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Committee Secretary

Committee Select Committee into Funding for
Research into Cancers with Low Survival Rates
Department of the Senate
PO Box 6100
Canberra ACT 2600

To whom it may concern,

The Thoracic Society of Australia and New Zealand welcomes this review into the availability and models of funding for research into cancers with low survival rates. As a respiratory specialty society we are most interested in supporting any initiative which will address the extraordinary gap between the miniscule amount of funding dedicated to lung cancer and its devastating human cost to our society. The gross burden of disease and high economic cost of lung cancer make it a compelling priority for research.

We have outlined three recommendations to address the disparity between the high burden and paucity of funding for lung cancer research. 1) The burden of disease must be considered when allocating research funding; lung cancer has been neglected in the past and this needs to change. 2) Resources should be directed to infrastructure to support future collaborations. 3) Funds towards lung cancer should continue to be granted based on scientific excellence, however discovery through repurposing should be encouraged.

The Thoracic Society of Australia and New Zealand is invested in improving the lives of individuals with lung cancer and searching for a cure. We have established a joint initiative with Lung Foundation Australia with the clear goal of reducing the burden of lung disease in Australia through increased investment in research. The assistance of the Government through acknowledgement of this funding disparity is appreciated and future targeted research funding would be welcomed.

If any further information is required, please don't hesitate to contact me on +61 2 9222 6200 or via TSANZOffice@thoracic.org.au.

Sincerely,

Prof Allan R Glanville MBBS, MD, FRACP

President

Senate Select Committee into Funding for Research into Cancers with Low Survival Rates

Terms of Reference¹

The impact of health research funding models on the availability of funding for research into cancers with low survival rates, with particular reference to:

- a) The current National Health and Medical Research Council funding model, which favours funding for types of cancer that attract more non-government funding, and the need to ensure the funding model enables the provision of funding research into brain cancers and other low survival rate cancers.*
- b) The obstacles to running clinical trials for brain cancers and other cancers with relatively lower rates of incidence, with regard to:
 - a. Funding models that could better support much-needed clinical trials, and*
 - b. funding support for campaigns designed to raise awareness for the need for further research, including clinical trials;**
- c) the low survival rate for brain cancers, lack of significant improvement in survival rates, and strategies that could be implemented to improve survival rates and;*
- d) other relevant matters.*

About the Thoracic Society of Australia and New Zealand (TSANZ)

The TSANZ mission is to lead, support and enable all health workers and researchers who aim to prevent, cure and relieve disability caused by lung disease. TSANZ is the only Peak Body in Australia that represents all health professionals working in all fields of respiratory health.

TSANZ has a membership base of approximately 1500 individual members from a wide range of health and research disciplines. TSANZ is a leading provider of evidence based guidelines for the treatment of respiratory disease in Australia and New Zealand, undertakes a large amount of professional education and training, is responsible for significant research administration and coordinates an accredited respiratory laboratory program.

Thoracic Society Response

Summary

Key Point: Respiratory research is underfunded but lung cancer research funding is woeful.

Recommendation 1: Allocate funding per economic and burden of disease and potential to the impact change.

Recommendation 2: Support research by investing in infrastructure and encouraging collaboration.

Recommendation 3: Encourage discovery by repurposing.

Burden of disease

The statistics related to lung cancer in Australia are stark:

- Lung cancer kills more people every year than any other cancer²
- Lung cancer is the most common cause of cancer deaths in both women and men¹
- Lung cancer causes almost 1 in 5 (19%) of all cancer deaths^{2,3}
- In 2017, it is predicted that 1 person will die from lung cancer every day²
- Nearly 10% of all new cancer cases are a diagnosis of lung cancer³ and it is the fifth most commonly diagnosed cancer³
- The risk of an Australian male being diagnosed with lung cancer by his 85th birthday is 1 in every 13 men
- Survival rates for lung cancer patients are dismal at around 15%, and decreases to less than 1% for individuals with advanced metastatic disease³

Risk factors and the stigma of smoking

The biggest risk factor for lung cancer is exposure to tobacco smoke and lung cancer has long been neglected and subject to stigma as the “smokers’ cancer”. Yet the lung cancer epidemic hits approximately 20 years after the peak smoking incidence rates were achieved and we can expect to see increasing diagnosis of lung cancer into the future. But tobacco smoking is not the only cause. **One in three women and one in ten men diagnosed with lung cancer have never smoked and this proportion has increased over time.** Risk factors for non-smokers include dust, asbestos and occupational exposure which is responsible for nearly 1 in 3 cases of lung cancer in men and 5% in women.

Research Investment

Investment in cancer research has been shown to return an estimated \$3.70 per dollar invested.⁴ The improvements seen in cancer survival rates can be achieved with sustained investment and focused research. Survival rates for other cancers have improved dramatically in the past 25 years – up to 90% for breast,⁵ 94% for prostate⁶ and 43% for ovarian cancer.⁷ By comparison, investment in lung cancer research,

¹ Cancer in Australia: key facts <http://www.aihw.gov.au/cancer/cancer-in-australia/>

² Cancer in Australia 2017 <http://www.aihw.gov.au/publication-detail/?id=60129558547>

³ Australian Institute of Health and Welfare, “Lung Cancer in Australia”, last updated January 2016
<http://www.aihw.gov.au/cancer/lung/>

⁴ <https://www2.deloitte.com/au/en/pages/economics/articles/australias-health-and-medical-research-workforce.html#download>

⁵ Australian Institute of Health and Welfare, “Breast Cancer in Australia”, last updated January 2016,
<http://www.aihw.gov.au/cancer/breast/>

⁶ Australian Institute of Health and Welfare, “Prostate Cancer in Australia”, last updated January 2016,
<http://www.aihw.gov.au/cancer/prostate/>

⁷ Cancer Australia, “Ovarian cancer statistics”, last updated January 2016, <https://ovarian-cancer.canceraustralia.gov.au/statistics>

and consequently improvements in lung cancer survival rates, have so far been woeful: in 1968 lung cancer caused 32 deaths per 100,000 of our population and in 2013 it caused 31 deaths per 100,000.³

The Australian Government provides 66% of all direct funding to cancer research. The National Health and Medical Research Council (NHMRC) reports funding cancer as a whole to the value of \$192.3M in 2011 and we estimate that lung cancer received approximately 8% (~15M) of this support.⁸ For a cancer that is a leading cause of death, 8% of funding for research is simply shameful. The NHMRC is the single major source of funding for lung cancer research. Figure 1 identifies research funding sources for lung cancer.⁹

Figure 1 – Lung cancer research funding sources

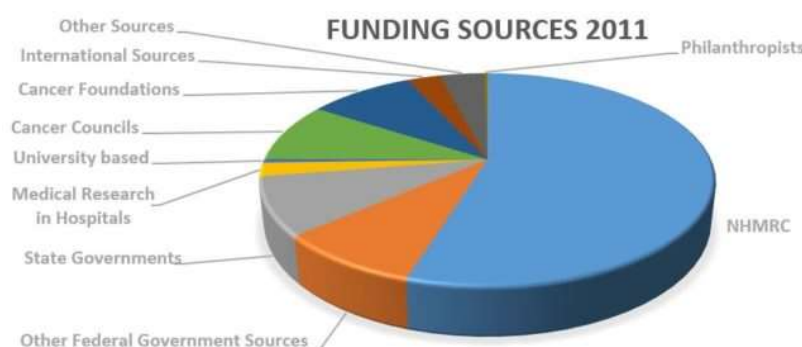


Image source: Lung Cancer Central⁹

Key Point: Respiratory research is underfunded but lung cancer research funding is woeful.

Health system expenditure on lung cancer is disproportionately low compared with other high burden cancers. The proportion of all cancer expenditure attributed to lung cancer is at 4.2% for women and 5% for men, yet lung cancer accounts for 19% of cancer deaths and is the fifth most common cancer in Australia.¹⁰

Lung cancer is the second leading contributor to the burden of disease (DALY) in Australian males.¹¹ More women die each year in Australia from lung cancer (1 in 29) than breast cancer (1 in 41).²

Recommendation 1: Allocate funding that reflects burden of disease and potential to impact change.

We recommend that research proposals which have the potential to improve the health of Australians and reduce the economic burden of disease are rewarded.

⁸ National Health and Medical Research Council. Research funding statistics and data, last updated 09 March 2017, <https://www.nhmrc.gov.au/grants-funding/research-funding-statistics-and-data>

⁹ Lung Cancer Central <http://www.lungcancercentral.org/lung-cancer-research-funding-australia/>

¹⁰ Cancer Research in Australia: An overview of funding to cancer research projects and research programs in Australia 2006 to 2011. Evidence to inform research investment. Australian Government, Cancer Australia <https://canceraustralia.gov.au/sites/default/files/publications/cancer-research-australia-overview-funding-cancer-research-projects-and-research-programs-australia/pdf/cancer-research-in-australia-full-report.pdf>

¹¹ Australian Burden of Disease Study, Impact and causes of illness and deaths in Australian, 2011 Page 25, <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129555176>

Recommendation 2: Support research by investing in infrastructure and encouraging collaboration

Funding collaboration of ideas and resources will enhance progress. Cancer research is typically conducted in disease-specific fields of research, yet discoveries will have application in other tumour-specific areas. Tumour-specific registries and networks are important, but greater improvements will be possible with infrastructure that encourages both non-tumour specific collaborations and crossover collaborations with existing networks.

Funding pipeline development will encourage translation. Collaboration can involve multidisciplinary teams taking a biomedical/mechanist discovery (developing treatments and interventions) through to a testing options for patients (animal and clinical studies), and then leveraging this discovery into determining (randomised controlled trial and meta-analysis) and defining the best ways to deliver it (i.e. dissemination and policy). As such, a large-scale network can engage clinicians, researchers, and consumers in testing approaches to translate research into practice.¹² This development cycle needs support from a multitude of teams along the way and such translation should be encouraged. **We recommend that research proposals which include research translation and multidisciplinary teams are rewarded.**

Recommendation 3: Encourage discovery by repurposing.

Repurposing known molecules and treatments for tumour-specific cancers and other diseases is a low-risk avenue to increase possible cancer therapies.¹³ This approach takes drug molecules which have already been designed, developed, characterised and tested for safety and efficacy in humans and applies them to a new formulation, method, or target. It is estimated that most safe-approved drugs will possess secondary indications for use in another setting.¹³ This will be a time and cost saving endeavour. There are numerous examples for drugs currently in use which were originally developed to treat a different illness.¹⁴ **We recommend that research proposals which seek to repurpose current therapies are rewarded.**

¹² Clancy, Carolyn M., Peter A. Margolis, and Marlene Miller. "Collaborative networks for both improvement and research." *Pediatrics* 131.Supplement 4 (2013): S210-S214.

¹³ Gupta, Subash C., et al. "Cancer drug discovery by repurposing: teaching new tricks to old dogs." *Trends in pharmacological sciences* 34.9 (2013): 508-517.

¹⁴ Boguski, Mark S., Kenneth D. Mandl, and Vikas P. Sukhatme. "Repurposing with a difference." *Science* 324.5933 (2009): 1394-1395.