NATIONAL BREAST CANCER FOUNDATION TOWARDS 2030 REPORT CARD

2030

Tracking progress to Zero Deaths from breast cancer by 2030

A report card on the importance of continued breast cancer research

CEO FOREWORD

Last year the National Breast Cancer Foundation (NBCF) announced its ambitious 10-year countdown to Zero Deaths from breast cancer by 2030. This year alone, it's estimated that 20,000 Australians will be diagnosed with breast cancer. Without adequate funding, almost 30,000 lives could be lost to breast cancer by 2030.

Our mission is simple: stop deaths from breast cancer by 2030. How? By identifying, funding, and championing world-class research – research that will help us detect tumours earlier, improve treatment outcomes, and, ultimately – save lives. Since our inception in 1994, we've seen the five-year survival rate increase from 76% to 91%. It's proof our strategy of investing in world-class breast cancer research works but there is still progress to be made to reach 100%.

It is essential to continuously track and report how NBCF is progressing towards our mission of Zero Deaths. And so, we are pleased to release the NBCF Towards 2030 Report Card, constructed from information gathered through a national survey of 64 NBCF-funded researchers.

The Report Card provides a snapshot reflecting on:

1. The detrimental impact of COVID-19 on clinical research and patient outcomes
2. NBCF's impact on breast cancer outcomes
3. How NBCF is addressing the challenges and opportunities to reach Zero Deaths by 2030

We know with the continued support of our community we can move to a world where women expect to live well beyond their diagnosis of breast cancer. Towards 2030, we will continue to work collaboratively and demonstrate accountability to realise the importance of essential and efficient research to reach our mission.

Together, we can stop deaths from breast cancer.

Professor Sarah Hosking
CEO, National Breast Cancer Foundation

Professor Sarah Hosking, CEO

Report Card Data

The objective of the Towards 2030 Report Card was to measure NBCF's impact on breast cancer through funding research and assess how NBCF is tracking in the bid to help achieve Zero Deaths from breast cancer by 2030. Data was obtained from a survey conducted by 64 individual health and medical researchers. The survey opened in November 2020 and closed in December 2020.

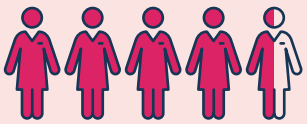
National Breast Cancer Foundation

1 | THE DETRIMENTAL IMPACT OF COVID-19 ON CLINICAL RESEARCH AND PATIENT OUTCOMES

Never have so many of the world's researchers concentrated on a single subject so urgently. The emergence of COVID-19 stimulated the creation of countless teams across the globe to combat and prevent the spread of the virus in a manner the medical research community has never experienced. The COVID-19 pandemic has demonstrated the value and impact of cohesive exploration but at the same time, created significant challenge in other areas of research.

Industry professionals, researchers, academics and even governments worldwide have come together to consolidate information and develop treatments to combat the COVID-19 pandemic all within less than 12 months.

For the broader clinical research community, the national pandemic closures and restrictions have had a direct impact on breast cancer research and its funding across Australia. Like many others, NBCF-funded researcher Dr Roberta Mazzieri at the University of Queensland noted COVID-19 working restrictions and lockdowns have "strongly delayed experiments, patient sample collection and the recruitment of students".



9 in 10 respondents anticipate their research program will take **over 12 months to recover** from the impact of COVID-19.

Early in the pandemic, NBCF introduced the COVID-19 Extension Fund, which offered:

Four months' extension to the research timelines for **38 grants**.

Support for the salaries of **53 researchers**, enabling them to see their research through to completion.

More than 90% of researchers reported the COVID-19 Extension Fund was **innovative**, **supported NBCF's researchers** when they needed it most, and was **appropriately reactive** to the circumstances.

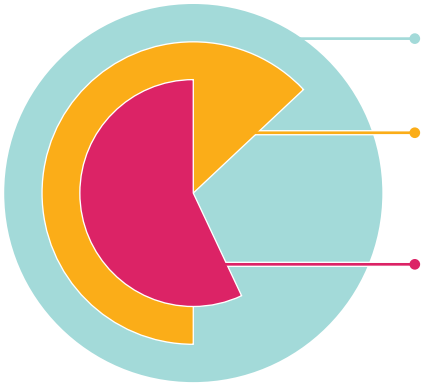
In 2020, COVID-19 presented many challenges to research, yet provided many insights into how collaborations across research communities can effectively contribute to game-changing clinical solutions. The availability of a COVID-19 vaccine could not have been done without a significant investment in research. The research leading to the development of COVID-19 vaccines did not begin in January 2020, it began more than 15 years ago with fundamental basic science on the biology of coronaviruses.

Much like COVID-19, decades of investment into breast cancer research has led to improving the five-year survival rate, which in 2021 is 15% higher than in 1994. With continued investment in breast cancer research, ultimately, NBCF will be able to stop deaths from breast cancer. Over the past 12 months, NBCF supported key projects to facilitate world-class research which could have crumbled without adequate funding. For NBCF to play their part in making Zero Deaths from breast cancer by 2030, they will require an investment of at least $100 million over the next nine years.

2 | NBCF'S IMPACT ON BREAST CANCER OUTCOMES

Since NBCF's inception in 1994, they have invested $183 million into 572 world-class research projects. These projects have contributed to the 15% increase in the five-year breast cancer survival rate over the last 27 years thanks to improvements in prevention, screening and treatment. To put that into perspective that's nearly 47,000 lives that have been saved thanks to funding from the generous Australian community.

8 in 10 researchers gave ratings of **above average or outstanding** for the **contribution of Australian breast cancer research towards Zero Deaths** compared to the international effort.



All researchers strongly agreed that NBCF provides an **essential source of funding** for breast cancer research.

Two-thirds of respondents confirmed their NBCF-funded research has **contributed to improved fundamental knowledge and understanding of breast cancer** in the last 10 years.

More than half of the respondents verified that their NBCF-funded research **supported improved treatment outcomes in breast cancer** over the last decade.

Providing funding and adequately supporting researchers is fundamental for the future of breast cancer research and medical innovation in Australia. Almost all researchers agreed that NBCF has played an important role in supporting their own research advancements to date (95%) and its funding had enabled them to secure additional research funding from other sources (90%).

"NBCF has sponsored our national meeting for many years which has led to the Kathleen Cuningham Foundation Consortium for research into Familial Breast Cancer (kConFab) being an international leader in familial cancer work."

– Associate Professor Heather Thorne, NBCF-funded researcher

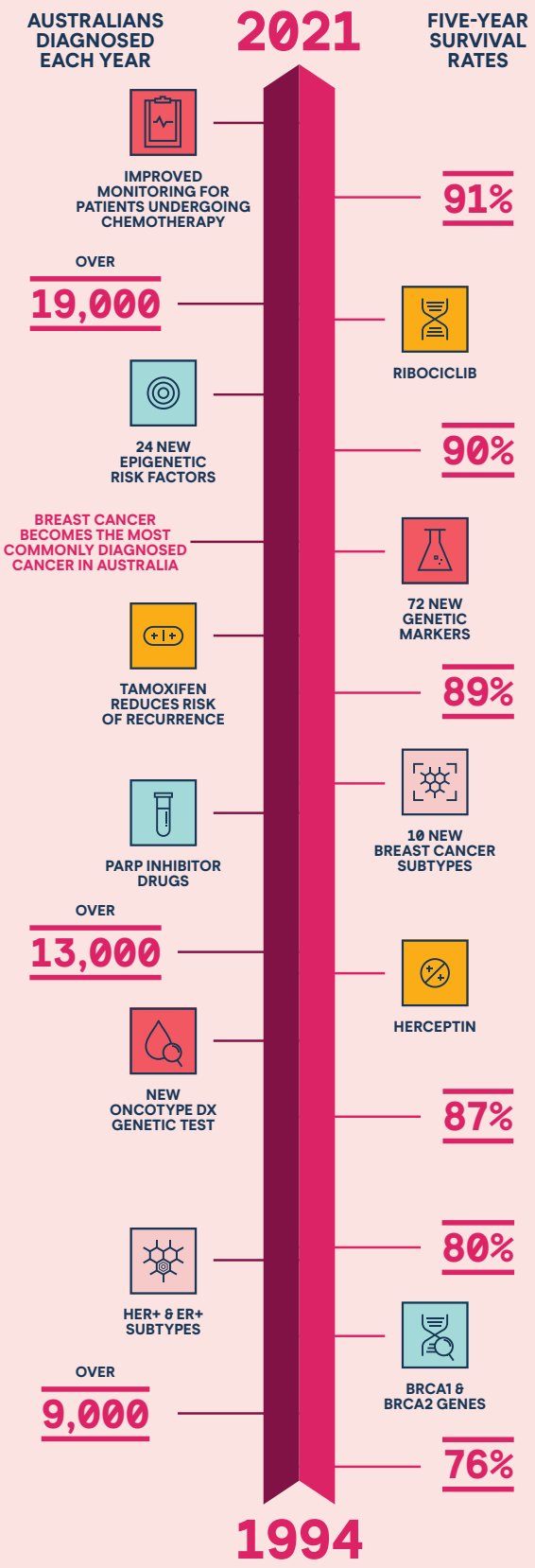
"The funding we've received from NBCF will allow us to apply our pipeline in the clinical setting and activate a phase I/II clinical trial of personalised cancer vaccinations for patients with triple negative breast cancer."

– Professor Riccardo Dolcetti, NBCF-funded researcher

NBCF has a continued focus and investment in research that will have an impact on the lives of women diagnosed with breast cancer, including projects focused on hard-to-treat breast cancers, such as metastatic and triple negative breast cancer. This is one of the ways they will shift the percentage of women who reach the five-year survival mark from 91% to 100%.

2 | NBCF'S IMPACT ON BREAST CANCER OUTCOMES

27 YEARS OF IMPACT



In the research area of **new and improved treatment**, NBCF-funded researcher Associate Professor Alex Swarbrick at the Garvan Institute of Medical Research will use Single Cell Genomics (SCG) to develop a world-first breast cancer cell atlas that will identify all the cell types present in a large cohort of different breast cancer types. This atlas will also identify the relative levels of drug targets on the cell types, which will help to provide a list of potential treatment options with a particular focus on immunotherapy drug targets.

"NBCF has funded some of my most ambitious and rewarding research, including the Breast Origin Cancer tissue donated after death, BROCADE+PDX program and the breast cancer cell atlas."

– Associate Professor Alex Swarbrick, NBCF-funded researcher

In the research area of **detection**, NBCF-funded researcher Professor Nehmat Houssami at University of Sydney led a landmark Australian pilot trial of 3D mammography (known as tomosynthesis) which showed higher breast cancer detection rates than with the standard 2D mammography. Findings from the trial, in which 10,046 women participated, have provided the basis to plan a large-scale study comparing 2D and 3D mammography for breast screening in Australia.

In order to determine which of the many applications NBCF receive should be funded, a rigorous peer review process is co-ordinated. NBCF is committed to awarding research funds with integrity, accountability and transparency. Through NBCF's grant schemes, they provide funding across a whole spectrum of breast cancer research – from basic discovery studies to accelerating the translation of results into clinical practice.

2 | NBCF'S IMPACT ON BREAST CANCER OUTCOMES

NBCF HAS AWARDED OVER

$183M

TO 572 BREAST CANCER RESEARCH PROJECTS ACROSS THE COUNTRY

Research that will help to detect tumours earlier, improve treatment outcomes and ultimately save lives.

RESEARCH INVESTMENT

$1 **$2.74**

FOR EVERY $1 THAT IS AWARDED TO RESEARCH, $2.74 IS UNLOCKED.

THIS IS DONE BY:

Identifying, funding and championing world-class research through a rigorous grants scheme process.

The significant results generated by NBCF-funded research can then be used to leverage additional funding from NBCF or other funding sources to continue their important work. On average, NBCF projects are able to secure $1.74 of additional funding for every $1 invested by NBCF, to progress their work towards Zero Deaths.

NBCF also identifies new and effective models of funding and ensuring that they don't stand alone but work collaboratively and creatively, ensuring they are able to further leverage our donor dollars.

NBCF ensures that any leveraged funding is for additional research, expanding or building on the work funded by NBCF through processes that ensure no funding overlap.

3 | HOW NBCF IS ADDRESSING THE CHALLENGES AND OPPORTUNITIES TO REACH ZERO DEATHS BY 2030

New technologies including Artificial Intelligence (AI), liquid biopsies, breast cancer vaccines and personalised mammography are huge opportunities for the detection and treatment of breast cancer. They are currently being investigated but limited funding is decelerating progress and the COVID-19 pandemic has, in some ways, slowed the advancement of some of these new approaches.

Funding is a challenge faced by most researchers. Almost all researchers (93%) agreed that a lack of funding for research was extremely challenging. Furthermore, 77% of researchers stressed that finding grants and successfully securing funding, which is different from lack of funding, is extremely or very challenging. During the recovery phase of the COVID-19 pandemic, the research community need to rebuild labs and get their projects back on track resulting in a hiatus in research.

Lack of appropriate funding can be discouraging for researchers in Australia and the wider breast cancer research community faces the loss of current and future talent. The respondents believe that insufficient funding in the research sector will result in many world-class researchers leaving the industry permanently.

"Due to a lack of NHMRC and ARC funding, I have decided to step down from my role managing the flow and microscopes, and will begin the transition away from research, which includes slowly shutting my lab over the next 12 months."

– Associate Professor Andrew Burgess, NBCF-funded researcher

While most researchers disclosed that a lack of clear and stable career pathways for breast cancer researchers was extremely challenging (82%), it was encouraging that 88% of researchers agreed NBCF had played an important role in supporting their career to date.

"As a clinician, it was hard for me to obtain a senior/well-funded research fellowship, so I was likely to move away from research. My NBCF Leadership Fellowship was awarded to me at a critical phase of my research career, it allowed me to further develop as a researcher and build my breast cancer research program to a stage where I am much more strongly positioned to secure other sources of funding."

– Professor Nehmat Houssami, NBCF-funded researcher

THE RESEARCH NBCF FUNDS

Prevention and risk
A greater understanding of the risk factors for developing breast cancer will be key to prevention, and ultimately eradicating breast cancer.

Detection
Early detection of breast cancer is key to saving lives.

New and improved treatments
New therapies or new applications for existing therapies is the key to improving patients' outcomes.

Quality of life
With more breast cancer survivors than ever before, maintaining a positive quality of life is a crucial part of treatment outcomes.

3 | HOW NBCF IS ADDRESSING THE CHALLENGES AND OPPORTUNITIES TO REACH ZERO DEATHS BY 2030

To overcome these challenges faced by researchers, NBCF has a range of new and unique opportunities outside of the awarded grants scheme:

ENDOWED CHAIRS (10-YEAR PROGRAM)

The Endowed Chairs Program comprises two long-term 10-year research grants for a total value of $5 million each, which includes a co-contribution from the recipients' host institutions. Endowed Chairs are designed to keep mid-career researchers in Australia and focused on research that will lead to the next breakthrough. Professor Sherene Loi is one of NBCF's Endowed Chairs, championing the development of new treatment by combining targeted and immune therapies for breast cancer patients.

"We've seen some really promising results in the most recent breast cancer clinical trials I've been involved with, particularly using immunotherapy drugs for women with triple negative breast cancer (TNBC) and HER2-positive breast cancer. Through these trials we saw increases in survival that we've never seen before."

– Professor Sherene Loi, NBCF-funded researcher

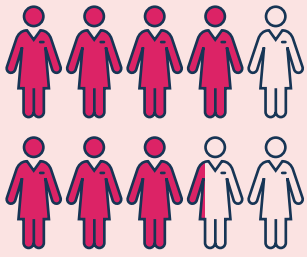
NATIONAL AND INTERNATIONAL FELLOWSHIPS

Fellowships are awarded to researchers who, along with their funded work, demonstrate the greatest potential for impact in breast cancer research and as a future leader.

To support international knowledge exchange in breast cancer research and clinical training, NBCF created a network of international institutions and established an Australian-first International Fellowship program. The first NBCF International Fellowship has been awarded to Dr Brooke Wilson, who will complete a two-year training program at Princess Margaret Cancer Centre, Toronto ON, Canada. She will undertake fragility index analysis of breast cancer clinical trials, look at the global application of resource stratified guidelines for breast cancer treatment, and also apply competing risks analysis to breast cancer treatment approaches in high and low-middle income countries (LMIC).

Researchers were asked about the importance of NBCF's research themes in reaching its goal of Zero Deaths from breast cancer by 2030. All themes were rated as important with 86% of researchers rating new treatment as extremely important.

In the next 10 years



8 in 10 researchers are **working on treatments** which they believe will **lower the number of deaths** from breast cancer.

Over two thirds of researchers believe their research will **directly lower the number of deaths** from breast cancer.

CONCLUSION: TOWARDS 2030

This time last year, a COVID-19 vaccine looked near impossible, and now Australia is embarking on its national vaccination program.

If the Australian public and research community can apply that same fierce determination, flexibility and collaboration with the broad community, they can work together to support and advance research to help Australia reach NBCF's goal of Zero Deaths from breast cancer by 2030.

NBCF-funded researchers have shown incredible resilience despite the hardships brought upon them by COVID-19. With NBCF's support through its unique COVID Extension Fund, researchers were able to continue their groundbreaking work. However, further funding is required with 9 in 10 researchers anticipating their research program will take over 12 months to recover from the impact of COVID-19.

The five-year survival rate for breast cancer has increased from 76% to 91% since NBCF's inception in 1994. Researchers have agreed that NBCF's research grants program is essential for securing funding and continuing their important work towards Zero Deaths. In addition, through unique fellowships and 10-year funding schemes, NBCF is helping researchers to overcome roadblocks such as lack of funding and unstable career pathways, leading to improvements in breast cancer technology and treatments to save lives.

But the job's not done.

With continued support and funding from the Australian community, NBCF can continue to fund world-class breast cancer research projects and develop new, innovative technologies to stop deaths from breast cancer.

For NBCF to play their part in making Zero Deaths from breast cancer by 2030, a minimum investment of $100 million by the community over the next nine years is needed. As a community-funded organisation, NBCF can't reach their goal alone.