Reporting of Pathology Protocols (RPP) for Colon and Rectum Cancers

Ken Gerlach, MPH, CTR
Cancer Surveillance Branch
Division of Cancer Prevention and Control

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Importance of Pathology Data for Cancer Registries

- > 90% cancer histologically-confirmed in anatomical pathology laboratories
- Key for timely and complete data
- Rapid reporting capabilities
  - For cancers of special interest

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

College of American Pathologists (CAP)

- CAP Cancer Committee published the "Reporting on Cancer Specimens Protocols and Case Summaries" - April 1999
- Purpose – "to aid the surgical pathologists with completeness, accuracy, and uniformity in the reporting of malignant tumor specimens"
- The cancer protocols - site-specific
- The associated checklist - synoptic format

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Commission on Cancer (COC) Endorsement

- The American College of Surgeons COC endorsed –
- All hospitals with an approved COC cancer program are required to use these protocols
- Starting with cancer diagnosed on January 1, 2004

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Colon and Rectum Cancer Checklist

Colon and Rectum

Protocol applies to all invasive carcinomas of the colon and rectum. Carcinoid tumors, lymphomas, sarcomas, and tumors of the vermiform appendix are excluded.

Protocol revision date: January 2004

Based on AJCC/UICC TNM, 6th edition

Procedures

- **Incisional Biopsy (No Accompanying Checklist)**
- **Excisional Biopsy, Polypectomy**
- **Local Excision (Transanal Disk Excision)**
- **Segmental Resection**
- **Rectal Resection (Low Anterior Resection; Abdominoperineal Resection)**

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Colon and Rectum Cancer Checklist

COLON AND RECTUM: Polypectomy

Patient name:

Surgical pathology number:

Note: Check 1 response unless otherwise indicated.

MACROSCOPIC

Tumor Site

___ Cecum
___ Right (ascending) colon
___ Hepatic flexure
___ Transverse colon
___ Splenic flexure
___ Left (descending) colon
___ Sigmoid colon
___ Rectum
___ Not specified

CDC
Centers for Disease Control and Prevention

Colon and Rectum Cancer Checklist

Histologic Type

___ Adenocarcinoma
___ Mucinous adenocarcinoma (greater than 50% mucinous)
___ Medullary carcinoma
___ Signet-ring cell carcinoma (greater than 50% signet-ring cells)
___ Small cell carcinoma
___ Undifferentiated carcinoma
___ Other (specify): _____
___ Carcinoma, type cannot be determined

Histologic Grade

___ Not applicable
___ Cannot be determined
___ Low-grade (well to moderately differentiated)
___ High-grade (poorly differentiated to undifferentiated)

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Colon Final Diagnosis – Text Narrative

DIAGNOSIS:

Colon, right, segmental incision to include appendix and ileum:

Mucinous adenocarcinoma invading through the bowel wall into the pericolonic adipose tissue.

Margins are free of tumor.

Benign appendix.

All of twenty-two lymph nodes are free of tumor.

TNM stage pT3 pNO pMX

SNOMED CT Encoded CAP Checklist

MACROSCOPIC ***[F-048D6, 395526000] Macroscopic specimen observable (observable entity)***

TUMOR SITE ***[R-0025A, 371480007] Tumor site (observable entity)***

- ___ **Cecum** ***[T-59100, 32713005] Cecum structure (body structure)***
- ___ **Right (ascending) colon** ***[T-59400, 51342009] Right colon structure (body structure)***
- ___ **Hepatic flexure** ***[T-59438, 48338005] Structure of right colic flexure (body structure)***
- ___ **Transverse colon** ***[T-59440, 485005] Transverse colon structure (body structure)***
- ___ **Splenic flexure** ***[T-59442, 72592005] Structure of left colic flexure (body structure)***
- ___ **Left (descending) colon** ***[T-59450, 55572008] Left colon structure (body structure)***
- ___ **Sigmoid colon** ***[T-59470, 60184004] Sigmoid colon structure (body structure)***
- ___ **Rectum** ***[T-59600, 34402009] Rectum structure (body structure)***
- ___ **Not specified** ***[T-59000, 14742008] Large intestinal structure (body structure)***

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

SNOMED CT Encoded CAP Checklist

HISTOLOGIC TYPE ***[R-00257, 371441004] Histologic type (observable entity)***

- ___ **Adenocarcinoma** ***[M-81403, 35917007] Adenocarcinoma, no subtype (morphologic abnormality)***
- ___ **Mucinous adenocarcinoma (greater than 50% mucinous)** ***[M-84803, 72495009] Mucinous adenocarcinoma (morphologic abnormality)***
- ___ **Medullary carcinoma** ***[M-85103, 32913002] Medullary carcinoma (morphologic abnormality)***
- ___ **Signet-ring cell carcinoma (greater than 50% signet-ring cells)** ***[M-84903, 87737001] Signet ring cell carcinoma (morphologic abnormality)***
- ___ **Small cell carcinoma** ***[M-80413, 74364000] Small cell carcinoma (morphologic abnormality)***
- ___ **Undifferentiated carcinoma** ***[M-80203, 38549000] Carcinoma, undifferentiated (morphologic abnormality)***
- ___ **Other (specify):** ___ ***not coded***
- ___ **Carcinoma, type cannot be determined** ***[M-80103, 68453008] Carcinoma, no subtype (morphologic abnormality)***

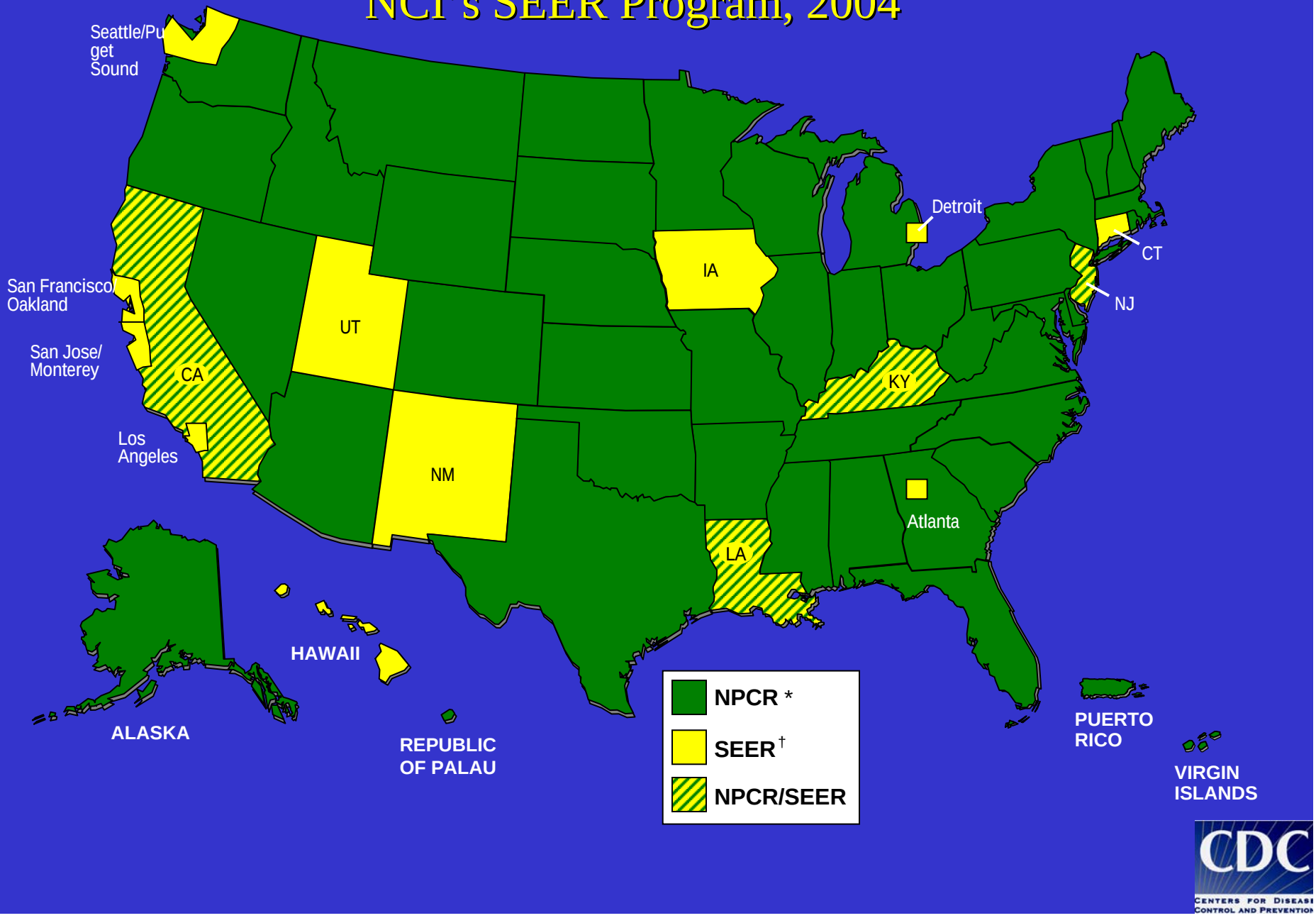
CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Messaging Standard

- Health Level 7, Version 2.3.1 (HL7)
- Logical Observations and Identifiers Names and Codes (LOINC)
  - Question – Data Item Name - Header - Metadata
- Systematic Nomenclature of Medicine, Clinical Terms (SNOMED CT)
  - Answer – Data Item Codes - Checkable line item - Data

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC's NPCR Program and NCI's SEER Program, 2004



CDC
Centers for Disease Control and Prevention

Funds Awarded – A Pilot Project

- 2001 – DCPC Funded
  - California Department of Health Services
  - Ohio Department of Health
- 3 Year Project Period
- CAP Colon and Rectum Cancer Protocols and Checklist

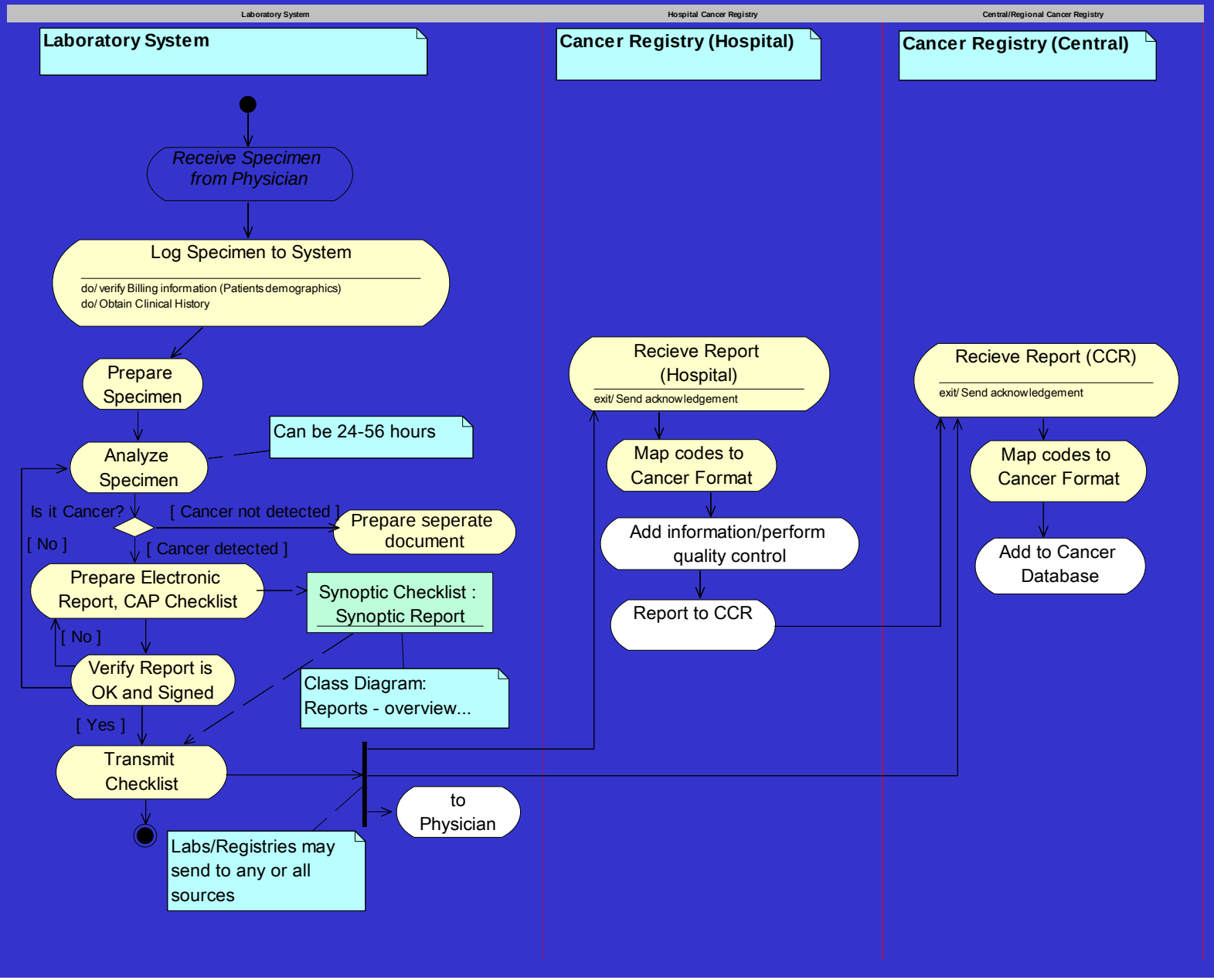
CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Objectives

- Compare completeness, timeliness, and quality of synoptic checklists with traditions text-based narrative reports
- Provide input to help promote the implementation of the CAP Cancer Protocols and Checklists among
  - Pathologists
  - Cancer Registrars
  - National Cancer Organizations
  - CAP

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

General Reporting Pathology Protocols Workflow



CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Implementation Tables
OBX Segments with SNOMED and LOINC codes

RPP Item #	Proposed Item Name for Messaging	CAP Checklist Item Name	LOINC code	Data type	SNOMED code
4	Tumor Site	Tumor Site	33725-3	CE	263601005
11	Histologic Type	Histologic Type	31205-8	CWE	371441004
13	Histologic Grade (hi/low)	Histologic Grade	33732-9	CWE	371469007

Barry Gordon

CDC
Centers for Disease Control and Prevention

Implementation Tables
RPP Fields to HL7 Segments

HL7 ID Number	HL7 Name	HL7 Req	RPP Req	Cerner uses	Calif. Uses	contents, format, or example	Data Type
MSH:01	Field Separator	R	R	R	R	|	ST
MSH:02	Encoding Characters	R	R	R	R	"^~&"	ST
MSH:03	Sending Application	R	R	R	R	"CNETRPP" or "CoPathPlus"	HD
MSH:04	Sending Facility	R	R	?	R	Path Facility ID # (CLIA #) Name^Code^CLIA	HD
MSH:05	Receiving Application	O	O	Y	Y	e.g. "Cancer Registry Application"	HD
MSH:06	Receiving Facility	O	O	Y	Y	"UCI" or 'State Cancer Registry'	HD
MSH:07	Date/Time of Message	R	R	R	R	YYYYMMDDHHMMSS	TS

Barry Gordon

HL7 Message

MSH|^~\&|CoPathPlus||Cancer Registry Application|State Cancer Registry|20040128094300||ORU^R01|1700000000169|P|2.3.1

PID|1||077777777^^^U||LASTNAME^FIRSTNAME^J.||11111111|M||ZEO-1|||||||||111-11-1111

ORC|RE||SS01-26488^CoPathPlus||CM||||200401131614|^Manager^System||45599^GOEL^AMITABH|||||||||ORDERING FACILITY NAME|ORDERING FACILITY ADDRESS|ORDERING FACILITY PHONE|ORDERING PROVIDER ADDRESS

OBR|1||SS01-26488^CoPathPlus|^UHC Surgical Pathology Department|||200110160000|||||||200110170000|COLONX&Colon Right micolectomy|45599|||||200401271230||SP|F|||||||12198^LASTNAME^JOSEPH|12198^LASTNAME^JOSEPH ||||||||||R-10119^^SNM

OBX|1|CE|33722-0^ColonSpecType^LN||122648004^RightHemicolectomy^SNM|||||F

OBX|18|CE|33725-3^ColonTumorSite^LN|
|51342009^RightAscendingColon^SNM|||||F

OBX|22|CE|31205-8^ColonHistoType^LN|
|35917007^Adenocarcinoma^SNM|||||F

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Ohio Evaluation Measures

- **Completeness/Quality:**
  - **Lab/OCISS Assessment of Quality, Completeness**
  - **Physician Assessment of Quality of Checklist**
  - **Pathologists Assessment of Quality of Checklist**
- **Timeliness:**
  - **Survey pathology staff and cancer registrars entering data**

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

California Evaluation Measures

- **Completeness: Does the checklist provide the necessary information to code the state-required extent of disease data item?**
- **Timeliness/Efficiency:**
  - **Does it take less time for the cancer registrar to abstract information from the CAP checklist as opposed to the narrative pathology report?**
  - **Does it take less time for the pathologist to complete the CAP checklist as opposed to a narrative pathology report?**
- **Quality/Accuracy:**
  - **Are the codes generated for certain data items from the CAP checklist as accurate as the codes produced by cancer registry staff?**
  - **Does using the checklist format enhance the quality of the data?**

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

California: Quality/Accuracy Measure

- **Does using the checklist format enhance the quality of the data?**
  - **Process: Using narrative pathology reports from the previous year, complete a checklist for each report.**
  - **Analysis: Identify the data items on the checklist that could not be completed using the narrative**

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

California Preliminary Results

- **Process: Using narrative pathology reports from the previous year, complete a checklist for each report.**
  - **2002 Colon & Rectum Cases, N = 42**
  - **17 non-eligible (surgery elsewhere, appendix, bx only)**
  - **25 eligible (23 resection, 2 local excision, 0 polypectomy)**

Kathleen Davidson-Allen

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

California Preliminary Results

- **Analysis: Identify the data items on the checklist that could not be completed using the narrative**
  - **Resection Checklist (N=22*):**
  - **15 required data items – 94% were completed**
  - **12 non-required data items – 28% were completed**

(*waiting for correct pathology report)

Kathleen Davidson-Allen

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

California Preliminary Results

Resection Checklist

- Required data items missing (9 reports)
  - specify margin, N=8 (submitted w/o orientation)
  - distance tumor from margin, N=4
  - lymphatic invasion, N=3
  - venous invasion, N=3
  - grade, N=1
  - size, N=1

Kathleen Davidson-Allen

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Lessons Learned and Questions

- Checklists originally designed - paper form
- Checklists evolve:
  - Collaborative Stage – Checklist Identifier
- Implementation Tables Developed:
  - OBX and other HL7 segments
- What type of text? Clinical History?
- Conformance software
- Need to address “Addendums”

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Lessons Learned and Questions

- Checklists ~90% of all cancers, Remaining ~10%?
- Cost to pathology laboratory
  - Fee to use SNOMED CT encoded Checklist
- Do we need a system to identify the SNOMED Encoded Checklist?
- HL7 message with LOINC and SNOMED
  - Encoded Checklists SNOMED CT codes: question and answer

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Acknowledgements: RPP Team

- California
  - Kathleen Davidson-Allen, California Cancer Registry
  - Barry Gordon, C/NeXT Software - LOINC
- Ohio
  - Michele Connors, Zeke Holland, Linda Coles, Mark Jordan, and Dieter Thum, Cerner Corporation
  - Larry Derrick, Rocky Mountain Cancer Data System
  - Georgette Haydu and Bette Smith, OCISS
  - Pat Patterson, University Hospital of Cleveland
- SNOMED
  - Mary Kennedy, Monique van Berkum, and John Kilborne, SNOMED International
- CDC
  - Warren Williams, National Immunization Program

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Contact

- Ken Gerlach
  - Cancer Surveillance Branch, Division of Cancer Prevention and Control
  - 770-488-3008
  - kgerlach@cdc.gov

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Addendum

- If Questions?

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Colon and Rectum: Resection Checklist

Required Data Elements (N=15):

- Specimen type
- Tumor site
- Tumor size
- Histologic type
- Histologic grade
- Primary tumor
- Regional lymph nodes
- Specify, examined (regional lymph nodes)
- Specify, involved (regional lymph nodes)
- Distant metastasis
- Margins
- Distance of tumor from closest margin
- Specify margin
- Lymphatic invasion
- Venous invasion

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Colon and Rectum: Resection Checklist

Non-required Data Elements (N=12*):

- Length (specimen type)
- Tumor configuration
- Additional dimensions (tumor size)
- Mesorectum
- pT3 a/b and pT3 c/d
- Specify site (distant metastasis)
- Intramural/extramural (lymphatic invasion)
- Intramural/extramural (venous invasion)
- Perineural invasion
- Tumor border configuration
- Intratumoral/peritumoral lymphocytic response
- Additional pathologic findings

**January 2004: N=13 (Mesenteric margin added)

CDC
Centers for Disease Control and Prevention