Improving Demographic Information in Electronic Pathology Reports – Taking Advantage of Hospitals' Admission, Discharge, and Transfer Data as Seen in the ECC Study

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Outline

- ECC Study, PYAC continuing grant background
- Strategies for ADT use in ECC
- E-Path and ADT
- Clinical Cases: ECC relevance
- Clinical Cases and ADT
- Conclusions
- Acknowledgements

ECC-CDC Study

- Funded by CDC in response to the Caroline Pryce Walker Conquer Childhood Cancer Act (2008)
- Initially funded for 3 years (9/30/2011 – 9/29/2014);
- Continuation grant (DP14-1402) through September 2018 to expand on previous accomplishments

Pediatric Early Case Capture

ECC Study Goals

- Build/enhance infrastructure of central registries funded by NPCR to track epidemiology of pediatric malignancies
  - CA, KY, LA, MN, NE, NY, OK – 7 registries
- Facilitate rapid reporting to ascertain incident cases within 30 days of diagnosis with ECC minimum data items
- Increase availability of pediatric data for public awareness and data use

E-Path and ADT

- LTR continues to receive a large percentage of E-Path reports, 92% of reportable cases have at least one E-path report.
  - **Key Demographics are often missing from E-Path**
- LTR worked with AIM to tap the E-Path interface into hospital ADT feeds
  - Implemented at four healthcare facilities where a large proportion of ECC E-Path reports had missing demographics

Strategies using ADT to Improve Timeliness and Completeness in ECC

1. Improve timeliness of ECC data by implementing E-path reporting
2. Improve quality of data by using ADT to supplement E-path demographics
3. Improve completeness of data by identifying clinically diagnosed cases using ICD-9 codes in ADT feeds.

- Preliminary results from three of four facilities where the ADT module was implemented showed a significant reduction in missing demographic information in E-Path reports

Proportion E-Path with Missing Demographic Information at 3 Major ECC Facilities		
Demographics	**% Unknown Before ADT**	**% Unknown After ADT**
Race	*21%*	*4%*
Address at Dx	*27%*	*5%*
SSN	*24%*	*10%*

*Proportions include CHNO, OMC, and TRMC as of March 2016

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E-Path ADT Module Advantages

- ADT feed increases “real time” completion of PYAC variables (address, race) on pathology reports
- Missing demographic variables added to E-Path in an automated fashion
- Major Children’s Hospital in New Orleans (CHNO) greatly reduced unknowns

Children’s Hospital New Orleans Proportion E-Path with Missing Demographic Information		
Demographics	**% Unknown Before ADT**	**% Unknown After ADT**
Race	*88%*	*15%*
Address at Dx	*100%*	*2%*
SSN	*47%*	*36%*

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- Sustainable method that requires no additional cost/effort after AIM’s installation of the ADT module

AIM ARTIFICIAL INTELLIGENCE IN MEDICINE INC.
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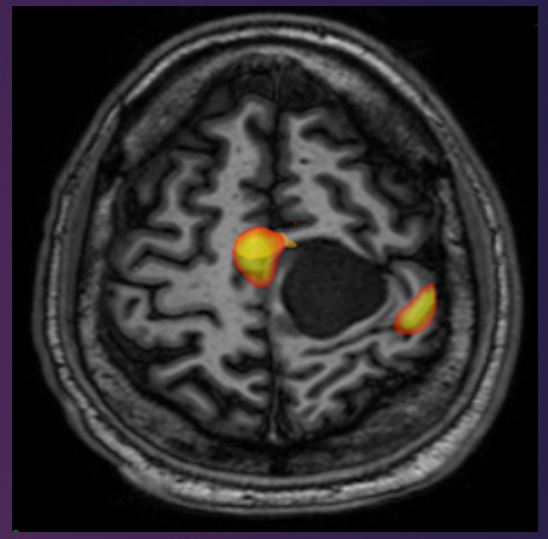
E-Path ADT Module Future Implementation

- Can be implemented at any hospitals that has already installed an AIM E-Path interface for a one time fee
- Eight additional facilities with an existing AIM E-Path installation have been identified to implement an ADT module as a part of the ECC study

Clinically Diagnosed Cases

- Still a challenge for timeliness
  - No pathology report at initial diagnosis
    - Subsequent biopsy/surgery (E-Path) occurs months to years after initial clinical diagnosis date
  - Nature of some CNS tumors allows “watchful waiting” to be a valid treatment option
    - 29% of LA ECC cases are CNS (286/999)*
  - Children outside of New Orleans metropolitan area, often referred out of state (SJCRH, MD Anderson), further delaying reporting of these cases



MRI showing benign brain tumor activity

*PYAC Cases (<20 years) diagnosed 2012-2016 as of 5-30-16

ADT and the Identification of Clinical Cases

- Hospital ADT feeds are scanned automatically for relevant ICD-9 codes and a message is sent to the LTR on a monthly basis
  - Receive from 4 hospitals with existing AIM E-Path and ADT module (at no additional cost)
- Possible cases not in the registry database are then further investigated through hospital EMRs

ADT and Clinical Cases: Challenges

- Some delays in ICD code messages with facility conversion from ICD-9 to ICD-10 codes
  - Now resolved
- Requires manual follow up to confirm clinical diagnoses that can be time consuming
  - May have limited use outside of ECC study
- Not yet implemented at facilities without AIM E-Path
  - LTR is working with CNExT to tap into ADT feeds to id clinically cases at facilities that already have CAS (cancer alert system) software installed. A test message was verified.

Conclusions and Moving Forward…

- Beyond ECC
  - Supplementing E-Path reports with data from ADT significantly improves patients' demographics in reports
    - Improves registry wide data (not just ECC cases)
    - No additional recurring cost after the infrastructure is in place.
  - Using the ADT feed to identify clinical cases has potential relevance in rapidly capturing PYAC cases because many are initially diagnosed solely through images/scans, making them difficult to identify in a timely fashion using traditional case-finding methods

Beyond ECC

- ADT ICD-9 codes for clinical case-finding
  - this requires time consuming additional medical record follow up by registry personnel
  - Labor intensive, may not be feasible outside of ECC

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- **Disclaimer:**
  - The findings and conclusions of this presentation are those of the authors and do not represent the official position of CDC or LSU.

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Questions?

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