LESSONS LEARNED IN IMPLEMENTING E-PATH REPORTING IN LOS ANGELES

Cancer Informatics Workshop
NAACCR Annual Meeting
Toronto, Ontario
June 9, 2002
WHAT’S E-PATH?

Computerized selection of cancer-related pathology reports from among electronic files of all pathology reports.
WHY E-PATH?

Cancer surveillance
- Completeness
- Efficiency (time and content)
- Confidentiality

Research
- Rapid patient contact
  - Minimize recall loss
  - Minimize loss to morbidity/mortality
  - Increasingly required by funding agencies
HOW DOES IT WORK?

Pretty much like a human...

- Text string search
- Comparison with “dictionary” of reportable terms
- Select or not
a) Data extraction and formatting.

b) Automatic determining which reports to send.

c) Automatic transferring data from the laboratory to the CSP.

d) Recording submitted reports in a database.

e) Performing a QA review of submitted reports.

f) Consolidating data into the Cancer Registry.
THE LOS ANGELES EXPERIENCE

Selecting a reporting facility

- Large volume
  - Variety of path reports
  - Bang-for-the-buck
- IT capacity
- Commitment to cancer registry
City of Hope National Medical Center
- Research institution with cancer focus; rare and referral cases
- Large volume
- Dr. Joyce Niland, Chair, Information Sciences
- Ina Ervin, CTR, senior cancer registrar
THE LOS ANGELES EXPERIENCE

- Initial meeting between CSP and COH
  - Cancer reporting regulations
  - Historical case finding process
  - Technical process
  - Security issues
THE LOS ANGELES EXPERIENCE

- IRB approval to release entire COH pathology file to CSP for performance evaluation
THE LOS ANGELES EXPERIENCE

- Subsequent meeting with CSP, COH and technical partners Artificial Intelligence in Medicine, Inc. (AIM)
The Big Test: Manual Casefinding vs. E-path

<table>
<thead>
<tr>
<th></th>
<th>Manual Review</th>
<th>ISIS E-Path</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Cancer</td>
<td>No Cancer</td>
</tr>
<tr>
<td>Cancer</td>
<td>1,771</td>
<td>2</td>
</tr>
<tr>
<td>No Cancer</td>
<td>856</td>
<td>4,072</td>
</tr>
<tr>
<td>Total</td>
<td>2,627</td>
<td>4,074</td>
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Reportable selection rate = $\frac{1,771}{6,701} \times 100 = 26.4\%$

Sensitivity = $\frac{1,771}{1,773} \times 100 = 99.9\%$

Specificity = $\frac{4,072}{4,928} \times 100 = 82.6\%$
ISSUES

- Time
  - Calendar
    - Approvals
      - Cancer committee
      - Pathology committee
      - Legal
      - IT
  - Work
ISSUES

- False negatives
  - Nearly zero
ISSUES

False positives

- Impossible to avoid?
- Some are valuable for registry follow-up
ISSUES

Cost/benefits

- Costs
  - Software
  - Installation
  - Support
    - Contractor
    - Registry
- $10,000–20,000 first year?
- $4,000–10,000 subsequent years?
ISSUES

- Cost/benefits
  - Cost benefits
    - Elimination of human screener
    - In LA, both CSP and hospital personnel
    - Large hospital, CSP tech 50% effort
      - ~$20,000 salary, fringe, travel
    - Hospital similar?
ISSUES

- Non-pathologic diagnoses
  - 4% of LA cases are not pathologically confirmed
ISSUES

- Confidentiality/security
  - No transportation of hard copies
  - Vastly reduced visualization of non-cancer
  - Non-hospital staff not at facility
ISSUES

- **Speed**
  - Current RCA 40 days
  - Overnight!


Update/audits

- How often?
- How?
ISIS–Registrar™

- Component of the E-Path™ system of computerized case finding and electronic pathology reporting.

- Allows hospital registrars to review selected pathology and control the exchange of data with cancer registries or other systems.
Pathology Report

Pathology No.: 200H991827
Report Date: 2001-Sep-12
Report Type: Final
Procedure Date: 2001-Sep-10
Pathologist: 112871 SMITH, John
Requestor: 182777 DOE, John

Patient Identification

Chart/ARN: 01-2839
Submitted: SANTIAGO
Given Name: Sample
Sex: Male
Date of Birth: 1956-May
Age: 45 yrs
Insurer: AET
Insurance No: 1827-1119-1928

Clinical Information: Right brain tumor - history of lung carcinoma

Tissue Submitted:
A) Right brain tumor biopsy
B) Right brain tumor biopsy

DIAGNOSIS:
NODULAR MASS OF BRAIN TUMOR (DESIGNATED RIGHT SIDE)
METASTATIC MUCINOUS ADENOCARCINOMA.

Gross Pathology:
A single nodular wedge of firm tan/yellow tissue measuring 2.0 cm x 1.2 cm.
Representative sections submitted as A and B.

Microscopic:
Sections indicate a sharply demarcated neoplastic mass composed of infiltrating
neoplastic cells in a variably myxoid or mucinous background. There is incomplete
surrounding layer of cerebral cortex and florid tissue exhibiting chronic inflammation
and hemorrhage. Tumor exhibits focal necrosis and is composed of unorganized
islands of crowded epithelial cells with variable quantities of vacuolated cytoplasm.
ISIS-Registrar™

- Automatically alerts registrar about new cancer findings.
- Displays cancer pathology reports for review.
- Controls the release of data to cancer registries.
- Allows registrar to discard reports selected in error.
- Integrates with external cancer abstracting systems.
Workstation Requirements:
- Intel PC 233 MHz (or better)
- 32 MB RAM (or better)
- Windows 98, NT, 2000 or XP
- 1024 x 768 color display
- TCP/IP Networking

ISIS-Registrar Includes:
- Online Help
- User Manuals
- Comprehensive Technical Support
- Upgrade Warranty
Funded by:

- Centers for Disease Control and Prevention
- National Cancer Institute
- California Department of Health Services: California Cancer Registry
- Los Angeles Cancer Surveillance Program