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How in the real world are lung cancer patients treated? The Ontario, Canada experience

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Objective

To determine how lung cancer is treated in Ontario on a population basis

Background

- Clinical trials determine practice guidelines and funding recommendations. However, patients in trials may differ from patients typically seen in the real world and, therefore, practice may differ from guideline recommendations
- The Canadian Partnership Against Cancer developed a model of lung cancer management (OncoSim-LC) based on clinical trial results and expert advice in 2009
- To project future clinical and economic impacts of new cancer control measures, OncoSim-LC has been refined in 2018 using real-world data from Cancer Care Ontario

Methods

- Treatment data by histology and stage were extracted from the Ontario Cancer Registry for a lung cancer cohort diagnosed in 2013
- Cases were excluded for missing or unknown stage or if they did not satisfy the IARC rule for new primary cancer (Figure 1)
- For each stage of NSCLC and SCLC, the clinical pathways being used in the management of these "real world" patients were determined, based on a template created from preliminary analysis
- Counts and percentages of cases for each disease stage, by histology, were calculated and used to populate management pathways
- The pathways were then validated with Ontario-based clinicians and further reviewed by a pan-Canadian group of clinicians

Results

- 8,086 staged cases of NSCLC and SCLC (Extensive and Limited) were identified in 2013 in Ontario, of which 7,143 (88%) were NSCLC cases
- Unexpected findings included:
  - ❖ Surprisingly high frequency of "No Active Treatment" (NAT) across all stages of disease (Table 1)
  - ❖ Lower than expected use of chemo-radiotherapy in stage III disease (Figure 2)
  - ❖ Substantial use of radical radiotherapy for early stage disease (practice change) (Figure 3)

Table 1. NSCLC cases diagnosed in Ontario, 2013 and proportion of cases identified as "No Active Treatment" (NAT)

NSCLC stage	Cases	Percentage	% NAT in stage
NSCLC I	1,340	19%	13%
NSCLC II	579	8%	9%
NSCLC III/IIIA	813	11%	19%
NSCLC IIIB	356	5%	17%
NSCLC IV	4,055	57%	48%
Total NSCLC	7,143	100%	34%

Conclusions

- Real world evidence is necessary to build a robust model of current practice patterns for use in assessing the impact of new treatment interventions
- Although age and co-morbidities are likely factors in preventing "evidence-based" treatments, further research is necessary to fully understand the factors responsible for the observed practice patterns

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Figure 1. Lung cancer cohort creation flow chart, cases diagnosed in Ontario, 2013

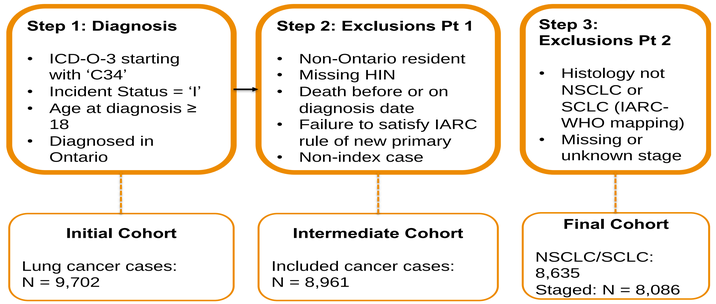

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Figure 2. Lung cancer management pathway for NSCLC Stage IIIB cases

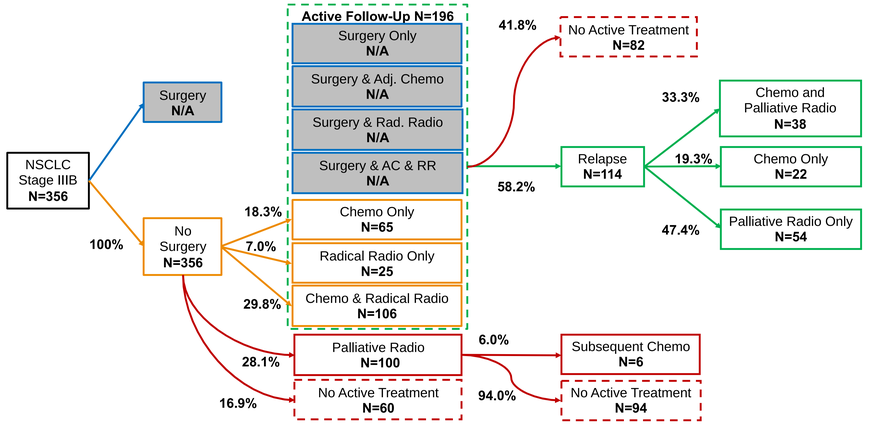

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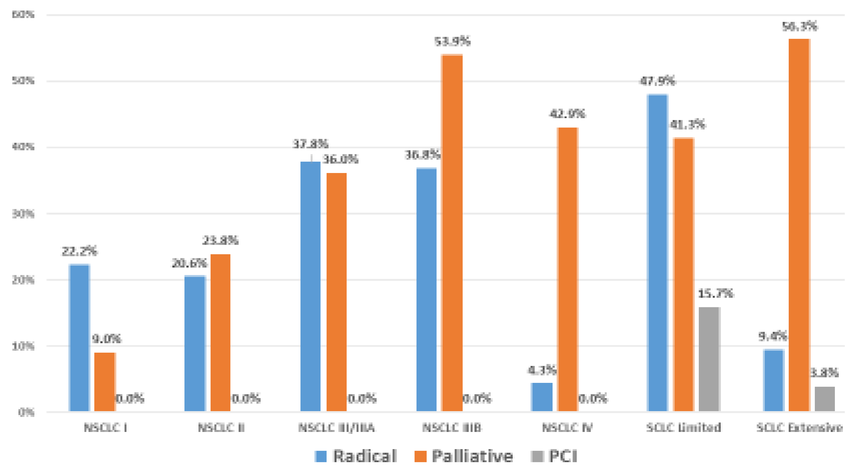
Figure 3. Proportion of radiotherapy with radical and palliative intent, by histology and stage



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