Good morning everyone - thanks for the opportunity to join you.

Whenever I’m asked to speak wearing my ACRF hat, I’m always asked a minimum of four or five questions - all legitimate:

1. are you the Cancer Council or the same as the CC?
2. is cancer getting better or worse?
3. what’s happening to prevent it?
4. what’s happening to cure it?
5. why don’t all the cancer charities get together as one?”

The ‘snapshot’ answers are - NO, we’re not the Cancer Council and NO we’re not the same as the CC; the incidence of cancer is increasing - that might suggest it’s getting worse; there’s A LOT happening to prevent cancer; and there’s A LOT happening to prevent, treat, and cure cancer; good question, perhaps remind me to have a shot at answering it later
I’m always mindful that someone in any audience is highly likely to have been through or currently going through their own personal cancer battle - nothing I say is intended to add any extra burden to the load you’re already carrying - and nor is anything I might say meant to be personal to yourself.

I’m neither a scientist nor a doctor so regretfully can’t offer any private consultations - ACRF is a funding body for cancer research - we award up to $10 million a year for world-class research right here in Australia - EVERY dollar of EVERY donation we receive goes to research.

Awareness of audience affected by cancer - directly or through family - sensitive to this.

Whenever I’m asked to speak at a function like this, I always start with the line “No, I’m not from the Cancer Council”.

They do a super job but they don’t do what we do - and we don’t do what they do - BUT we understand that there can be confusion out there.

We’re a private funding Foundation - started 27 years ago by the late Lady (Sonia) McMahon and Sir Peter Abeles - we do just one thing - FUND GREAT CANCER RESEARCH RIGHT HERE IN AUSTRALIA.

The NOT SO GOOD NEWS - the incidence of cancer is increasing.
The VERY GOOD NEWS - the mortality rate from cancer is reducing.

WHY is it reducing - because of research - research is vital - it’s also about HOPE - but it’s also expensive.

Split my address into four parts:

1. CANCER AND CANCER RESEARCH - some facts
2. ACRF
3. PROSTATE CANCER
4. BREAST CANCER

PAUSE

1. CANCER & CANCER RESEARCH (generally)

The WORD cancer has a definition = generic term for a large group of diseases that can affect any part of the body - so when the taxi drivers ask me “have you got the cure yet - mate?”, I usually respond with another question “for which particular cancer - mate?”

Defining feature of cancer is rapid creation of abnormal cells that grow beyond usual boundaries, then invade adjoining
parts of body and spread to other organs. That’s called metastasis - and that’s most often the major cause of cancer deaths, not the primary cancer.

Some facts about cancer:

- 8 million people worldwide die from cancer every year (around 15% of all deaths) - by the year 2030, that figure might reach 12 million
- Lung, stomach, liver, colon and breast cancer are the cause of most cancer deaths each year
- Cancer arises from a change in one single cell. The change may be started by external agents and inherited genetic factors.
- The most frequent types of cancer differ between men and women - men = lung, stomach, liver, colorectal, oesophagus and prostate, and women = breast, lung, stomach, colorectal and cervical
- More than 30% of cancer deaths can be prevented (note PREVENTED) - melanoma and lung are two most obvious ones
- Tobacco use is the single most important risk factor for cancer
- More than 70% of cancer deaths occur in low/middle income countries
A gloomy start to the day??

Great science is strengthened by three things:

- terrific people working in good conditions and with THE BEST in technology (equipment).

There’s A LOT happening to prevent cancer.

And there’s A LOT happening to treat and cure cancer.

Some fabulous discoveries have been made - some already translating into great treatments to better diagnose, manage and/or cure.

Through research and good lifestyle, some cancers are either preventable eg cervical cancer and some skin cancers.

Better knowledge and better and more research help explain the lessening mortality rate.

Scientists know far more today than ever before..... and they continue to discover.

Treatments for many cancers already exist and it’s those treatments which are helping people manage their conditions much better than ever before.
BUT in research, sadly so, there are NO magic bullets - research is a hard and long grind - AND it’s damn expensive.

AND there’s another BUT - the sad truth is that for all the people and all the money in research, it can still take up to 15 years to turn a discovery into a medical solution - and one which is affordable. The expensive equipment we fund is one way of speeding up that timeline.

Pause

----------------------------------------

2. ACRF

SLIDES

Slide 2 - Our Dream

We fund two of those three things - the conditions and the technologies. And we are the only cancer charity which funds those two things - it’s expensive and it needs larger sums of money - we’ve now awarded just under $80.0 million in research grants, $50.0 million of which has been awarded in the last six years.

We DON’T fund the people, other funding organisations do. What our money does is give scientific teams new facilities and new technologies aimed at making their work EASIER AND FASTER - all, that to SAVE LIVES BY SAVING TIME.
In November last year, we announced three NEW research grants – across Australia – a total of $9.0 million - two grants in Melbourne, each for $2.0 million, and one here in Sydney - for $5.0 million - to one of the best melanoma research teams in the world.

We have helped to fund some truly world-class research:

i) the research of Professor Ian Frazer - who was not only Australian of the Year but is Australian scientist (with a very heavy Scottish accent to share the credit with the Scots), who discovered the relationships between the human papilloma virus and cervical cancer. The result? A vaccine which PREVENTS cervical cancer.

ii) the fabulous children’s cancer research team at the Children’s Cancer Institute of Australia here in Sydney - they are working towards a most challenging objective, that is, by the year 2020, 100% of children with cancer will recover and lead quality lives. It’s only 20 years ago when almost all children with cancer died - TODAY, 80% survive. By 2020, we want 100% to survive.

The $3.1 ACRF Drug Discovery Centre for Childhood Cancer - and we funded all of that $3.1 million on the back of a donation left by a Sydney lady in her Will - houses customised robotic technology that enables one year's medical research to be completed in just days.

Slide 3 - “Every dollar ....” - EXPLAIN THIS.

Slide 4 - ACRF - We’re different because ...
Slide 5 - Research grants map of Australia

Slide 6 - Research grants in the last two years

Slide 7 - Awarding the grants

Slide 8 - Garvan/St Vincent’s (Sydney) - photo

Slide 9 - Photos of previously funded research centres

Slide 10 - ACRF fundraising streams

Slide 11 - Blue September

Slide 12 - “It is possible” - World Cancer Day theme

Slide 13 - DO NOT DISPLAY

Pause
3. Prostate cancer - some statistics

- One in 9 men in Australia will develop prostate cancer in their lifetime. Around 20,000 new cases are diagnosed in Australia every year.
- Close to 3,300 men die of prostate cancer - equal to the number of women who die from breast cancer annually.
- Most common cancer in Australian men and the 2nd most common cause of cancer deaths in men.
- 78% of women felt well informed about breast cancer - only 52% of men felt informed about prostate cancer.
- Early, curable prostate cancer may not have symptoms.
- Simple testing by a GP can indicate prostate cancer.
- Early detection can be achieved with PSA (Prostate Specific Antigen) blood test or digital examination.

TESTING METHODS AVAILABLE?

Two simple ONES by a doctor:
• Digital examination - to feel the prostate gland. This may detect hard lumps in the prostate before symptoms occur.

• The Prostate Specific Antigen (PSA) blood test. This test measures the amount of PSA in the blood. PSA blood test is not a cancer specific diagnostic test however it will alert doctors to abnormal growth in the prostate. A combination of both a DRE and PSA blood test is recommended. If either the DRE or PSA tests are abnormal, the doctor may conduct a second series of tests or refer to a Urologist, who may recommend a biopsy. The biopsy is a definitive way of diagnosing prostate cancer and will determine the stage (how far the cancer has spread) and grade (how rapidly it is likely to spread).

**Who should be aware of prostate cancer and what should they do?**

Men aged 50 and do so annually. If there is a family history of prostate cancer, men should talk to their doctor from age of 40.

**TREATMENTS? (4 ways)**
i) **Radiotherapy**

Image guided radiotherapy (IGRT) and intensity modulated radiotherapy (IMRT) are two new techniques that allow the radiotherapy beams to best target the prostate and spare the surrounding normal tissues. Cure rates are good (same as surgery and brachytherapy, with very low risks of complications. Suit both younger and older men. Beams of radiation to ensure the prostate is completely covered whilst minimising the doses to surrounding normal tissues.

ii) **Surgery**

Remove the whole prostate - called radical prostatectomy. For some patients it is a very appropriate attempt for a cure. It involves 4-5 in hospital and another 4-6 weeks recuperating at home and has relatively short treatment/recovery.

The disadvantages are that the risk of impotence and incontinence (inability to control pees). Some risk infection, same for any surgery. BUT side-effects have considerably improved over the last ten years. Long-term severe incontinence is down to very low figures (about 2%). Nerve-sparing techniques in experienced hands can give far more rapid return.

iii) **Brachytherapy**

This is a more recent development in which radiation is delivered from inside the prostate. Low dose prostate seed brachytherapy
employs radioactive seeds which are permanently placed within the prostate to kill the tumour. Usually recovery is quick compared to conventional surgery. Brachytherapy side effects are mainly urinary frequency and urgency. Brachytherapy using seeds appears to have the lowest side-effects on sexual function.

Advantages include minimally invasive one-off procedure, lower risk of impotence, urinary incontinence and bowel problems. Patients are usually able to return to their normal activities within a few days.

iv) **HIFU (High Intensity Focused Ultrasound)**

An emerging new therapy which uses intense heat applied through the rectum to destroy the prostate and the contained prostate cancer. It’s extremely useful in older patients who are unsuitable for surgery or radiotherapy or who refuse surgery or radiotherapy.

**Pause**

---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**4. BREAST CANCER - SOME STATISTICS**

There are approximately 140,000 women living in Australia, who have previously been diagnosed with breast cancer and this number is expected to increase as more women are diagnosed.
It’s estimated that within the next 30 years, 27 million new cases of cancer will be diagnosed and 70% of these will be in the developing world. This will create a huge economic, social and health burden and creates an urgent need for breast cancer organisations and governments to work collaboratively to address this health crisis.

The number of new breast cancer cases amongst Australian women is increasing - most probably due to ageing of the population.

The chance of Australians surviving five years after a breast cancer diagnosis has increased - due to research into early detection and improved treatments.

In 2007 more than 12,500 Australian women were diagnosed with breast cancer. This number does not include the 7,000 women alive today who were diagnosed with cancer that has spread from the breast to other parts of the body (known as secondary, advanced or metastatic breast cancer).

Only 40% of these women will survive more than five years after Diagnosis, almost half the chance of survival for women diagnosed with primary breast cancer.

Once breast cancer has spread to other parts of the body (most commonly the bones, liver, lungs or brain), it usually cannot be
cured. Many women are living with chronic disease as current treatments only relieve symptoms and control further spread.

Researchers from the University of Melbourne have made use of current breast cancer screening methods to identify a link between two risk factors for breast cancer; inherited genetic faults density (shown by amount of white area seen on mammograms).

“Finding that several genetic faults linked to breast cancer are also linked to mammographic density could help explain some of the biological reasons why women of the same age differ so much in their risk of developing breast cancer. We hope our research will eventually help identify women at higher risk of developing breast cancer,” Professor John Hopper says.

**Conclude**

*Our Dream is to BEAT cancer* - it is possible - managing it along the way is the means to the end.

*Every dollar we receive in donations goes to research*

*We’re different because …*

**SLIDE 13 - THANK YOU**
RESEARCH SUCCESSES STORIES

Let me share a few stories discoveries, partly or wholly funded by ACRF - we all of course love to hear about great scientific results

Some of the latest breakthroughs:

1) Scientists at the Walter & Eliza Hall Institute in Melbourne have discovered the links between breast cancer risk and exposure to female hormones. This breakthrough research project - partially funded by a $5.0 million ACRF grant - found that breast stem cells, despite lacking receptors for the female hormones oestrogen and progesterone, are still extra sensitive to sustained exposure to these hormones.
2) Researchers at the Children’s Cancer Institute of Australia here in Sydney are working towards a most challenging objective, that is, by the year 2020, children with cancer will recover and lead quality lives. It’s only 20 years ago when almost all children with cancer died - TODAY, 80% survive. The challenge now is to ensure that those children affected by cancer will not only survive but lead lives free of any serious side-affects.

The $3.1 ACRF Drug Discovery Centre for Childhood Cancer houses customised robotic technology that enables one year's medical research to be completed in just days, to help prevent the deaths of the three children in Australia that die from cancer each week.

This robotic technology rapidly screens thousands of small molecule drugs to identify which ones have the potential to be developed into safer, more effective therapies that only target aggressive cancer cells and spare normal healthy tissue.

This drug screening technology is the only one of its kind in Australia devoted to childhood cancer research.

Professor Murray Norris, Director of the Drug Discovery Centre said.
“It took CCIA five years to manually search through thousands of potential drug candidates to find one of CCIA's most promising drugs in development for childhood cancer. With this drug screening robot we could potentially discover effective drug candidates within days,” Professor Murray Norris said.

Current treatment protocols have a high risk of long term side effects for childhood cancer patients, including learning disorders and hearing impairment and potentially future cancers. Findings from the ACRF Drug Discovery Centre could lead to a new era of personalised medicine – treatment tailored to the genetic make-up of the patient.

"Personalised medicine is the future for cancer therapy. The days of the one-size-fits-all approach to medicine will one day be over,” Professor Norris said.

“Our work involves identifying genes that are abnormally switched on in a child’s tumour and then finding a potential drug that can switch off, or change the behaviour of, that gene,” he said.

“We have identified a gene that is switched on in children’s cancers that respond badly, or are resistant, to chemotherapy. Once this gene is switched off, those children whose cancers have been resistant to traditional cancer therapies can now respond better to treatment.
“This new screening technology can save years of research and boost better outcomes for people with cancer,” he said.

3) Researchers at the Garvan Institute here in Sydney have identified two ‘biomarkers’ that appear to have the ability to predict patient survival after surgery for pancreatic cancer before the operation takes place. It is the first predictive tool of its kind for this most deadly of cancers. Surgery to remove pancreatic cancer is a high-risk operation, involves the removal of half of the pancreas which is wrapped around major blood vessels. Many cancer patients sadly die from surgical complications, while others will suffer from early cancer recurrence within six months.

But the surgery does significantly benefit many patients, and with the Garvan’s new discovery, patients can now be identified as suitable or unsuitable for surgery. Surgery involves at least 3 months recovery time, so the stakes are high and deciding who will and who won’t benefit ahead of time is important.

Biomarkers help ensure that the right treatment is given to the right patient without delay and unnecessary side-effects avoided by not using ineffective therapies. Professor Andrew Biankin, the lead scientist at the Garvan on pancreatic cancer
has stated: “At the moment, we make decisions about when to operate based on very indirect measures, such as CT scans, which aren’t really sensitive enough. This information will allow us to be more aggressive, even when a tumour is big, if it has a benign biology - that is, when neither biomarker is present. Conversely, if both biomarkers were present, we probably wouldn’t operate. We need something to help us when we’re making a tie-breaker decision, something to help us decide whether or not surgery is worth the risk. Ultimately, each patient has to decide “is this operation going to benefit me?” and if it’s not, why put yourself through the operation?”

4) **The Garvan** gets a second mention - researchers there are now closer to ‘switching off’ the gene identified as causing prostate cancer, following a world-first detailed description of gene expression in prostate cancer cells. Again ACRF funding has been vital to this discovery

6) **The ACRF Tasmanian Inherited Cancer Centre** will use the Tasmanian population to identify genes that predispose individuals to cancer. This centre is set to become a world-class cancer genetics program offering unparalleled access to both the genetic identity and environmental influences
responsible for the onset and progression of inherited cancers.

Researchers at the Menzies aim to identify not only disease genes but to use its significant expertise in epidemiology to discover the environmental triggers to disease. They will have the ability to make a significant impact on identifying the genetic predisposition factors to many familial cancers over the next decade.

Many cancers are caused by an inherited predisposition to disease that - along with a triggering event (genetic or environmental) - results in the onset of cancer. The Tasmanian population will be studied to identify genes that predispose individuals to cancer. Collections of large families with multiple cases of disease are rare, but they are easier to identify in isolated populations such as Iceland and Tasmania.

The centre will provide infrastructure for the collection and storage of DNA and genealogical information from cancer patients. It enables the ready access to stored histological specimens and provides a competitive genetics laboratory.
7) Acute myeloid leukaemia - WEHI

ACRF is delighted to be associated with positive research findings leading to possible treatments for Acute Myeloid Leukaemia (AML).

Scientists from the Walter and Eliza Hall Institute (WEHI) in Melbourne, in collaboration with local and international scientists, have found a potential ‘achilles heel’ for this terrible disease which has such a poor prognosis.

They have found that AML cells may be susceptible to medications that target a particular protein (called Mcl-1). Treatments removing that protein from AML cells can rapidly kill these aggressive cancer cells.

“Importantly, non-cancerous blood cells were much less susceptible to dying when Mcl-1 was depleted,” said lead researcher, Dr Stefan Glaser.

“This means that, if Mcl-1 inhibitors are developed, there may be a ‘treatment window’ in which AML cells are killed, while normal blood cells that are essential for health can be
spared, helping patients to recover from the treatment much better.”

AML is an aggressive blood cancer with poor prognosis and the most common type of acute leukaemia in Australia affecting children and adults. Of the most severe forms of AML, fewer than one in six have survived for five years after diagnosis.

Mcl-1 is part of the ‘Bcl-2 family’ - a class of proteins which regulate and motivate cancer development. They are known as pro-survival proteins. “Mcl-1 inhibitors may improve the outlook for AML patients who currently have a very poor prognosis” said Dr Glaser.

The gene for Mcl-1 was known to exist in AML cells, however until now it was not known that Mcl-1 was critical for AML cells to live.

The research has been published in the journal ‘Genes and Development’ in January 2012.