Lung Cancer: Assessing Core Outcome Sets

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INTRODUCTION

With nearly two million fatalities documented in 2020 and over $23.8 billion spent on care,[1-2] lung cancer presents significant health challenges and financial burdens. Standardizing clinical trials is imperative to improve data reliability and patient outcomes. To address these issues, Core Outcome Sets (COS) were developed by the Core Outcome Measures in Effectiveness Trials (COMET) Initiative and the Lung Cancer Working Group of the International Consortium for Health Outcomes Measurement (ICHOM).[3] However, previous literature has found that trial adherence to COS inconsistent, affecting trial comparability and reliability of trial results.[4-6] Here, we assess the uptake of lung cancer COS since its publication in September 2016.[7] This study aimed to analyze the use of COS in published lung cancer clinical trials, assess the prevalence and characteristics of COS adoption, and evaluate gaps in COS adherence.

METHODS

- The lung cancer COS "Defining a standard set of patient-centred outcomes for lung cancer" was identified using the COMET database.[9]
- We searched ClinicalTrials.gov to identify all published phase III/IV lung cancer randomized controlled trials (RCTs) around the world.
- RCTs must include all the following:
  - exclusively consist of patients diagnosed with small cell or non-small cell lung cancers,
  - assess efficacy of interventions according to lung cancer COS,
  - be published between 9/01/2011 to 06/26/2023.
- Authors extracted data regarding trial characteristics and lung cancer COS uptake.
- Frequency of COS outcomes were measured and compared pre and post publication of COS.

Table 1. Frequency of Outcome Set Uptake

Group	Outcome Set Domain & Item	n = 497
Degree of Health	Global Health/Quality of Life, n (%)	
	Yes	247 (49.7)
	No	250 (50.3)
Survival	Overall Survival, n (%)	
	Yes	458 (92.2)
	No	39 (7.8)
	Treatment-Related Mortality, n (%)	
	Yes	297 (59.8)
	No	200 (40.2)
Quality of Death	Place Of Death, n (%)	
	No	497 (100.0)
	Duration Of Time Spent In Hospital At End Of Life, n (%)	
	Yes	3 (0.6)
	No	492 (99.4)
	Not Applicable	2
Other	Time From Diagnosis To Treatment, n (%)	
	No	497 (100.0)

RESULTS

Key Findings:

- Only 497 of 11,183 clinical trials on ClinicalTrials.gov were included in our analysis.
  - Overall median trial enrollment was 367 individuals
  - Overall median trial duration was 55 months.
  - Our sample consisted of mostly Phase III RCTs (93.8%).
  - The RCTs were frequently funded by a single industry sponsor (66.2%).
- Health-related quality of life questionnaires were commonly used across our observed trials (49.7%)
- Overall survival rate (OS) was measured in 92.2% of trials.
- Least-reported core outcomes: Duration of Time Spent in Hospital at End of Life (0.6%), Time from Diagnosis to Treatment (0%), and Place of Death (0%).

Interrupted Time Series Analysis:

- Prior to publication (Pre-September 2016):
  - In September 2011, trialists adhered to 22.99% of outcomes in the lung cancer COS.
  - From September 2011 to September 2016: Statistically significant monthly increase 0.22% (P = 0.03, CI = [0.02, 0.42]).
- After publication (Post-September 2016):
  - In September 2017, trialists adhered to 4.10% of outcomes in the lung cancer COS.
  - From September 2017 to June 2023: Non-statistically significant monthly decrease of 0.20% per month (P = 0.16, CI = [-0.47, 0.08]).
- Overall, a non-statistically significant monthly increase of 0.02% is noted after COS publication relative to the positive trend before publication (P = 0.83, CI = [-0.17, 0.21]).

Table 2. Trial Characteristics

Characteristic	n = 497
Enrollment Number, Median (IQR)	367 (202 – 586)
Trial Duration in Months, Median (IQR)	55 (37 – 79)
Phase, n (%)	
3	466 (93.8)
4	31 (6.2)
Recruitment Status, n (%)	
Active, but No Recruiting	118 (23.7)
Recruiting	118 (23.7)
Completed	97 (19.5)
Unknown	94 (18.9)
Terminated	32 (6.4)
Not Yet Recruiting	26 (5.2)
Withdrawn	9 (1.8)
Enrolling by Invitation	2 (0.4)
Suspended	1 (0.2)
Funding Type, n (%)	
Industry	329 (66.2)
Hospital	51 (10.3)
Multiple Without Industry	39 (7.8)
Multiple With Industry	26 (5.2)
University	21 (4.2)
Government	13 (2.6)
Non-Profit	10 (2.0)
Individual	8 (1.6)
Type of Intervention, n (%)	
Multiple	268 (53.9)
Chemotherapy	157 (31.6)
Immunotherapy	31 (6.2)
Other	15 (3.0)
Radiotherapy	15 (3.0)
Surgical	6 (1.2)
Targeted Therapy	5 (1.0)

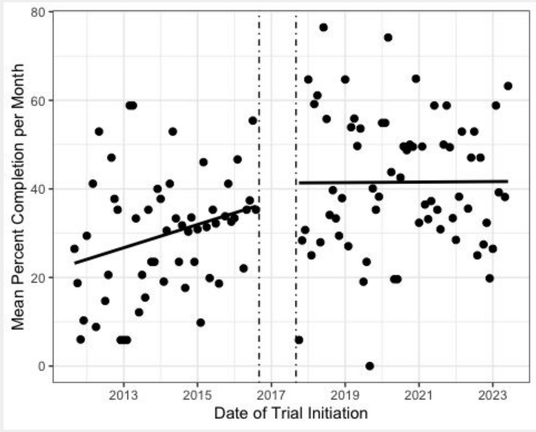

Figure 1: Interrupted Time Series Analysis

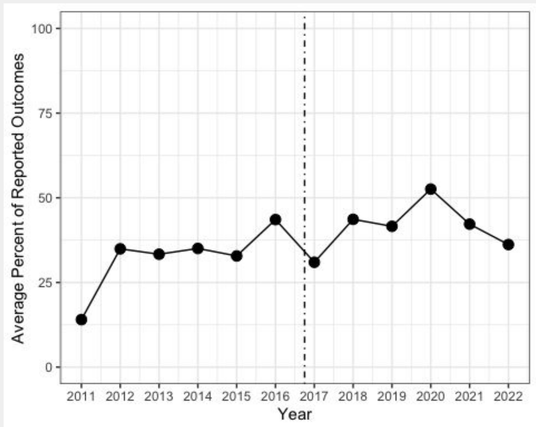

Figure 2: Avg. Reported Outcomes Per Year

CONCLUSION

Our study uncovered that despite the benefits of standardized COS in lung cancer clinical trials, adherence remains alarmingly low. Disregard for COS compromises data reliability and patient outcomes. The severity of our findings demand attention to ensure a more standardized and reliable approach to lung cancer research.

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REFERENCES