory Electronic Reporting, Volume V**. The NAACCR Volume V Standard is based on the Health Level Seven (HL7) Observational Report – Unsolicited (ORU) message structure. Implementation of this standard has moved the CCR community toward a more structured and timely reporting format. However, the traditional narrative pathology report remains largely as unstructured text organized into different sections of the report. This requires CCRs to manually review the reports or to rely on natural language processing models to identify terms within the text to automate standardized coding to the reports, so that data usable for surveillance and research activities. Over the past two decades, the College of American Pathologists (CAP) developed detailed guidelines for creating complete standardized pathology reports for cancer cases, known as the CAP Cancer Protocols (CPs). There has been widespread use of the CPs in laboratories and/or cancer centers due to the accreditation requirement for CAP and the American College of Surgeons Commission on Cancer (CoC). There are CAP CPs available for use in documenting biopsies, resections, and biomarkers. The NAACCR Volume V Standard includes guidance on reporting the electronic CP (eCP) structured reports.

The CDC provided resources to incorporate SNOMED CT codes into the eCPs for all questions and answers, to create system computable eCPs that can be consumed by any healthcare system. The use of **SNOMED CT encoded eCPs**, storage of discrete data, and reporting discrete coded cancer pathology data from laboratories to CCRs and electronic health record (EHR) systems will improve the quality, completeness, and timeliness of cancer data available for patient care, cancer surveillance and research activities. To align with the Office of the National Coordinator Cures Act Final Rule, the CDC worked with the Lantana Consulting Group, CAP, NAACCR, and HL7 to develop the **HL7 FHIR Cancer Pathology Data Sharing and SDC/eCC-on-FHIR Implementation Guides**. This guide promotes the collection and exchange of structured cancer pathology data, provides the data model, and defined data items with codes and value sets.

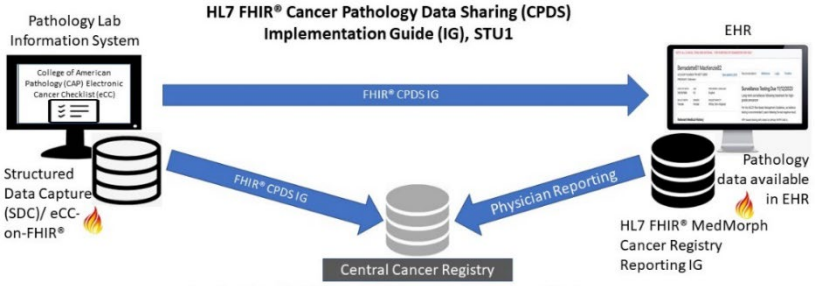


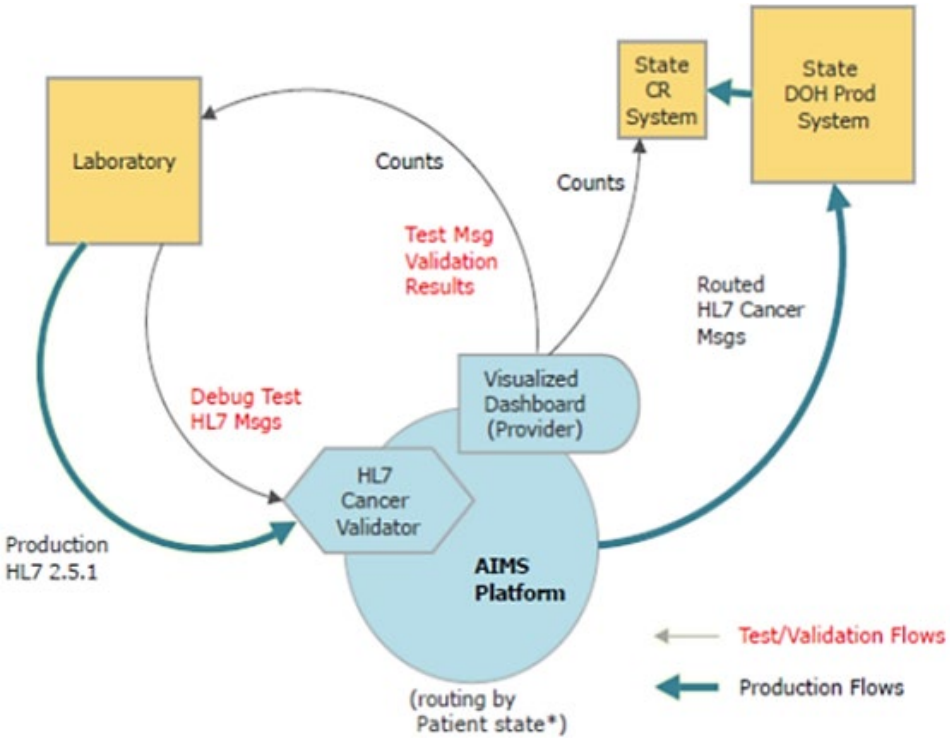
Figure from: https://build.fhir.org/ig/HL7/cancer-reporting/background.html

Secure Data Exchange

Since 2005, CDC has worked with national and regional laboratories to implement standardized electronic pathology (ePath) reporting of cancer cases to CCRs using the NAACCR Volume V Standard. A separate connection was needed between each laboratory and each registry to send the information securely. This process became very time and resource intensive, which was not sustainable.

Association of Public Health Laboratories (APHL) Informatics Messaging Services (AIMS)

In 2018, NPCR began a project with the Association of Public Health Laboratories (APHL) to implement ePath reporting from laboratories to CCRs using their secure cloud-based platform, known as APHL Informatics Messaging Services (AIMS). Many health care providers use the AIMS platform to report infectious diseases to public health agencies. NPCR staff made it possible for laboratories to send cancer pathology reports to the AIMS platform instead of directly to CCRs. This way, laboratories only need one connection to send cancer data to registries securely. The AIMS platform checks the reports for errors before sending them to the appropriate registries automatically. Laboratories send reports daily to the AIMS platform. As of September 2023, 35 laboratories send cancer pathology data daily from 157 Clinical Laboratory Improvement Amendments (CLIA)-certified laboratory facilities to all 50 state CCRs and the District of Columbia. The AIMS platform has standardized and streamlined real-time cancer pathology reporting to CCRs.



Tools Available to Report and Process Pathology Data

Electronic Mapping, Reporting, and Coding (eMaRC) Plus

eMaRC Plus was developed by its intended users—CCRs—and programmed by CDC's Registry Plus Development Team. The application includes modules for ePath and physician reporting and is free. The **ePath module** imports and processes cancer pathology reports (narrative and eCPs) that are received in the NAACCR Volume V Standard format. eMaRC Plus processes both narrative and eCP (synoptic) reports that follow the NAACCR Volume V structure. The eMaRC Plus ePath Module checks the files for structural errors, parses data from the HL7 messages, and maps data elements to the cancer registry database. For narrative reports, the tool uses rule-based natural language processing to filter out reportable cancer cases and autocode the tumor histology, primary site, laterality, and behavior. The eCPs codes are mapped to the central cancer registry database with no additional coding required. NPCR is developing a cloud version of eMaRC Plus that will provide the same functionality and additional functionality to process the cancer pathology data received in accordance with the HL7 FHIR Cancer Pathology Data Sharing IG.

eMaRC Plus Lite

Due to a lack of coded results in Laboratory systems, identifying cancer cases that must be reported is a challenge. NPCR has developed a tool for use in the laboratory environment to flag specific cancer pathology reports that meet the criteria for state reporting mandates.

Email the Cancer Informatics Help Desk at CancerInformatics@CDC.GOV for more information on these topics.