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| **The PLCOm2012 outperforms MSAC selection criteria for lung cancer screening** |
| Xinxin Hu [1](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180268), Katrina Tonga [1](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180268) [2](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180269) [3](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180271), Christopher Rofe [4](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180273), Kwun Fong [5](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180275) [6](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180288), Henry Marshall [5](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180275) [6](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180288), Fraser Brims [7](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180277) [8](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180279), Annette McWilliams [9](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180282) [10](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180299), Renee Manser [11](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180290) [12](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180291) [13](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180292), Elizabeth Silverstone14, Brad Milner[14](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180294), Duy Nguyen 14, Eugene Hsu 14, Emily Stone [1](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180268) [3](https://members.asnevents.com.au/event/1869/abstract/98104/view#affiliation_180271) |
| 1. *Department of Thoracic Medicine, St Vincent's Hospital, New South Wales, Australia.*
2. *The University of Sydney, New South Wales, Australia.*
3. *The University of New South Wales, New South Wales, Australia.*
4. *Sydney Children's Hospital, New South Wales, Australia.*
5. *Thoracic Research Centre and Department of Thoracic Medicine, The Prince Charles Hospital, Queensland, Australia.*
6. *The University of Queensland, Queensland, Australia.*
7. *Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Western Australia, Australia.*
8. *Curtin Medical School, Curtin University, Western Australia, Australia.*
9. *Department of Respiratory Medicine, Fiona Stanley Hospital, Western Australia, Australia.*
10. *The University of Western Australia, Western Australia, Australia.*
11. *Department of Respiratory and Sleep Medicine, Royal Melbourne Hospital, Victoria, Australia.*
12. *Department of Medicine (RMH), The University of Melbourne, Victoria, Australia.*
13. *Department of Internal Medicine, Peter MacCallum Cancer Centre, Victoria, Australia.*
14. *Department of Medical Imaging, St Vincent's Hospital, New South Wales, Australia.*
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| **Introduction/Aim:** The Australian national lung cancer screening program using low-dose CT chest is due to commence in 2025. This study aims to compare the utility of the Medical Services Advisory Committee (MSAC) eligibility criteria (age 50-70 years, >30 pack-year smoking history and smoking cessation<10 years) and the PLCOm2012 risk prediction model in selecting high-risk candidates for screening. **Methods:** We compared the eligibility of applicants in the NSW cohort of the International lung screening trial (ILST) according to two subgroups: the MSAC criteria and the PLCOm2012 risk prediction model at 1.5%/6 years. For each subgroup we also compared the predicted lung cancer risk according to the PLCOm2012 model and the cancer risk factors of eligible applicants. All variables were reported as mean+/-standard deviation and number (percentage). Statistical analyses were conducted using the Mann-Whitney, McNemar and Chi-squared tests with p-value<0.05 deemed statistically significant. **Results:** The NSW ILST cohort had 926 applicants. There were 502 (54%) eligible applicants when applying the PLCOm2012 criteria, 330 (36%) eligible applicants when applying the MSAC criteria, and 287 (31%) applicants were eligible by both criteria. The PLCOm2012 criteria enrolled more applicants than the MSAC criteria (54% vs 36%, p<0.001). The PLCOm2012 criteria selected applicants who were older (66±6yrs vs 62±4yrs, p<0.001), more likely to have a family history of lung cancer (28% vs 20%, p=0.011), less likely to be people who currently smoke (53% vs 63%, p=0.005) and had higher predicted lung cancer risk (4.94±4.24%/6yrs vs 3.90±2.79%/6yrs, p=0.001) compared to the MSAC criteria. The applicants selected by the PLCOm2012 and MSAC criteria were similar in sex (Female 52% vs 50%, p=0.56), race (Caucasian 95% vs 95%, p=0.96) and smoking consumption (49±22 vs 48±17 pack-years, p=0.37). **Conclusion**: Utilising the MSAC criteria to select candidates for lung cancer screening may exclude high-risk individuals with family history of lung cancer. **Grant Support:** None. **Declaration of interests:** None. **Conflicts of interest:** None. **Key words:** Lung cancer screening.Lung cancer.Screening program. Public health. **References:** None. **Word Count:** 300.   |