

A global challenge:

On the lookout for research ideas for the prevention of breast cancer

Two million people are diagnosed with breast cancer each year, and yet research has remained heavily focused on treatment rather than prevention. In California, however, there is a research programme hoping to change that. The California Breast Cancer Research Program is launching the Global Challenge to Prevent Breast Cancer with the aim to bring to the fore cutting-edge research and ideas pertaining to the prevention of this life-threatening disease.

If you know someone (or more than one person) who has suffered with breast cancer, you are not alone; breast cancer is the most common cancer type in women in not just the United States, but worldwide. Treatments of the disease can be very successful and in recent years a huge amount of money and resources has gone into discovering more effective ways of managing it. The vast majority of women now survive the diagnosis.

There are some researchers and healthcare professionals, however, who feel the focus of research should be on prevention rather than treatment of breast cancer. Along with the fact that treatment is expensive and not always available to all who need it, there has been worrying research recently that has suggested that there may be some environmental

factors included in the causes of breast cancer. The California Breast Cancer Research Program (CBCRP) has set up the Global Challenge to Prevent Breast Cancer (GCPBC), an award which grants cash prizes, recognition and opportunities to develop to the best and most exciting research into breast cancer prevention. *Research Features* caught up with Dr Marion (Mhel) Kavanaugh-Lynch (CBCRP Director) and Professor Richard Jackson (GCPBC Evaluation Panel) to find out more about the scheme.

Mhel, you are director of the CBCRP, the group behind the challenge. Can you tell us a little more about CBCRP?

Mhel: The CBCRP is the sponsor of the GCPBC. The mission of CBCRP is to prevent and eliminate breast cancer by leading innovation in research, communication, and collaboration in the California scientific and lay communities. CBCRP is the largest state-funded breast cancer research effort in the nation and is administered by the Research Grants Program Office within the University of California Office of the President. CBCRP is funded through the tobacco tax, voluntary tax contributions on personal California income tax

forms and individual donations. Since 1994, CBCRP has awarded over \$280 million in research funds to institutions across California. CBCRP strives to push research in areas that are often underfunded or overlooked, including environmental exposures, health disparities, and primary prevention.

You can learn more about CBCRP at www.CABreastCancer.org.

And Richard, could you tell us a little about yourself?

Richard: I'm a paediatrician but throughout my career I have focused on environmental health. I worked for the California department of Public Health for about 15 years, and one of the things I did was start a toxicology unit. Early on we were worried about pesticide poisoning and over time the issues of chronic exposures, cancer and birth defects loomed ever larger. In the early '90s, I was recruited to be the Head of Environmental Health for the United States at the Centre for Disease Control and for almost ten years I was the Head of the National Centre for Environmental Health at the Centres for Disease Control and Prevention. One thing we developed



was the ability to measure chemicals in people, called biomonitoring. We discovered that young women of reproductive age had the highest levels of phthalates in their bodies. It didn't take long to discover that lipstick, for example, was 50% phthalates and that these women were using cosmetics more than other members of the population. This led to a whole regulatory effort around those chemicals. I am now based at Fielding School of Public Health at UCLA – from this position I can do more direct advocacy.

What is the Global Challenge to Prevent Breast Cancer (GCPBC)?

Mhel: The GCPBC is a competition designed to surface game-changing breast cancer prevention research ideas.

This challenge, sponsored by CBCRP, aims to advance breast cancer primary prevention by providing cash prizes, feedback from respected researchers and the opportunity to present ideas to prominent leaders in the field. The most promising ideas will frame CBCRP's future funding strategy and will be further developed in California with \$15 million in grant funding from the programme.

How is GCPBC different from existing initiatives like Breast Cancer Awareness month? Why is prevention so key?

Mhel: Despite significant advances in breast cancer treatment, people continue to be diagnosed with breast cancer at astounding rates – rates that have remained unchanged over the past

three decades. Of the \$2 billion spent on breast cancer research each year, less than ten percent is dedicated to prevention research. The opportunity for discovery is immense, and the time for breakthroughs is now – to help prevent the more than two million breast cancer cases that are diagnosed each year. The GCPBC is an opportunity to move beyond Breast Cancer Awareness month and focus on research to reduce breast cancer across the population by stopping it before it ever starts.

Richard: Current public knowledge of the disease revolves around genetics and diet, but a fundamental issue for those (like me) in environmental health relates to new research in this field. There's a saying that, "the genes load

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 Global Challenge to
PREVENT Breast Cancer
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Mhel Kavanaugh-Lynch, Director of the California Breast Cancer Research Program.

the gun, but the environment pulls the trigger". In other words, just having cancer genes on board doesn't mean you have to develop breast cancer; it is often something else (like dietary fat, hormones, exogenous chemicals or manmade chemicals) that push one 'over the edge' to develop cancer. For a long time (15 years) I have felt that the whole research effort around

breast cancer was too focused on fat, diet and pharmaceuticals, and needed to pay more attention to environmental chemicals. The GCPBC is an opportunity for new ground-breaking research like this to make it out there, and then for prevention to really become a possibility.

There will be two grand prizes, one awarded to a researcher and one

awarded for the strongest idea from a non-researcher like a patient or advocate. What prompted the decision to include the wider community in this way? What do you hope this will add?

Mhel: The CBCRP was created from the energy, wisdom, and dreams of the women and men affected by breast cancer. Honouring that vision, advocates are involved at every level of our programme. Their participation reminds us that breakthroughs are not meant to languish in scientific journals, but instead should be leveraged into practical use to have a greater impact against the disease. We know that advocates and laypeople can have profound insights into breast cancer research and we want to leverage their wisdom. We are all in this together!

Richard: So many of us have a personal experience of breast cancer even if we have not actually suffered from the disease itself – my grandmother, who I loved dearly, died of breast cancer. My mother who I adored, and who was a widow at age 27 and raised me, had breast cancer, but did not die of it. My closest cousins, two of them young women, have breast cancer. As Mhel said, we are all in this together.

How will the challenge entries be judged? What challenges do the judges face when it comes to making a decision?

Mhel: All eligible applications will be judged by members of an Evaluation Panel composed of respected researchers and advocates. Three members of the Panel will be assigned to each submission and will score applications based on the challenge's three criteria – boldness, impact, and relevance – as well as provide high-level comments on the idea. Ten to 12 finalists will be selected to present their ideas to a prominent Selection Committee at a public event, which will be live-streamed. Two award winners – one in the advocate category and one in

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Professor Richard Jackson, Fielding School of Public Health at UCLA, is a member of the challenge's evaluation panel.

the researcher category – will be named at this event.

Richard: Firstly, there are many research proposals that tend to be fuzzy and when you look at the sample size, the outcome measures, the exposure measures, they're not really adequate. A winning proposal has to be good science and it has to be robust. Secondly, I am very interested that findings be translatable into policy. From an environmental health perspective, there is often a lot of hostility to science that points at environmental threats.

But, personally, what I want to say about the judging is that I do of course have to be a bit critical up front. But I am also clear that we have to support people who are worried about the public good, are worried about women, are worried about breast cancer in both women and men.

I want to get involved. What do I do next?

Mhel: This is an incredible opportunity to help change the trajectory of breast cancer research. We encourage you to register at the Challenge website for

updates and news, submit your idea there and encourage anyone you think might be interested to do the same (<http://topreventbreastcancer.org/>).

What changes do you hope to see (or even bring about) in the next five years of breast cancer research?

Mhel: We hope this Challenge will stimulate new areas of research in the primary prevention of breast cancer. This will allow the CBCRP to invest heavily in this area and to demonstrate to cancer funders worldwide that these investments are possible. We hope this will result in a shift in breast cancer research – bringing investment in primary prevention from below ten percent where it is now to significant levels, ultimately leading to drops in breast cancer incidence worldwide.

Richard: On a personal level, I am at an age now where I see cancer in a lot of my friends and colleagues, and I am very impressed at some of the mechanistic work and immune therapies available. One thing I fear though is that the whole area of research, partnering

with the pharmaceutical industry, has created some marvellous new treatments, but a lot of them run at bank breaking costs: over \$200,000 for the treatments. How do we make sure that everyone can benefit from this, and that we are not cheating the poor, cheating those who are powerless? The dichotomy in the United States between the care that wealthy people get and what most people get is just disgraceful. I would hope that the outcome of the Challenge serves everyone. It should benefit everyone, but particularly those who need it most – if cancer can be prevented in the first place, then treatment cost will matter less.



You can contact CBCRP at Challenge@CABreastCancer.org or +1 (888) 313-2277.