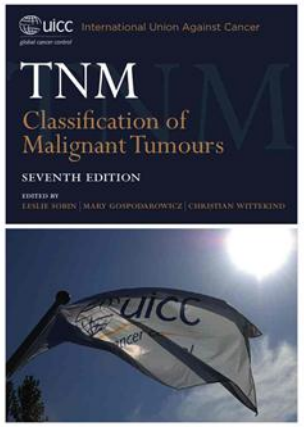
A Comparison of Collaborative Stage with UICC TNM



COLLABORATIVE STAGE DATA COLLECTION SYSTEM

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June 11, 2013

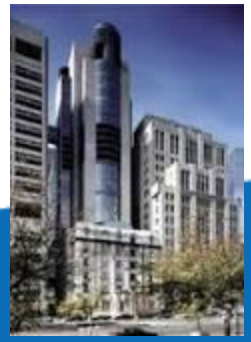
UHN Princess Margaret Cancer Centre

Outline

- Background
- Current Process
- Rationale for the Comparison
- Methods
- Results
- Conclusions

Background-Princess Margaret

- Hospital based registry in operation since 1958
- Staff includes CTRs
  - Register all cases of cancer seen at the Cancer Centre ~12,000 new cases per year. Collect clinical, path and combined stage using UICC-TNM 7th edition rules for all stageable sites
  - Most staff have over 10 years experience in the PM Cancer Registry, using 5th and 6th edition of UICC-TNM
- Data used extensively for research and administrative purposes
  - Over 250 data requests per year



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Background-Cancer Care Ontario

- Ontario Cancer Registry data from 1964
- Phased in approach of hiring Health Information Management Professionals over 2 years, some CTRs and gradual expansion of primary sites through targeted funding from Canadian Partnership Against Cancer (CPAC) until March 31, 2012
- CSv1 2008 and 2009 cases
- CSv2 in 2010 for all new incident cases in Ontario for breast, colo-rectal, prostate and lung (30,764 cases) plus Melanoma of Skin and GYNE sites (13,524 cases) via remote access to 85 hospital electronic patient record systems
- 2011 and 2012 continue with same cancer sites
- Data is used for Performance Measurement of the Provincial Cancer System and Population Based Cancer Research

Current Processes-Princess Margaret

- Initial staging collected within 3 months by Registry staff using an online application:
  - Built in UICC-TNM tables for clinical and pathological staging
  - Capture reason for referral, type of disease,

    ICDO-3 Topography and Morphology
- Data transferred to the Cancer Registry program for complete registration including treatment and final staging collected approximately 12 months later
- Send monthly activity level reporting including TNM stage

Current Processes-Cancer Care Ontario

- Identify cases to be staged through E-path synoptic reporting from all 119 hospitals in Ontario through 51 labs
- A few paper reports still being received
- Consolidation of hospital discharge abstracts, in-patient and ambulatory along with regional cancer centre reporting
- Staging completed within 12 months of date of diagnosis
- All Regional Cancer Centres continue to stage using TNM for all stageable sites

Why is PM using TNM and CCO using CS?

Princess Margaret Cancer Centre

- Treatment facility, history with UICC- TNM, concurrent treatment decisions
- Developed Combined Stage to collect ‘Best’ of clinical and path staging to reduce ‘Unknown Stage’
- Challenges with obtaining synoptic path for all cases as many patients have surgery prior to coming to PM
- Resources required to switch to CS

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Why is PM using TNM and CCO using CS?-Cont'd

Cancer Care Ontario

- Not collecting any stage data prior to launch of CS
- Allows for the recalculation of stage over time as systems change (utilizing the original data elements and the current CS algorithm)
- Allows for the combination of Clinical and Pathologic data elements to derive a 'best' stage (reducing the frequency of Unknown Stage-vital for a central registry operating at arm's length from the treatment centres)
- Allows for automation of stage data extraction from synoptic pathology reports incorporating the CAP checklists

Rationale for the Review

- Joint Data Quality
  - Validate usability of stage data
  - Compatibility of CS Derived Stage Group with UICC-TNM Stage Group based on individual T, N and M values
  - Determine the extent to which the data collection process contributed to the disagreements
- Staff education and training
- Demonstrate benefits of collaboration

Methods

- Top 4 sites
  - Colo-rectal, lung, prostate, breast
- Compared CCO Derived CS stage group with PM TNM combined stage group, manual process
  - This was not all the PM cases for each of the sites but sufficient to compare
- Reasons for discrepancies were investigated
- Used secure web portal for all communications of cases with PHI

Results-Colo-rectal Cases

PM \ CCO	0	I	IIA	IIB	IIC	IIIA	IIIB	IIIC	IVA	IVB	UNKNOWN	Total
0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	17	1	0	0	0	0	0	0	0	1	19
IIA	0	1	19	0	0	0	0	0	0	0	0	20
IIB	0	0	0	3	0	0	0	0	0	0	0	3
IIC	0	0	0	1	2	0	0	0	0	0	0	3
IIIA	0	0	0	0	0	2	0	0	0	0	1	3
IIIB	0	0	1	0	1	0	20	0	0	0	0	22
IIIC	0	0	0	0	0	0	2	9	0	0	0	11
IVA	0	0	1	0	0	0	0	1	13	1	0	16
IVB	0	0	0	0	0	0	1	0	0	11	0	12
UNKNOWN	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	18	22	4	3	2	23	10	13	12	2	109

Unadjusted Agreement 88%
Weighted Kappa 90%, 95% confidence interval 83-97%

Results-Breast Cases

PM \ CCO	0	BLANK	IA	IB	IIA	IIB	IIIA	IIIB	IIIC	IV	IVA	UNKNOWN	Total
0	0	0	4	0	0	1	1	0	1	0	0	0	7
BLANK	0	0	0	0	1	0	0	0	0	0	0	0	1
IA	0	0	153	0	1	0	0	0	0	0	0	1	155
IB	0	0	0	10	3	0	0	0	0	0	0	1	14
IIA	0	0	1	0	74	0	0	0	0	1	0	0	76
IIB	0	0	1	0	3	44	2	1	0	0	0	0	51
IIIA	0	0	0	0	0	5	32	0	0	0	0	0	37
IIIB	0	0	0	0	1	0	3	6	0	0	0	0	10
IIIC	0	0	0	0	0	2	3	0	18	0	0	0	23
IV	0	0	0	0	1	3	0	0	1	19	0	0	24
IVA	0	0	0	0	0	1	0	0	0	0	0	0	1
UNKNOWN	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	159	10	84	56	41	7	20	20	0	2	399

Unadjusted Agreement 89%
Weighted Kappa 88%, 95% confidence interval 84-92%

Results-Lung Cases

PM \ CCO	0	BLANK	IA	IB	IIA	IIB	IIIA	IIIB	IV	UNKNOWN	Total
0	0	0	0	0	0	0	0	0	0	0	0
BLANK	0	0	0	0	0	0	1	0	4	0	5
IA	0	0	72	0	0	2	7	0	1	1	83
IB	0	0	0	22	1	1	2	1	0	9	36
IIA	0	0	0	1	15	0	0	0	0	0	16
IIB	0	0	0	0	0	12	2	0	0	1	15
IIIA	0	0	0	0	1	3	54	6	3	0	67
IIIB	0	0	0	0	0	0	5	26	9	0	40
IV	0	0	0	1	1	0	4	5	207	0	218
UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	72	24	18	18	75	38	224	11	480

Unadjusted Agreement 85%
Weighted Kappa 83%, 95% confidence interval 78-87%

Results-Prostate Cases

PM \ CCO	BLANK	I	II	IIA	IIB	III	IV	UNKNOWN	Total
BLANK	0	3	0	0	1	0	0	0	4
I	0	113	0	1	4	2	0	0	120
II	0	0	0	0	3	0	0	0	3
IIA	0	13	0	144	3	1	0	0	161
IIB	0	4	0	11	126	0	2	1	144
III	0	1	0	4	6	98	2	0	111
IV	0	0	0	1	3	0	25	1	30
UNKNOWN	0	0	0	0	0	0	0	0	0
Total	0	134	0	161	146	101	29	2	573

Unadjusted Agreement 88%
Weighted Kappa 87%, 95% confidence interval 84-90%

Results-Breast Cases, Combining stage group

	cco_new							
pm_cr_new	0	BLANK	I	II	III	IV	UNKNOWN	Total
0	0	0	4	1	2	0	0	7
BLANK	0	0	0	1	0	0	0	1
I	0	0	163	4	0	0	2	169
II	0	0	2	121	3	1	0	127
III	0	0	0	8	62	0	0	70
IV	0	0	0	5	1	19	0	25
UNKNOWN	0	0	0	0	0	0	0	0
Total	0	0	169	140	68	20	2	399

Unadjusted Agreement 91%
Weighted Kappa 85%, 95% confidence interval 80-90%

Results-Colo-rectal Cases, Combining Stage Group

	cco_new						
pm_cr_new	0	I	II	III	IV	UNKNOW	Total
0	0	0	0	0	0	0	0
I	0	17	1	0	0	1	19
II	0	1	25	0	0	0	26
III	0	0	2	33	0	1	36
IV	0	0	1	2	25	0	28
UNKNOWN	0	0	0	0	0	0	0
Total	0	18	29	35	25	2	109

Unadjusted Agreement 92%
Weighted Kappa 89%, 95% confidence interval 81-97%

Results-Lung Cases, Combining Stage Group

pm_cr_new	cco_new							
	0	BLANK	I	II	III	IV	UNKNOWN	Total
0	0	0	0	0	0	0	0	0
BLANK	0	0	0	0	1	4	0	5
I	0	0	94	4	10	1	10	119
II	0	0	1	27	2	0	1	31
III	0	0	0	4	91	12	0	107
IV	0	0	1	1	9	207	0	218
UNKNOWN	0	0	0	0	0	0	0	0
Total	0	0	96	36	113	224	11	480

Unadjusted Agreement 87%
Weighted Kappa 83%, 95% confidence interval 75-86%

Results-Prostate Cases, Combining Stage Group

pm_cr_ne	cco_new						
	BLANK	I	II	III	IV	UNKNOWN	Total
BLANK	0	3	1	0	0	0	4
I	0	113	5	2	0	0	120
II	0	17	287	1	2	1	308
III	0	1	10	98	2	0	111
IV	0	0	4	0	25	1	30
UNKNOW	0	0	0	0	0	0	0
Total	0	134	307	101	29	2	573

Unadjusted Agreement 91%
Weighted Kappa 87%, 95% confidence interval 83-91%

Conclusions

For the top 4 sites

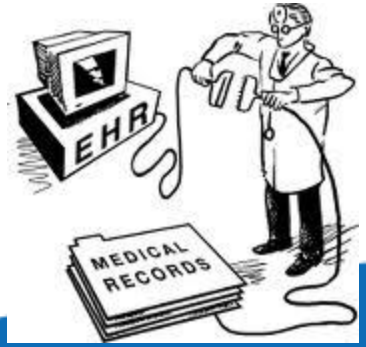
- The level of agreements supports the usability of the data
  - 1561 cases for comparison:
    - 87.5% full agreement,
    - 90.1% agreement on stage group
- Can compare CS Derived Stage Group with UICC-TNM Stage Group

Educational opportunity for staff in both facilities

Conclusions-Cont'd

- Disagreements may be due in part to variations in documentation available to each coder at the time of processing the cases and/or use of different EPR systems

- Want to compare more cancer sites, CCO requires additional resources



Incidental Findings-CCO

Technical Issue of false reporting 2nd primary

Mapping issues with CS lung schema, corrected with next version

Assignment of primary diagnosing/treatment hospital

Lessons Learned

- Complete same process for 2011 data
  - Collaborative discussion before process begins
  - Standardize documentation on disagreement cases
- Add GYNE and melanoma cases

Lessons Learned-Cont'd

- Extra step for chart number linkage due to 'blended stage' reporting, (i.e. more than one hospital medical record used as the data source)
- Very time consuming
  - Very valuable for both
  - Are there more efficient methods that could be used?

Acknowledgements

- **Princess Margaret Cancer Centre**
  - All CTRs and coding staff
  - Michelle Jiang Information Analyst
  - Dr James Brierley, Medical Director
  - Tony Panzarella, Biostatistics
- **Cancer Care Ontario**
  - Marianne Luettschwager, OCR Team Lead
  - All CTRs and coding staff
- **CPAC, National Staging Initiative**

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