



UNIVERSITY OF ALBERTA
SCHOOL OF PUBLIC HEALTH



Pathways to Brain Tumour Diagnosis and Registration

Yan Yuan, PhD

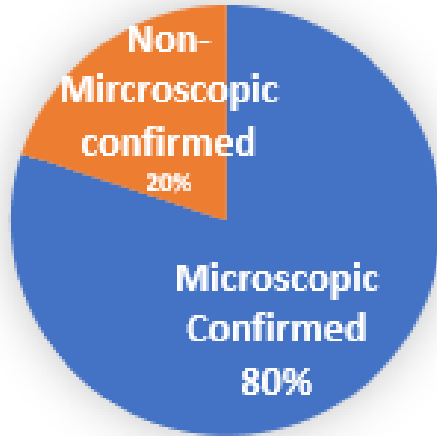
Assistant Professor, School of Public Health, University
of Alberta

Pathway to Brain Tumor Diagnosis and Registration

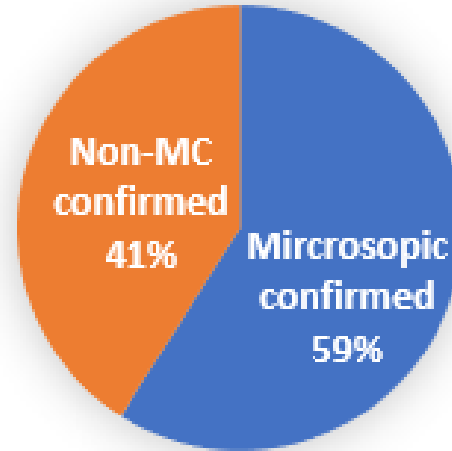
| Imaging study | Follow up/ Diagnosis/Treatment | Cancer Registry | Data Quality |
|---------------|---|---|--|
| Brain Tumour | Surgery | Reported | Accurate |
| | Seen by oncologist | Reported | Accurate |
| | Diagnosis changes: i.e. low grade to high grade | Likely reported when pathology confirms diagnosis | Level of accuracy varies; initial diagnosis may not be accurately recorded |
| | No surgery | Not reported | Most likely missing from surveillance data |

Method of Diagnosis

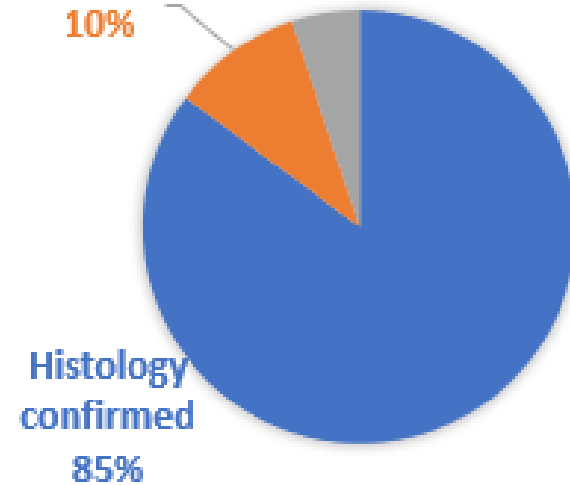
MALIGNANT TUMOR
(Shaw 2013, CCR 2006-10)



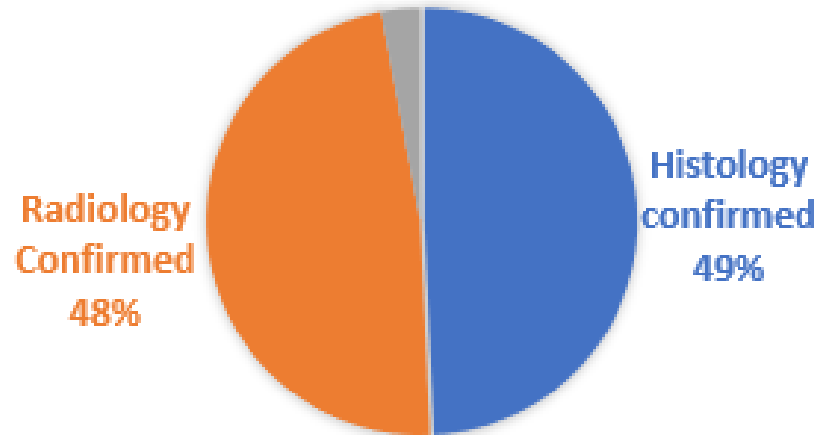
NON-MALIGNANT TUMOR
(Shaw 2013, CCR 2006-10)



Radiology Confirmed (CBTRUS, 2009-13)



(CBTRUS, 2009-13)



Diagnosis Method of Brain Cancers in Four Canadian Provinces (CCR, 2004-2015)

| Region | Microscopic Confirmation (%) | Radiological Confirmation (%) | Other (%) | Unknown (%) | Total |
|------------------|------------------------------|-------------------------------|------------------|-------------------|--------------|
| Ontario | 11265 (84.0) | 590 (4.4) | 215 (1.6) | 1340 (10.0) | 13410 |
| Manitoba | 885 (79.0) | 230 (20.5) | 5 (0.5) | 0 (0) | 1120 |
| Alberta | 2600 (83.9) | 475 (15.3) | 25 (0.8) | 0 (0) | 3100 |
| British Columbia | 3650 (84.4) | 305 (7.1) | 370 (8.6) | 0 (0) | 4325 |
| Total | 18400 (83.8) | 1600 (7.3) | 615 (2.8) | 1340 (6.1) | 21955 |

CBTRUS: Expected incident and percentage of non-malignant tumors for selected histology groups in 2017 (CBTRUS, 2016)

| Histology Type | Estimated Total | Estimated Non-Malignant % |
|---------------------------|-----------------|---------------------------|
| Neuroepithelial tissue | 22,900 | 7.2 |
| Cranial and Spinal Nerves | 6,580 | 99.2 |
| Meninges | 28,030 | 98.4 |
| Sellar Region | 14,850 | 99.8 |
| Pituitary | 14,230 | 99.8 |
| Craniopharyngioma | 610 | 100 |
| Unclassified | 5,260 | 50.0 |
| Total | 79,270 | 67 |

Incorporating Radiological Diagnosis of Brain Tumor into Cancer Registry

Challenges

- Radiology report unstructured
- Lack of trigger
- Inconclusive diagnoses
- High report volume

