Question on notice:

Where are we at with screening for ovarian cancer…is there research and development going on to identify something?

Response:

Value and challenge with screening:

- Screening is used to assess an individual's risk of disease and is generally targeted to a large number of asymptomatic individuals (but may also be used to target at risk populations)
- Screening tests need to be focused on high sensitivity to limit the number of false negatives
- To achieve clinical utility, early screening must meet several requirements:
    - be frequent enough in the target population to justify screening efforts
    - pose a significant risk of mortality to those who have the disease and remain untreated
    - if the disease is caught early, there must be effective treatments available to patients to improve outcomes. They should also be affordable, offer minimal risk and be accessible.

Existing challenges in identifying effective screening for ovarian cancer:

- Requires high level of sensitivity to specific biomarkers for early stage disease.
- Challenge as there is low prevalence of disease in general population, and in addition there are multiple subtypes that present differently and have different pathology.
- Screening studies are plagued with the burden of proof given that it may take decades to collect sufficient data to show if any screening test is effective in demonstrating survival benefit given that ovarian cancer is less common and it depends on sufficient 'events' (new cases of ovarian cancer) to occur, be detected, and then monitor for outcome, for sufficient data to be obtained to demonstrate benefit.

- Alternate methods of imaging e.g. CT, PET, MRI lack sensitivity and are not cost effective.

Previous methods of screening considered but deemed ineffective:

- UKCTOCS is the largest and longest ovarian cancer screening trial and one of the largest individual randomised trials in the world.

- It sampled 202 638 women from the general population and used multimodal screening techniques (pelvic scans and CA-125 biomarker blood test) to follow women for a median of 11 years.

- The study[1] reported a 6% survival benefit in the screened population but this was not statistically significant – ie there was no survival benefit from being screened in those who went on to get ovarian cancer

[1] Menon, U., Gentry-Maharaj, A., Burnell, M., Singh, N., Ryan, A., Karpinskyj, C., Carlino, G., Taylor, J., Massingham, S. K., Raikou, M., Kalsi, J. K., Woolas, R., Manchanda, R., Arora, R., Casey, L., Dawnay, A., Dobbs, S., Leeson, S., Mould, T., & Seif, M. W. (2021). Ovarian cancer population screening and mortality after long-term follow-up in the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS): a randomised controlled trial. The Lancet, 397(10290), 2182–2193. https://doi.org/10.1016/S0140-6736(21)00731-5

Current research initiatives:

- Some new experimental approaches are being attempted in Melbourne and elsewhere in the world – e.g. protein-based markers at Monash and attempts at identifying circulating DNA elsewhere. However, the very nature of ovarian cancer, with considerable variation between patients, subtypes with distinct biological characteristics, and rapid disease progression, all impact of the feasibility of screening approaches.

- There is however very good evidence of prevention of ovarian cancer in high-risk individuals via genomic testing. The very important thing in Australia is that genomic testing is available and happens consistently as part of routine care and equitably no matter who a person is or where in the country they are treated.