



**Department
of Health**

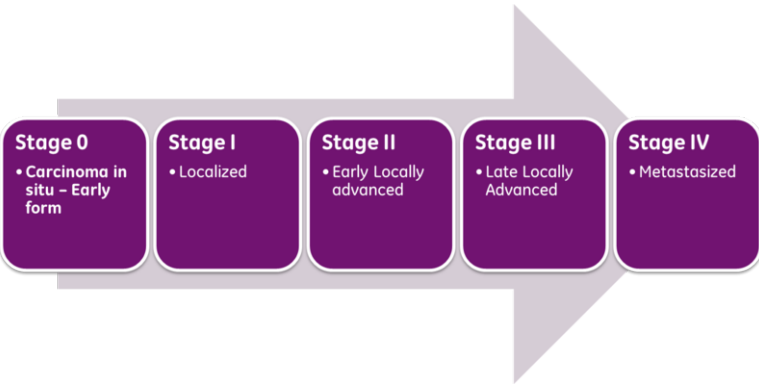
Evaluation of directly coded AJCC stage data: one large state's experience

Maria J. Schymura, Baozhen Qiao, Amy R. Kahn, Colleen G. Sherman

**NAACCR Annual Conference, St. Louis, MO
June 16, 2016**

Background

- The NYSCR has required the reporting of directly coded AJCC TNM stage, as available, for many years
 - Clinical AJCC stage required by CoC
 - Non-hospital sources didn't report Collaborative Stage
- We have never systematically evaluated the AJCC TNM data



Methods

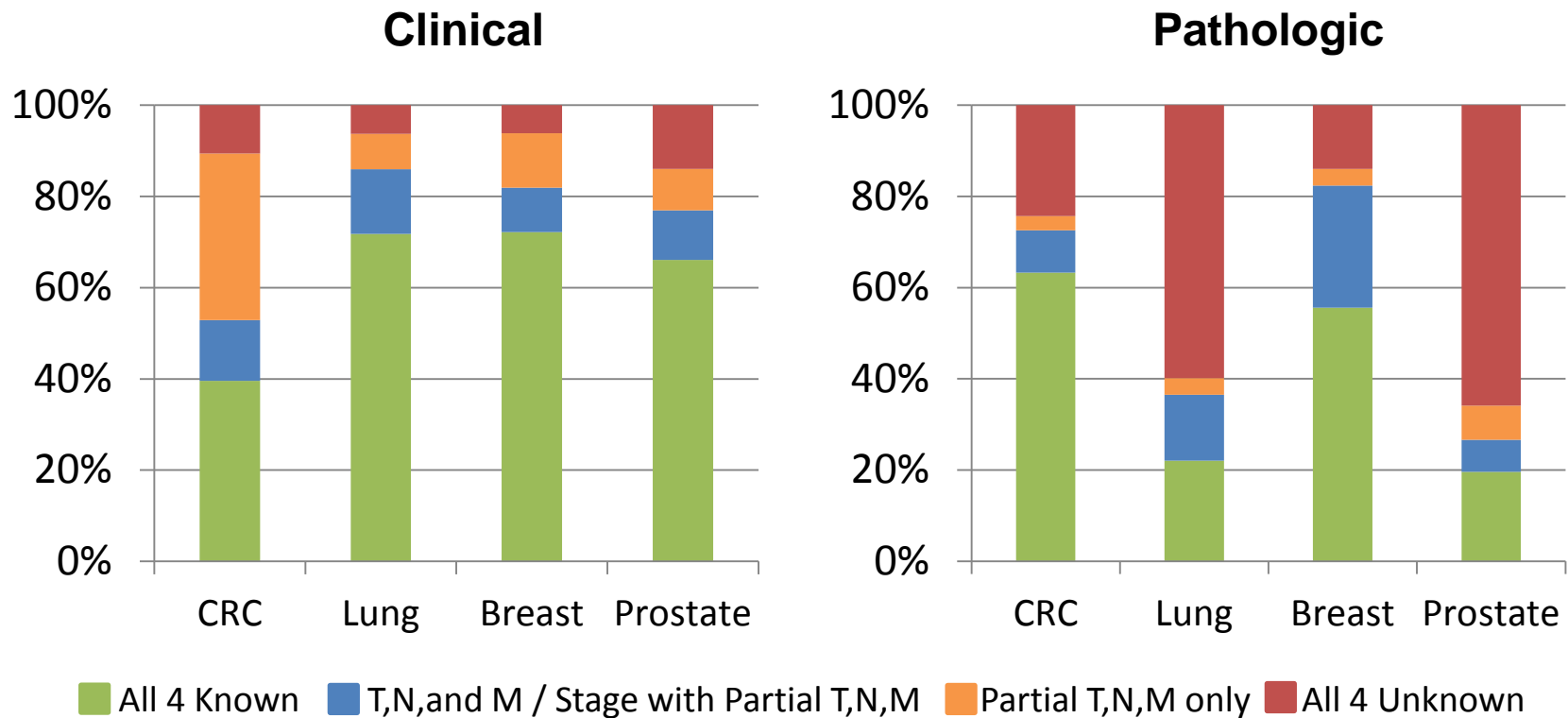
- NY residents, 2013 DX, behavior 3, excl. DCO & autopsy-only
- Met AJCC site & histology staging criteria
- Evaluated
 - Clinical fields: T, N, M, Stage Group
 - Path fields: T, N, M, Stage Group
- Consolidated & source level data
- By reporting source, class of case, and CoC status

	# Cases	# Cases Met Criteria	# Sources
CRC	8,910	8,289	13,916
Lung	13,403	13,382	22,916
Breast	15,807	15,790	30,679
Prostate	13,505	13,503	20,800

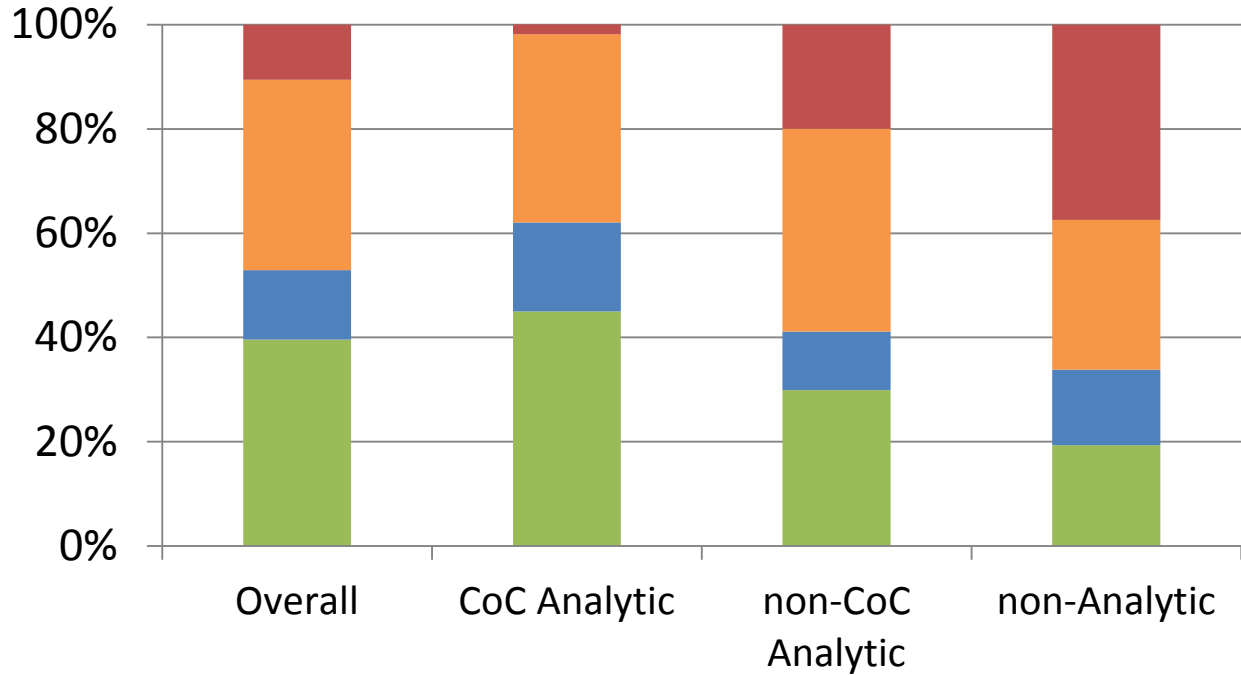
Methods- cont.

- Created composite completeness categories (c and p)
 1. Each field (T, N, M, stage group) valid values and known
 2. T, N, M valid and known but no stage group
 3. Stage group valid and known, partial T, N, M information
 4. Only stage group, no T, N, or M components
 5. Partial T, N, M; no stage group
 6. All components missing
- Created composite “best source” categories (hierarchical)
 1. At least one analytic report from a CoC facility
 2. At least one analytic report from a non-CoC facility
 3. No analytic reports
- Conducted a more in-depth analysis for prostate cancer

Percent Valid and Known AJCC Stage Components for 2013 Cancer Diagnoses, NYSCR, by Cancer Site



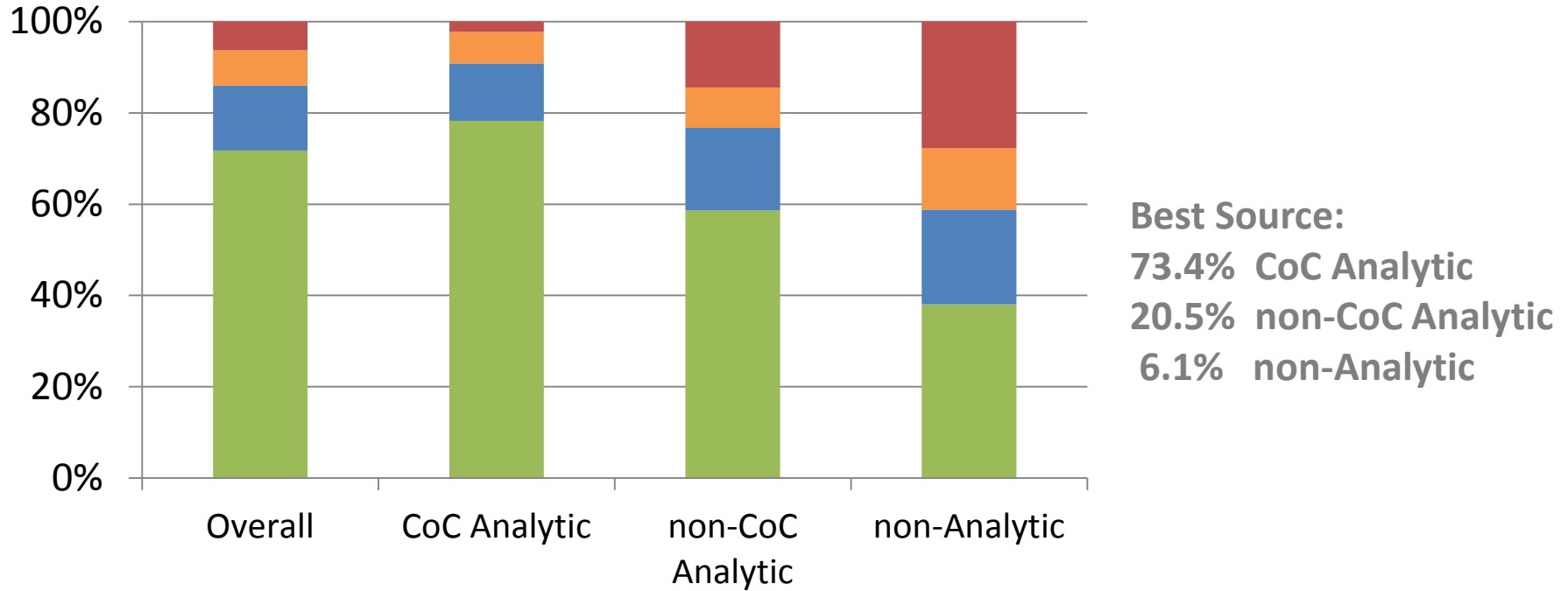
Percent Valid and Known Clinical AJCC Stage Components for 2013 CRC Cancer Diagnoses, by Best Source



Best Source:
67.6% CoC Analytic
27.4% non-CoC Analytic
5% non-Analytic

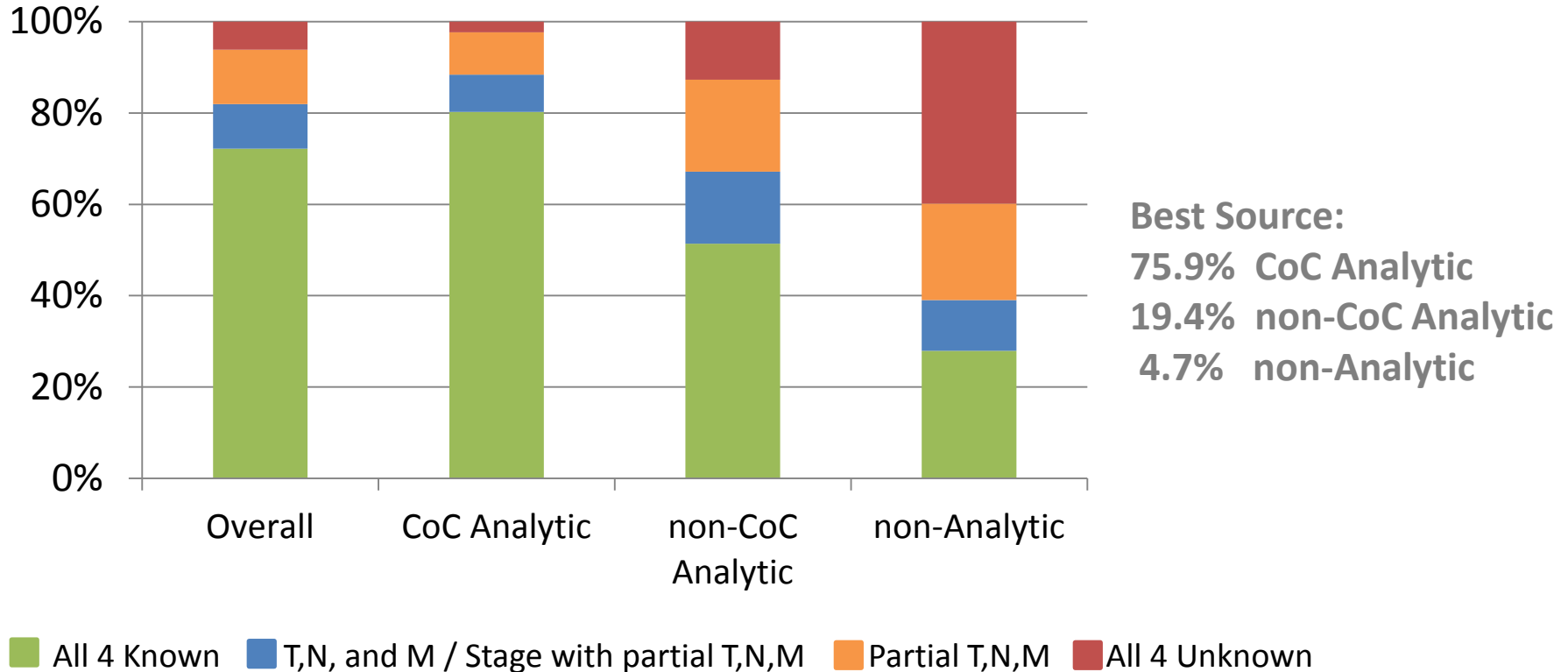
■ All 4 Known ■ T,N, and M / Stage with partial T,N,M ■ Partial T,N,M ■ All 4 Unknown

Percent Valid and Known Clinical AJCC Stage Components for 2013 Lung Cancer Diagnoses, by Best Source

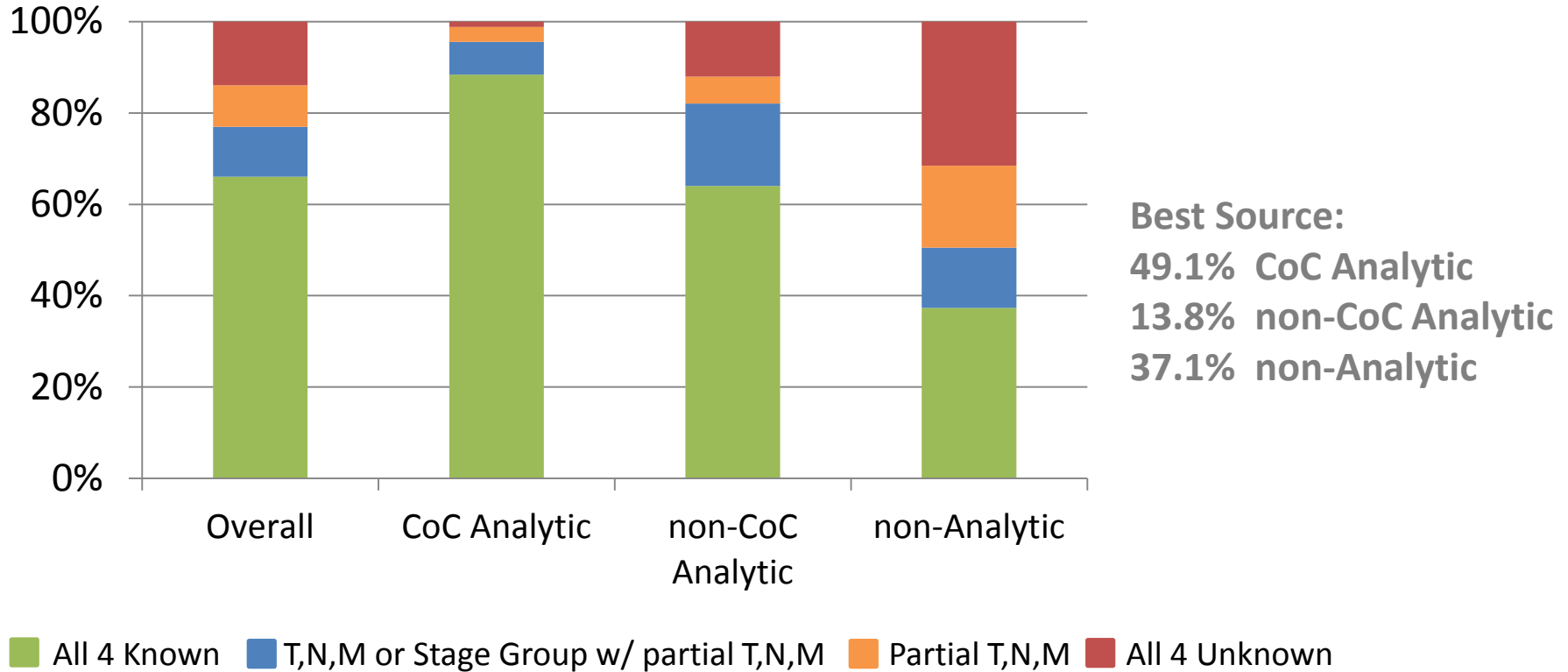


Legend: All 4 Known (green), T,N, and M / Stage with partial T,N,M (blue), Partial T,N,M (orange), All 4 Unknown (red)

Percent Valid and Known Clinical AJCC Stage Components for 2013 Breast Cancer Diagnoses, by Best Source



Percent Valid and Known Clinical AJCC Stage Components for 2013 Prostate Cancer Diagnoses, by Best Source



“Parent” Stage Group Codes

For a number of sites, AJCC does not allow “parent” stage group codes → loss of information

e.g., prostate 2A or 2B but not 2

	% Cases loosing Clinical Stage Group
CRC	3.5% (3.5% II; 3.4% III; 16.0% IV)
Lung	1.6% (4.2% I; 2.3% II; 3.5% III)
Breast	4.6% (7.3% I; 4.9% II; 3.1% III)
Prostate	4.4% (10.4% II)

Prostate Cancer

Source Level

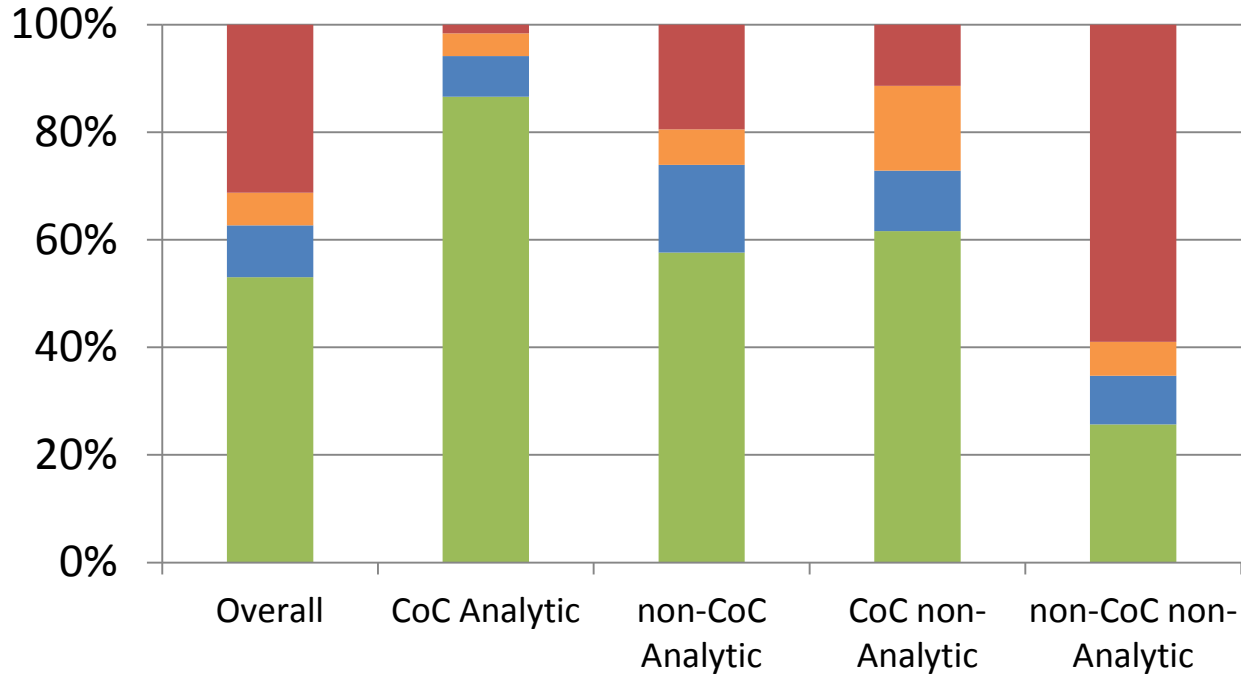
Issues

- At least seven percent of source records have clinical information in the pathology fields (e.g., pT=1C)
 - Reassigned to clinical fields
 - Tends to be an issue for non-hospital/non-CTR sources
- Missing PSA and Gleason Score Values

Source	Missing Gleason Score			Missing PSA		
	Overall	T1-T2	Limited*	Overall	T1-T2	Limited*
All	35.4%	7.8%	4.9%	46.0%	22.3%	17.1%
CoC Analytic	7.5%	3.0%	3.3%	13.2%	10.7%	9.8%
Non-CoC Analytic	16.7%	8.6%	5.7%	32.5 %	29.9%	25.7%
CoC non-Analytic	33.6%	10.0%	9.3%	39.2%	20.4%	19.6%
non-CoC non-Analytic	61.9%	15.8%	7.1%	75.2%	39.3%	29.4%

*Limited to sources that contain valid and known values for all 4 clinical stage fields

Percent Valid and Known Clinical AJCC Stage Components for 2013 Prostate Cancer Diagnoses, Source Level



Source:
 34.8% CoC Analytic
 13.4% non-CoC Analytic
 5.2% CoC non-Analytic
 46.5% non-CoC non-Analytic

■ All 4 Known
 ■ T,N,and M / Stage with partial T,N,M
 ■ Partial T,N,M
 ■ All 4 Unknown

Agreement between Original Clinical Stage Group and Recoded Stage Group (Source Level)

Recoded

		Recoded					Missing
		I	IIA	IIB	III	IV	
Original	I	76.8%	10.3%	3.8%	0.0%	0.0%	9.1%
	II	29.1%	26.8%	20.0%	0.1%	0.0%	24.0%
	IIA	5.7%	78.2%	6.4%	0.0%	0.0%	9.6%
	IIB	1.8%	3.9%	87.9%	0.1%	0.1%	6.2%
	III	0.3%	0.6%	1.8%	89.1%	1.5%	6.8%
	IV	0.0%	0.2%	0.1%	0.3%	98.2%	1.2%
	Missing	1.1%	0.3%	0.3%	0.1%	0.3%	98.0%

**Percent Overall Agreement between
Original Clinical Stage Group and Recoded Stage Group
Source Level - Limited to Sources with Complete, Valid Stage Information**

Source	% Agreement	% Recoded to Missing
All	84.7%	4.0%
CoC Analytic	85.3%	3.0%
Non-CoC Analytic	80.1%	8.3%
CoC non-Analytic	86.2%	5.4%
non-CoC non-Analytic	86.9%	3.4%

Summary

- TNM completeness and stage accuracy, even among these four major cancers, varies by type of cancer and particularly by source of report.
- Even non-analytic records received from CoC-accredited facilities have more complete information than ‘analytic’ records from non-accredited hospitals.
- The work NAACCR has put into creating many new TNM edits should reduce faulty data going forward, although there might be more missing data as we increase reporting from non-hospital sources.

Acknowledgement

This work was funded in part by CDC's Cooperative Agreement U58DP003879 awarded to the New York State Department of Health. The contents are solely the responsibility of the New York State Department of Health and do not necessarily represent the official views of the Centers for Disease Control and Prevention.



Contact Information:

Maria J. Schymura, Ph.D

maria.schymura@health.ny.gov

New York State Cancer Registry

Questions?

Thank you!

