

**Answers to Question on Notice - Associate Professor Deborah Yates  
Respiratory Physician**

**2021 Review of the Dust Diseases scheme – Public hearing 16 February 2022**

Mr DAVID SHOEBRIDGE: I did have another question about the artificial intelligence being used on X-rays and whether that is a good or a bad thing, given, as I understand it, your firm position is CT scans should be used.

**ANSWER:**

There have been many developments in the use of automated software programs for the interpretation of chest X ray and CT images over the last 10 years, and I have personally been involved in some of this work. It is the RACP and TSANZ's firm position that CT scans are preferably to chest X rays because chest X rays lack sensitivity in the diagnosis of pneumoconiosis and other lung disorders (including lung cancer). We have already applied machine learning techniques to chest X rays and these are moderately successful in detecting pneumoconiosis. These techniques are increasingly being applied also to CT imaging. It is likely that in the near future, automated machine learning techniques will enable more rapid processing of images obtained in respiratory surveillance programs, and we would encourage research in this area. However, the accuracy of this tool has yet to be evaluated. It is possible that this will eventually be a valuable tool which can be applied to occupational lung surveillance programs and will save time and money. This "artificial intelligence" is most likely to work best in screening out normal images, and expert interpretation from experienced radiologists will still be required as well as an appropriate clinical history. It should be remembered, however, that a diagnosis of silicosis or other diseases is made on the basis of more than just imaging and that these disorders can be very difficult to diagnose and may require several investigations. Thus, application of artificial intelligence could potentially be useful, but will never replace humans in the diagnosis of these diseases.