Breast Cancer NETWORK NZ

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Upfront U Kaiora

OFFERING INFORMATION, HOPE AND INSPIRATION TO THOSE AFFECTED BY BREAST CANCER

THOUGHT OF THE DAY

Nothing will ever be attempted if all possible objections must first be overcome ~ Samuel Johnson

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• from the editor •

Fabulously Informative: BCN's successful seminar

BCN's fabulously informative seminar and expert panel on breast cancer and environmental risks was held on the 21st of July at the King's School Memorial Hall and Arts Centre.

After a Powhiri led by Pio and Krissy Jacobs, Kim Sipeli welcomed the seminar attendees and introduced Prof Ian Shaw. A consummate public speaker, Prof Shaw engaged with the audience and with self-deprecating humour managed to get across some of the basics of molecular biology as it pertained to endocrine disrupting chemicals. So good was he at explaining how xenoestrogens mimic the action of natural estrogen, I doubt that there was anyone in the audience who was not convinced of how these chemicals exert their influence in the body. His talk confirmed what many of us already believed – that the "sea" of estrogenic chemicals in which we live is having adverse effects on women and men, and quite probably contributes to a heightened risk of breast cancer. He concluded by saying that "We should control exposure to xenoestrogens as this might reduce breast cancer incidence."

After morning tea, Prof Charlotte Paul was welcomed to the lectern. She delivered an important message with diethylstilboestrol (DES) as the villain of the piece. Her talk was a pointed reminder that not all dangers come from poorly regulated chemicals that are ubiquitous in our environment. The drug DES was unleashed with the best of intentions but with far too little follow-up, adversely affecting the health of the women who were given the drug and their daughters. Research is currently investigating the possibility of heritable epigenetic effects in the third generation (grandchildren of women given DES) which involves changes to the way genes behave.

Seminar speakers and BCN members (from left: Barbara Holt, Barbara Mason, Violet Lawrence, and Professor Charlotte Paul) being greeted after the Powhiri by (from left) Pio Jacobs, BCN Chairwoman, Kim Sipeli, and Krissy Jacobs.

After the lunch break we heard from five women who have had breast cancer, talking about their risk factors for the disease. All acknowledged that they will never know for sure what caused it, but all can see in their earlier lives, factors that are probative for breast cancer. One of the strongest messages from these talks was the need for information and for people to make more informed decisions about their health and well-being long before there may be any concern about a serious disease such as cancer.

Our final speaker was Dr Barbara Cohn via a video link from the United States. Disconcerting though it must have been for

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her, speaking to a camera rather than to real live people, her audience was very attentive. She spoke primarily about DDT and breast cancer risk making the point, through comparing her research with other research on the topic, that it is vital to consider windows of susceptibility – the time of life in which exposure occurred – rather than just that exposure did occur. Some research has refuted a link between DDT and breast cancer, yet Dr Cohn's research that involves data from participants over 50 years has shown that women exposed in early childhood and through puberty do, indeed, have an increased incidence of the disease.

Finally, the seminar was wrapped up with an hour of questions put to our wonderful experts. The questions were thoughtful and intelligent, and the experts very forthcoming in their answers, as they had been all day. In fact, both Prof Shaw and Prof Paul had fielded so many questions and conversations over the breaks that they had barely had time to eat and refresh themselves, and we are immensely grateful for their commitment and availability.

The day was concluded in dramatic style – a full evacuation of the venue when a fire alarm went off. Even a fire engine attended. At this late stage of the day many chose not to return to the auditorium, and missed the presentation of beautiful Maori carvings and heartfelt "thank yous" to our expert speakers.

Sue Claridge

The video footage of the talks is on the BCN website. For those who couldn't attend the seminar, or if you would just like to revisit the talks please go to www.breastcancernetwork.org.nz. If you would like the talks on DVD please contact the office at admin@bcn.org.nz

• from BCN Committee •

We wish to thank all those who made the seminar 'Breast Cancer and Environmental Risks – do NZ levels of endocrine disrupting chemicals initiate or promote breast cancer' a most enjoyable and successful day, and to know from you what BCN should do now.

Our thanks to those who supported us financially: Trillian Trust, NZ Lottery Grants Board Minister's Discretionary Fund and the Lion Foundation (funds from our 2007 conference were used to meet the shortfall). Our thanks also go to Tracey Asher of TMA Design for the advertising posters and brochures. The Headmaster and King's School allowed us use of their wonderful facilities for free and all day we had the freely given and very helpful assistance of Carolyn Prebble, King's School Director of Development. Z and BP donated petrol vouchers for those who travelled some distance to attend. Our thanks to Kitty and Pio Jacobs for our powhiri. As tangatawhenua, the powhiri offered a wonderfully warm and traditional opening of our seminar, both for Breast Cancer Network committee members, and other manuhiri attending. Special thanks to Sue Claridge, editor of Upfront U Kaiora, who from her notes and a copy of the slides gives us, in this issue, a wonderful synopsis of our seminar. All of us, I know, wish to thank our most informative speakers: Ian Shaw, Charlotte Paul, Barbara Cohn and the women who spoke so generously of their own experiences.

The Seminar was a continuation of an objective of Breast Cancer Network to reduce the risk of breast cancer. The fire alarm brought a premature halt to question time and meant that we had no opportunity to ask you for your thoughts. What we would like is to know from those who attended, or anyone who is reading *Upfront U Kaiora* or who views the talks online: What needs to be done now? Where should we go from here? Or let us have your thoughts on Facebook. The committee has ideas, and we have received some good feedback already from participants, but we do need further ideas and comments.

If you are enjoying reading this copy of *Upfront U Kaiora* and are not a member of BCN, or have still to renew your membership please do so. Becoming a supporter member is another way of ensuring BCN continues to speak for women who wish to see a reduction of the incidence of breast cancer in New Zealand.

Lessons from DES By Sue Claridge

Between 1966 and 1970 seven young women were treated at the Vincent Memorial Hospital in Boston, for a rare clear cell adenocarcinoma of the vagina. Almost by chance doctors made the link between the unusual incidence of this very rare cancer and the drug diethylstilboestrol (DES). One of the mothers of the seven girls mentioned that she had been prescribed DES during pregnancy and upon making inquiries Dr Howard Ulfelder found that several other mothers had taken the drug. The link was confirmed by a case-control study.

DES, a synthetic oestrogen created in 1933, was administered to an estimated six million pregnant women between 1940 and 1971 in an attempt to reduce the risk of miscarriage. It was marketed to women who had suffered multiple miscarriages and was promoted as a prophylactic to healthy women to prevent miscarriage, although it was subsequently found to be ineffective. In the US alone, at least one million mothers were exposed to the drug and between two and four million children were exposed in utero.

Use of DES fell in the late 1950s although it wasn't until 1971 that the US FDA removed miscarriage as an indication for the drug and added pregnancy as a contraindication for DES use.

In her seminar address Professor Charlotte Paul asks why DES is important now when use of the drug ceased in the late 60s and early 70s.

DES adversely affects the mothers who were prescribed it, the daughters and sons who were born to those women who took it during their pregnancies and, current research suggests, the grandchildren of those women through epigenetic effects. Mothers who took the drug have been shown to have an increased risk of breast cancer. However, it is their daughters who have suffered the greatest damage. They are at greater risk of reproductive tract abnormalities (vaginal adenosis, cervical ectropion, transverse cervical and vaginal ridges, hypo-plastic uterus, T-shaped uterus); infertility and pregnancy loss; and cancer (clear cell adenocarcinoma of the vagina and cervix, and breast cancer).

Prof Paul and colleagues investigated the use of DES in New Zealand in the 1980s and found that 650 women were known to have been prescribed the drug, although she believes that this was a gross underestimate. Her research revealed a major problem with undertaking long-term follow-up. Medical records are only required to be kept for ten years and, if issues arise after that period, it can

Professor Charlotte Paul

be very difficult to determine who and how many people have been affected. Thus New Zealand medical records are not sufficiently reliable to investigate the risks and benefits of drugs after a relatively short period of time.

In fact, there has never been a systematic effort to find out who was prescribed DES in this country making it very difficult to know how many DES mothers, daughters and grand-daughters may be at risk for increased incidence of related problems.

Due to the lag time in which these health problems may appear, it is possible that the peak for conditions such as vaginal and breast cancer may yet be reached.

When only considering the risk of breast cancer among DES daughters it has been found there is, among 40 to 55 year old women, an absolute increase in risk of 1.7%, from 2.2% in unexposed women to 3.9% in exposed women. The increase in risk is dose-dependent meaning women who had the highest in utero exposure have the greatest increased risk of breast cancer.

However, later and fewer pregnancies among DES daughters because of their fertility and pregnancy loss problems, is a confounding factor in determining the extent of their increased breast cancer risk.

In conclusion, Prof Paul points out that DES is the first known transplacental carcinogen and this has implications for research into other endocrine disrupting chemicals. The DES story is an important reminder that not all dangers come from unregulated and under-regulated chemicals in the environment. Medical drugs carry risks which are often not fully understood until years after the drug has been widely used in the community.

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Breast Cancer Network NZ

BCN VITAL STATS

Breast Cancer Network (NZ) – established in 1993 is an organisation for women with breast cancer and their friends and families. It aims to promote increased efforts to prevent and cure breast cancer – by advocacy, education, information and networking.

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BCN gratefully accepts any bequests. For more information please contact the office.

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Are Estrogenic Chemicals the Key to the Puzzle?

By Sue Claridge

At the beginning of his address Professor Ian Shaw dedicated his talk to his mother, Audrey, who died from breast cancer in 2009. It was a poignant reminder that so many in our community are affected by this disease.

Then he began by providing some background to the study of endocrine disrupting chemicals (EDCs) and breast cancer.

"In 1996 Louis Guillette Jr published what has now become a seminal paper that showed that alligators in Lake Apopka, Florida, had lower levels of the male hormone, testosterone and shorter penises than their counterparts in nearby Lake Woodruff. Guillette attributed his findings to female hormone (17β -estradiol)-mimicking pollutants in Lake Apopka."

The adverse effects are not confined to alligators. Male trout are expressing vitellogenin – an important protein in the formation of eggs – and French oysters are not breeding. In humans, girls are reaching puberty earlier, sperm counts are decreasing and breast cancer rates are rising.

Estrogen-mimicking chemicals work because they "have molecular attributes that closely resemble the shape and orientation of key chemical groups on the 17β-estradiol molecule and therefore they are able to fit into the estrogen receptor (ER) in a lock and key manner – the ER is the lock and estrogens are the keys that unlock the cell's femininity."

Prof Shaw, through a series of diagrams, more than adequately demonstrated the molecular similarity between natural estrogen and a range of xenoestrogens such as bisphenol A (BPA) and genistein (a phytoestrogen from soy beans). They fit into the ER and "trick" the cell into thinking it is estrogen.

The ER evolved in a time in our development when there were not xenoestrogens in our environment. It is "designed" to distinguish between estrogen and testosterone, not between estrogen and other estrogen-like molecules. Although xenoestrogens are not exactly like natural estrogen and therefore have a weaker estrogenic effect – Prof Shaw described them as being like a key with some of the teeth missing – that doesn't mean that the effects cannot be dramatic.

Prof Shaw says that the "most striking effects are those in men – men have very low estrogen levels and so are affected more by exposure to xenoestrogens – they are feminised by exposure (for example reduced sperm count)."

"Pre-pubertal girls and post menopausal women have similar estrogen profiles to men and so they too are affected. Exposure to xenoestrogens is thought to explain the reducing age of puberty in girls and might be part of the mechanism of post-menopausal breast cancer."

Women who are in that reproductive period between puberty and menopause are least affected by xenoestrogens because the effect of them pales into relative insignificance alongside the flood of much higher levels of their own estogens in their bodies.

Perhaps of greatest concern is the exposure of unborn babies to these chemicals. The placenta is a brilliant organ; it knows just what should and should not cross to the growing fetus, and stops the mother's estrogen from affecting the baby, using a biochemical barrier which pumps estrogen out, and also enzymes that metabolise the hormone. Although BPA and genistein look like estrogen to the estrogen receptor, the placenta doesn't recognise them, and they travel straight across to the baby at a critical time in development.

Prof Shaw also talked about dibutylphthalate (DBP) which is used as a plasticiser and has been used in cling film; it has been replaced because it is so estrogenic. DBP was also used as a pesticide in jungle operations during the Malay Emergency in the 1950s (see Kim Sipeli's talk on page 7). In a study recently published (*NZ Med.* J, 2012, 125, No 1358) Carran and Shaw found that children of Malay war veterans had an increased risk of undescended testicles (5.1% versus about 1% in the normal population), hypospadias (2.5% versus 0.3%) and breast cancer (4% versus 0.48%). Prof Shaw believes that the sperm is affected epigenetically and that DBP interferes with testosterone metabolism leading to an imbalance between testosterone and estrogen. That the effects on boys (undescended testicles and hypospadias) occur during fetal development indicates that the changes leading to breast cancer also occur in utero.

Research has shown that in the laboratory, endocrine disrupting chemicals such as xenestrogens, stimulate cell division in breast cancer cells. In addition, levels of EDCs are higher in the adipose (fatty) tissue of breast cancer patients, particularly in post-menopausal women. Prof Shaw says that this doesn't mean that EDCs cause breast cancer, but they might be one of the risk factors. At the moment we simply do not know if there is a causal relationship.

There is no doubt that "we live in a sea of estrogens, and that humans and animals are exhibiting effects that can be associated with the estrogenic action of these chemicals. There is evidence that exposure correlates with breast cancer. Prof Shaw is sufficiently convinced by the evidence so far, to say that we should be controlling exposure to EDCs and that this action may reduce the incidence of breast cancer in the future.

Windows of Susceptibility

By Sue Claridge

The mechanisms of diseases, such as breast cancer can be incredibly complicated to detect. Among other variables, genetics, exposures, and timelines complicate simple cause and effect explanations.

Breast cancer remains one of the leading causes of cancer deaths among women in the Western world, and is a classic example of why exposures, risks and outcomes can be so complicated to determine. After decades of study and millions of dollars, the mechanisms behind breast cancer remain unclear.

The paucity of human studies with long follow-up is a barrier to research on environmental causes of breast cancer. Very long-term (greater than fifty years) studies allow exposures during early development to be measured and potentially related to breast cancer development later in life.

The work at the Child Health and Development Studies (CHDS), of which Dr Barbara Cohn is the Director, tackles research challenges with a cohort of over 15,000 participants that has been tracked for many decades. Such a rich data source is an incredibly valuable resource to further research that can answer questions about disease prevention at each stage of the life cycle.

In her talk, Dr Cohn used DDT as a case study to demonstrate that the science is not straight forward; that exposure to a toxin, chemical or other risk factor is not in itself a determinant of subsequent breast cancer. The critical issue for many exposures is timing.

Breast tissue changes many times during life in response to chemicals and hormones in the body, and it has evolved to respond very quickly; consider how fast the breasts change in response to pregnancy.

Human studies are consistent with the hypothesis that both exogenous and environmental risk factors for breast cancer interact with stages of mammary gland development early in life: in utero, during puberty and during pregnancy. The period of time before breast cells have fully differentiated* is the period in which they are most vulnerable: in the womb; during puberty and during pregnancy. Less is known about the vulnerability of breast cells post-partum and peri-menopausally.

To illustrate the importance of windows of susceptibility (WOS), Dr Cohn referred to risk from ionising radiation. The greatest breast cancer risk to survivors of the atomic bombs in Hiroshima and Nagasaki were among those women who were under the age of 20 at the time of exposure.

Studies that do not consider WOS are probably limited in their usefulness, as the research on DDT demonstrates.

DDT is one of the most universal exposures in human history starting in about 1945. It is very persistent in the environment and still exists in our environment, in the soil for example, despite it being banned in 1972 in the US and Europe and later in many other countries. It is still used in some countries for control of malaria carrying mosquitoes.

The major component of commercial DDT was *p,p'-DDT* with smaller but significant amounts of *o,p'-DDT*. DDT metabolises to p,p'-DDE. The human body doesn't deal with the different forms in the same manner. Over time *p,p'-DDT* and *o,p'-DDT* diminish – are eliminated from the body – but p,p'-DDE is extremely persistent and it is not known if we can ever eliminate it.

In research undertaken on adults four to eight years after the chemical was banned in the US and Europe, it was found that under 1% of the population had *o,p'-DDT* in their blood, under 40% had *p,p'-DDT*, but 100% of the population had *p,p'-DDE* in their blood.

Dr Cohn points out that, while testing for DDE is convenient, it is unlikely to accurately reflect exposure to *p,p'-DDT* decades earlier because DDE is so ubiquitous in our environment.

"Not surprisingly DDE measured in adults is not a risk factor for breast cancer in more than 19 studies. But, adult studies do not test exposure to DDT-related compounds during windows of susceptibility."

The problem is "how do you do research over 50 years" and how do you know what the exposures were during the windows of susceptibility in study participants. Clearly for most research you can't, which is why the CHDS is so important.

CHDS started in the 1950s and recruited all pregnant women who were using Oakland Kaiser health services.

"The CHDS lab provided all routine blood work for free as incentive to participate in the study. At the same time the CHDS collected blood to store for future study. Women completed a thorough interview about their health, previous pregnancies, this pregnancy, their health behaviour and their husband's health behaviours."

Over 15,000 women participated in the CHDS between 1959 and 1967, and information on over 20,000 pregnancies was collected. Over 65,000 serum samples – drawn in most pregnancies at each trimester of

pregnancy and at post-partum – are stored and these samples enable assays for markers of immune function, hormone levels and environmental exposures.

This amazing collection of samples, which measured DDT during windows of susceptibility, have shown that there is a substantial association of *p,p'-DDT* during pregnancy with subsequent development of breast cancer. There is a significantly stronger effect for women who could have been exposed before puberty.

For example, women over the age of 14 in 1945 when DDT began to be widely used were not exposed during early breast development. Women with low exposure during each of three age groupings (under four years, 4 to 7 years and 8 to 13 years) show no increased risk of breast cancer. However, women with moderate and high exposure during those ages show substantially increased risk of breast cancer. The greatest increased risk was among women who had high levels of exposure under the age of four years.

These results show why it is critical to consider windows of susceptibility and is an important lesson for other studies investigating the association of diseases such as breast cancer with environmental exposures. Dr Cohn concludes that replication of studies with the same design flaw is not informative, despite their consistency.

Her work has shown how important it is to undertake long-term (greater than fifty years), multi-generational studies in order to determine the impact of environmental exposures on the breast and development of breast cancer.

** full differentiation of the breast cells occurs after the first full-term pregnancy and breast-feeding which is why these events are protective against breast cancer.*

• New Zealand Women Speak •

All women want to know why they got breast cancer. It is an entirely natural response to want to know why; what caused it. It is a question that currently can not be answered for individuals. All we know is that some women have more risk factors than others. Upon diagnosis many women begin to delve in to the medical and scientific literature searching for answers. BCN's seminar featured five women who believe that factors in their early life may well be responsible for the development of their disease. They know that they can't prove anything, and for some of them the things that may have contributed were beyond their control. But they hope that by sharing their stories, other women can make more informed choices in their lives that may reduce their risk of developing the disease.

Gillian Woods

Gillian was diagnosed with breast cancer in 1989 when she was 46 years old. It was initially devastating to feel that her life might be shortened and her barely-teenage sons left without a mother. Although the news was an awful shock Gillian said she also had a sense of inevitability, as her breasts had already given her "quite a bit of trouble."

When she was 26 she found a lump in her right breast, a lump which was removed and found to be a fibroadenoma. This was followed by three pregnancies in which she lost her babies, resulting in her being exposed to a lot of hormones, both natural and synthetic. After a miscarriage in her first, she was given weekly injections of progesterone during two subsequent pregnancies. After her third pregnancy she was given an injection of oestrogen to dry up her milk, a practice she had already been told had been halted in some hospitals because of a link with breast cancer in some women in the US.

Gillian was not told what the injection was for or what it was until after it had been administered, and she said that she would have appreciated having a choice about this.

Gillian and her husband adopted a baby boy before trying again to have another baby. A specialist to whom she was referred would not even consider giving her progesterone, saying only that, "it was out of date and not done these days."

Gillian had monthly breast checks from before the age of thirty and these "were a bit of a nightmare as general lumpiness seemed to come and go". Before she turned 40 she was sent for a baseline mammogram which used a high dose x-ray machine. This machine produced a remarkably clear picture but was abandoned quite quickly because of the high dose of radiation involved.

Gillian has been reading and thinking about breast cancer and its causes for 20 years. She now knows that she experienced a number of things associated with increased risk: dense breast tissue, first full term pregnancy after 30 years, x-rays, including the high dose mammogram and twice-yearly chest x-rays taken while working in a TB laboratory. In addition, she had the large oestrogen injection to dry up her milk, and weekly progesterone injections over two pregnancies.

In her wider family, only one aunt had breast cancer, but her entire family – mother, father, brother and herself – were diagnosed with cancer within just eight years.

Gillian was a medical laboratory technologist for many years, and was exposed to a lot of phenolic disinfectants and other chemicals. In one department, three young charge technologists in succession (including her) had major problems with pregnancy. Was this a coincidence? She has since learned that medical laboratory workers are among occupational groups with a higher than average risk of breast cancer.

Gillian asked if it is possible to put these pieces of a life-long puzzle together, to make any sense of the things that happened, to assess their role in causing her breast cancer. She doesn't know but wonders if some or all of them interacted adversely to cause it.

Barbara Holt

Barbara was born in 1936, the heaviest at birth of four children. She was menstruating by age 11 and grew to 178 cm by age 14, but has never been pregnant, and admits to having been slightly overweight since her mid-30s. There were three other women in her mother's family, with probable Hispanic Jewish ancestry, known to have had breast cancer.

Barbara now believes having more than one exposure to medical radiation before the age of 40 helps to account for her two breast cancer episodes. Ionising radiation is still the only proven cause of breast cancer. It was discovered many years after atomic bombs were detonated over Hiroshima and Nagasaki that the greatest risk of breast cancer was in females exposed to radiation in their teens and early 20s who developed it many years later. In early puberty, when Barbara was first found to have a rare form of acne called *hidradenitis suppurativa*, she was treated with radiation to her face and chest. The 2010 edition of Dr Susan Love's Breast Book reports an increased rate of breast cancer among women treated for chest acne in puberty.

When Barbara was 24, and in England on her OE, she briefly and unknowingly shared a room in a hostel with a woman who had infectious TB. Barbara was required to have chest x-rays every few months for at least a year to test for TB. At this time there seems to have been no awareness of the cumulative effects of radiation in young people causing cancer later.

Back in New Zealand in 1976, Barbara was again given radiation treatment for her serious skin condition. A Wellington surgeon removed sweat glands from under her right arm and arranged for her to have radiation to that area.

At age 50 in 1987, Barbara found her first breast cancer lump (Grade 1) in her right breast just below the area irradiated in the 1970s. Following her lumpectomy, under arm node clearance (all clear) and radiotherapy, she had mammograms every year for 11 years. As she had dense breasts – in itself a risk factor – she always had to have four films taken of each breast instead of the standard two. When her second breast cancer was diagnosed it was again in the right breast. After a mastectomy and three years on Tamoxifen, she has been free of breast cancer for the past ten years.

In preparing her talk, Barbara read the President's Cancer Panel Report (published 2010), in which the panel, in the section on medical radiation, said the FDA will collaborate to develop a patient medical imaging history card to measure cumulative radiation exposure. She concluded by saying that BCN could recommend this to the New Zealand government, along with ensuring that truly informed consent be obtained for radiation procedures.

• New Zealand Women Speak •

Kim Sipeli

Kim's breast cancer journey began when celebrating her husband's birthday with his sister at a whanau barbecue in Brisbane, in May 2009. She got the call on her husband's cell phone telling her to come back and see them at BreastScreen Aotearoa as quickly as she could on her return home. Her latest mammogram showed something wasn't right and she knew then and there it was cancer.

By early June she had had a partial mastectomy; her histology results indicated a one centimetre estrogen-receptor positive cancer. The surgery was followed by five weeks of radiation therapy and she has been 'clear' ever since. It's been three years since her operation; sometimes it seems like only yesterday to Kim, and she always wonders about the HOW! Not 'why me', but how or what caused it.

Kim was fit, very healthy – she doesn't drink alcohol or smoke –with no family history of breast cancer. She doesn't have a lot of information about her family's medical background, but her mother died from bowel cancer. She was diagnosed with late stage cancer and it was not talked about, so Kim doesn't know the details.

So, what caused the first cell to change? Kim is a librarian so reads a lot and sometimes surfs the internet, in particular using Google Scholar. In her first year of investigation into possible causes of her breast cancer she attended a lecture at the Liggins Institute and listened to Professor Ian Shaw talking about the New Zealand Malaysia Veterans Dibutylphthalate (DBP) Exposure Project. Professor Shaw spoke about an increase in breast cancer in families of DBP exposed veterans. The chemical also causes genital tract deformities in boys born to men exposed to the chemical (hypospadias, where the urethra is positioned abnormally on the penis; and cryptorchidism or undescended testicles).

DBP was used to kill chigger mites which carry scrub typhus. The chemical was painted onto the seams of clothes during jungle operations and it was absorbed through the skin.

Kim's father served in Malay Borneo in 1959 and his clothes would have been saturated in the chemical. Soldiers were known to use their bare hands to plaster the DBP onto their uniforms. Kim was born in 1960 and wonders, is there a connection between her father's service in Malaysia and her breast cancer fifty years later?

Kim can never be sure that this episode in her father's life contributed to her breast cancer, but there is increasing evidence that girls born to men exposed to DBP have a higher risk of the disease (see Prof Ian Shaw's talk on page 4).

Anna Mackey

Anna was diagnosed with breast cancer in early 2009, at 35 years of age. It was a 'triple negative' cancer and her treatment included surgery, chemotherapy and radiotherapy, finishing in December 2009.

Anna was diagnosed with rheumatoid arthritis when she was 21. Rheumatoid arthritis is an autoimmune disorder in which the body attacks its own tissue. To manage this debilitating disease Anna was prescribed painkillers and anti-inflammatories to alleviate symptoms, and the immuno-suppressant, methotrexate to reduce the progression of the disease.

The methotrexate worked very well in suppressing the immune response, and gave Anna a good quality of life for 15 years. She also used a healthy lifestyle to help in the management of the rheumatoid arthritis, and because of the medications, she couldn't drink alcohol. She stopped taking the methotrexate when she was diagnosed with breast cancer.

A number of conditions have to be present for cancer to occur; there must be damage to cell DNA which enables the cells to multiple very quickly and also not to die "on schedule" (apoptosis), and the immune system must fail to round up these rogue cells and kill them off. Immuno-suppressant drugs suppress the ability of the immune system to do its job and attack invading pathogens and rogue cells.

After her breast cancer diagnosis, Anna began to investigate a possible link between her rheumatoid arthritis and the drugs she was taking, and breast cancer. There is nothing definitive in the medical literature, but immuno-suppressants have been linked to the development of other malignancies although there have been no long term studies.

Although there is no scientific evidence it is Anna's perception that the drugs she was on for her rheumatoid arthritis may have contributed to her breast cancer and by choosing to stop taking the methotrexate she feels she has done something to regain control of her body.

Anna highlighted the challenges of having multiple medical conditions and the sense that no medical specialists have a 'big picture' view of your health and the impact one condition may have on another.

Violet Lawrence

Violet was diagnosed with breast cancer in December 2009, after finding a lump in her breast only nine months after a clear mammogram. Her mastectomy and chemotherapy were followed by a reconstruction and uplift of her unaffected breast. Violet has always been very concerned to share her journey with others, bravely participating in Damien Nikora's photographic exhibition (See *Upfront U Kaiora* 94).

As a child and young adult, Violet's life was somewhat contradictory as far as breast cancer risk factors.

Growing up in Mohaka, Violet's whanau were self sufficient, growing their kai and living a lifestyle that most whanau envied. Then along came the pesticides to eradicate the blackberries along the roadside, which also killed their source of food; her whanau were not impressed.

Violet's father was a 28th Maori Battalion veteran, and alcohol and smoking were used to cope with battles fought against the Germans in the Middle East. As a teenager, by her own admission she smoked and drank far too much alcohol. On the plus side of the ledger she had her children young – one at 18 and the second just days before her 20th birthday. However she bottle-fed them rather than breast feeding, and today advocates for breastfeeding.

When Violet was being treated fo breast cancer, she asked her breast care nurse why so many wahine are dying from breast cancer. She is concerned about the lifestyles of many of her people – their choices to smoke and drink and eat unhealthy food. Today, Violet is a multiple stroke and breast cancer survivor, and wants to spread the message about what it takes to stay healthy. She believes it is important that Maori and Pacific Island people are informed about what it takes to stay healthy, and is determined to speak her mind if it will make a difference.

When Cleavage Is No Longer an Option… By Leslie Clague

When I was diagnosed with breast cancer in 2000, one of the great supports in dealing with the nightmare was reading other women's struggles. Their stories helped me to make informed decisions about what procedures were right for me. The stories also gave me strength and courage in what was a terrifying ordeal.

As well as telling my story, I find I also want to discuss the importance of women's breasts to their psyche. Let's face it: we spend an awful lot of time, effort and thought on our breasts. Bosoms are big business as well as nurturers, sex objects, definers of who we are as women. Perhaps, this is the reason breast cancer is seen as such a catastrophe.

It was June 2000 and I was at the Napier Municipal Theatre. I was dressed for the evening – a concert featuring Bryn Terfel, the exquisite Welsh bass-baritone. I was wearing a wine velvet pant suit with a scooped neck top, exposing a lovely line of cleavage. Mature cleavage, mind you, as I was 54. I was rather pleased with myself, walking in on the arm of my husband. I was going through menopause but felt I was still slim, and dare I say, attractive enough to be flaunting said cleavage. I was in a warm mood and looking forward to the show.

As the music began, it was almost as if I could feel it vibrating in my right breast. I glanced down. Yes, there, towards the centre, could I actually see a lump? My fingers traced over the area in the dark. It was still there; a definite lump. By intermission, I decided I would see the doctor again.

I say again, because almost a year prior, in the shower, I had thought I'd felt a lump in that area. Self examination was promoted, so occasionally I did a poke around. In 1998, I had found a lump on the outside of my left breast. It turned out to be a cyst and a dose of antibiotics did the trick in about a week.

In 1999, when a small lump of sorts seemed to be appearing on my right breast, I trotted off to the doctor. He wasn't so certain when he poked. He said it definitely wasn't a cyst, and sent me for a mammogram; the results came back clear. So I got on with my life, including a rather stressful job with a not too pleasant boss, ignoring my boobs for a while.

However, from time to time I still thought there was a lump. I got my hubby, Bill, to have a feel; he wasn't sure and told me not to stress. Six months later, over drinks with some work colleagues, a woman assured me that lumps happen in breasts all

the time, "especially as we get older."

Now dressed in red velvet, celebrating the start of a brand new job, my body was telling me to check it out.

So I went back to my GP.

"You mean it is still there?" he said. "You should have come sooner."

Thanks, I thought. Why didn't you give some guidance like that last year?

Another mammogram, and "Oooh. So sorry, there is a definite growth. But we are not sure if it is cancerous. Let's do a biopsy."

I can't really remember how I felt at this stage. I probably drank a bit more wine in the evenings, (a habit to be noted for later). I know I was not looking forward to a needle being inserted fairly deeply into the centre of this growth. I'd had a similar experience with my ovarian tubes when I was trying to get pregnant at 38 (also to be noted for later), which was not pleasant.

My husband came with me and supported me through the process. It was not too terrible and I went back to work that afternoon.

The results were delivered not by my GP but by a local general surgeon, to whom the results had been sent. He had a good reputation and I trusted him. Yes, there was cancer. Not a hugely aggressive type, but none the less, the Big C. Interestingly, the cancerous part was encased in a tumour capsule; the outside of the tumour was thought to be benign. The surgeon gently suggested it was time to remove this growth, cutting away tissue around it, but he would be careful to preserve my nipple.

My husband was with me during this announcement and I think his reaction was worse than mine. I remember turning to look at him and seeing tears in his eyes. The enormity of the announcement left me numb; in shock. What would happen at work? I had only just begun this very wonderful job. And how was I going to tell my teenage daughter?

The first person I told at work was my 2IC, Wendy, who would be looking after the place in my absence. Amazingly, she was a breast cancer survivor of six years. A tad older than me, she had a great sense of humour and an incredibly positive attitude to life. Her battle had left her with lymphoedema and she struggled with her right arm.

Wendy said to me "You go girl. Just go and get it done. We will be fine here at work." She also added, "We have a lot of good books on breast cancer here at the library. You might want to have a look…."

So began my study of the disease and what it did to people.

I told my boss, Neil Taylor, the Chief Executive for the city council. He said take your leave now and keep me posted on how you are going. Amazingly there was no discussion about the shortness of my time with council, nor any negotiations as to pay. I left the day before my surgery, not realising quite how long I'd be away. My salary was paid to me throughout, for which I am eternally grateful; no added financial pressure to bear on top of the cancer trauma.

The surgery could have been done under a local anaesthetic, but I explained I was a devout coward and wanted to be out completely, thank you.

I had lumpectomy surgery in late July and was able to leave hospital after 24 hours. However, we were summoned to the surgeon's office about a week later. Having fully examined the nature of the tumour that had been removed, the surgeon advised that he now thought a greater chunk of the breast needed to be taken away. After this happened I would need radiation therapy for about six weeks. As there were no radiation therapy facilities in Napier, it would mean travelling to Palmerston North, about a three hours' drive, once a week to have this happen. There was a bus service to take Napier patients if that was more convenient.

It was at this point that my reading on breast cancer kicked in:

"What if I have the whole breast removed?" I asked.

"In that case, the radiation therapy will probably not be necessary if nothing is found in the lymphs."

Ah, the lymphs – they were the big deal in all of this. One tiny cancer cell in the lymphs

meant the cancer could spread to other parts of the body – notably the lungs or liver. With total breast removal the lymphs are removed as well.

If one went with the partial removal of the breast and radiation treatment, there was the option of having breast reconstruction. Often the new model breast is formed by using stomach tissue. That did have a slightly morbid appeal: a re-fashioned boob plus a tummy tuck all in one hit! I certainly could use a tummy tuck.

However Bill and I had talked. He wanted what was the safest and easiest for me. Frankly, the thought of extending the worrying any longer with radiation, plus what tended to happen to one with radiation – hair loss, illness, exhaustion – did not appeal. I opted for total breast removal with the hope the lymphs were clear, and surgery was scheduled for early September.

My daughter was afraid and upset, but also very supportive. She, too, thought it best to remove the entire breast.

"It's only a breast, Mum." Spoken like a small breasted young woman, I thought, something I had been prior to my 30s when I had started to round out in that department.

I felt bad because she would feel compelled to manage her breasts more carefully as breast cancer was now 'in the family'. However, there was no prior history of breast cancer in my family. My paternal grandmother had died of leukaemia. My father died of lung cancer, after living in smoggy Los Angeles and smoking two packs of ciggies a day. Certainly, my mother was shocked by the diagnosis; ironically, in her mid-eighties, she too got breast cancer and had the same treatment as me.

The second surgery was harder. On one level it should have been easier: same hospital, same surgeon, same anaesthetist. However, being knocked out twice in as many months makes for a longer recovery time and, of course, there was more of me removed.

It was on the third night in hospital that I awoke and suddenly the enormity of what had happened hit. I had been pretty strong and positive until then. A huge wave of depression descended on me as I reflected on my deformity, my risk of future illness and on all the sad things that had befallen our family in the past. I was running out of life and the time to do the things I always wanted to do. I sobbed and couldn't stop. Two nurses came and comforted me. One quietly suggested that some counselling, once out of hospital, would probably be a good thing.

It was on day five that they removed all the bandages. I was sitting up in bed and for the first time I looked down to see the results. I swear the first thing I saw was a ghost of my former breast. It was a grey mirage that looked exactly like the breast that had been there. Then the mirage lifted. There was a rather wobbly scar line, complete with black thread, rising gently from my breast bone to the middle of my arm pit. I could feel my entire rib cage on the right side from top to bottom.

The healing then began.

The second part of Leslie's story will be published in the October edition of ***Upfront U Kaiora***.

Zyprexa Reduces Nausea from Chemo

Researchers have found that a well-known anti-psychotic drug can help cancer patients ease some of the side effects of chemotherapy.

In a phase III trial, olanzapine (Zyprexa) significantly improved the control of breakthrough nausea and vomiting caused by chemotherapy, according to Dr Rudolph Navari, of Indiana University School of Medicine.

The analysis is the first to show that such nausea and vomiting – which occurs despite guideline-directed treatment – can be controlled, Dr Navari said.

Navari and colleagues enrolled 80 patients with a range of tumour types and chemotherapy regimens he described as "highly emetogenic." All were suffering nausea and vomiting despite standard therapy to prevent it – both before and after chemo.

After chemotherapy, they were randomly assigned to take olanzapine at 10 milligrams once a day for three days or metoclopramide (sold under various brand names) at 10 milligrams three times a day for three days.

Metoclopramide, mainly used to treat heartburn, can also be "an effective anti-emetic in some circumstances," Navari said.

Olanzapine, on the other hand, is a widely used anti-psychotic, he said, but physicians observed several years ago that, among mental patients, it appeared to prevent nausea and vomiting caused by other drugs. The mechanism remains unclear, he said, but it appears that olanzapine blocks receptors that induce both nausea and vomiting. In the study, patients were monitored for 72 hours after taking the drugs.

Among the 42 patients assigned to olanzapine, 30 had no episodes of vomiting, compared with 13 of the 38 patients assigned to metoclopramide. The difference – 71% versus 32% – was significant, Navari reported.

Moreover, 28 patients in the olanzapine arm reported no nausea, compared with nine of the metoclopramide patients. The difference – 67% versus 24% – was also significant.

While the drug has known adverse effects in the setting of mental health, Navari said, they generally appear after several months of treatment. In this study there were no grade three and four toxicities and no central nervous system side effects.

Source: Navari RM, et al., ASCO *2012; Abstract 9064.*

Afinitor Approved for Advanced Breast Cancer

The first of a new class of treatment for breast cancer has received FDA approval for postmenopausal patients with recurrent or progressive disease.

The approval of everolimus (Afinitor) stipulates that the mTOR inhibitor will be used in combination with the aromatase inhibitor exemestane (Aromasin) for women with hormone receptor-positive, HER2-negative breast cancer previously treated with letrozole (Femara) or anastrozole (Arimidex).

Previously approved for treatment of advanced renal-cell carcinoma, it reflects an ongoing trend in clinical drug development, the FDA's Dr Richard Pazdur, said in a statement.

"Afinitor is another example of the value of continuing to study drugs in additional types of cancer after their initial approval," he said.

The approval was based in large part on demonstration of safety and effectiveness in a 724-patient, placebo-controlled clinical trial of postmenopausal women with recurrent or progressive breast cancer. The results showed a 4.6-month improvement in progression-free survival (the primary endpoint) with the everolimus-exemestane combination compared with placebo.

The most common side effects associated with everolimus were stomatitis, infections, rash, fatigue, diarrhea, and decreased appetite. The trial was funded by Novartis, which developed the drug.

Source: MedPage Today (www.medpagetoday.com) 20 July 2012.

Bigger breasts = higher cancer risk

Women with large breasts have a higher incidence of breast cancer than those with average-sized breasts, according to a study by medical students and researchers at The University of Western Australia and BreastScreen WA.

Women with large breasts may be more likely to suffer breast cancer because there is more tissue available for neoplastic change and/or because larger breasts cause increased estrogen levels. As women age, a larger proportion of them have larger breasts. In the study published recently by The Breast journal, data from almost 760,000 women aged from 40 to over 70 - of whom almost 55,000 had large breasts - was analysed. Women whose breasts had been surgically enlarged or reduced and those with a previous diagnosis of breast or ovarian cancer were not included in the study.

Large breasts were defined as those that required bigger mammogram film cassettes. Standard cassettes measure 18 x 24cm while bigger ones are 24 x 30cm. Associate Professor Liz Wylie said the study was noteworthy because Australia is facing an obesity epidemic. An increased body mass index is associated with a higher risk of developing post-menopausal breast cancer.

Source: The Breast, *Volume 21, Issue 4, Pages 493-498, August 2012.*

US FDA Bans BPA in Baby Bottles and Sippy Cups

On the 17th of July the US FDA banned the use of BPA in baby bottles and sippy cups. However, this is not a radical and progressive move on the part of the FDA, rather a decision that has been made because manufacturers have already "abandoned" BPA additives in these products. The FDA says there's now no longer any need for FDA regulations permitting such use.

The FDA action comes in response to a petition by the American Chemistry Council, which opposes efforts to limit the use of BPA.

"Separately from this petition, the FDA is actively assessing the safety of BPA," the agency says in its official notification of the new BPA rule.

That hasn't reassured consumer groups, such as the Natural Resources Defense Council, which have long fought for a ban on the chemical.

"This is only a baby step in the fight to eradicate BPA," Dr Sarah Janssen, senior scientist, said in a news release. "This half-hearted action – taken only after consumers shifted away from BPA in children's products – is inadequate. FDA continues to dodge the bigger questions of BPA's safety."

"The FDA is slowly making progress on this issue, but they are doing the bare minimum here," said Diana Zuckerman, president of the National Research Center for Women and Families. "They are instituting a ban that is already in effect voluntarily."

Some advocates also pointed out that the decision did not include BPA used in containers of baby formula. Dennis Keefe, director of the office of food additive safety at the FDA, said that a decision on the chemical's use in such products was under review.

Ginseng Fights Fatigue in Cancer

Ginseng appears to counteract the fatigue often associated with cancer, according to randomised trial results.

After 8 weeks taking supplements of the ground-up root, fatigue scores among cancer patients dropped 20% compared with 10% on placebo pills, Dr Debra Barton of the Mayo Clinic Cancer Center, and colleagues found.

Ginseng appeared as safe as placebo, at least over the short term, they reported at the American Society of Clinical Oncology meeting.

"This is an exciting finding because there are no or limited choices at this point" in treating cancer-related fatigue, commented Dr Sriram Yennu, of the MD Anderson Cancer Center in Houston.

Nearly all cancer patients experience fatigue, most commonly when starting cancer treatment but often persisting to some degree after completion.

Ginseng appeared most effective among patients currently on cancer treatment. The effect on fatigue compared with placebo was significant for them but only reached a non-significant trend among those with fatigue left after cancer treatment

In addition trouble sleeping, anxiety, and nervousness were also reported somewhat less often with the supplement.

Source: Barton DL, et al. NCCTG Trial N07C2" ASCO *2012; Abstract 9001.*

Supporter Members

Breast Cancer Network (NZ) Inc is offering companies and like minded groups 'Supporter Membership'. This is an annual commitment of $250.00 plus GST for companies who believe in the objectives of Breast Cancer Network. For your investment we will advertise you as a supporter of the Breast Cancer Network in *Upfront U Kaiora*, under our supporter section, and also we will display your logo on our website www.bcn.org.nz with a link to your own website. We will allow you the use of our logo and link to promote the relationship established between both parties. We will also acknowledge all Supporter Members at our Annual General Meeting, and ask that our members to support you in turn. Breast Cancer Network (NZ) Inc is a registered charity. For further information contact our office or visit our website www.bcn.org.nz

Campbell Accounting Services
Living Nature
Telephone Market Research Company Ltd
The New Zealand Chefs' Association
The Breast Centre

Opened Gowned Grace

By Leela Anderson

She sits, as instructed,
Gown on, open at the front
Waiting
For the hum click stutter of the machine to cease.
For the muted screened voices to collate their verdict.
Waiting
Bowed in thought not defeat
Her fingers trace aging hands, so like her mother's.
Somewhere between the in breath and the out,
Somewhere beyond the fear and the hope,
She finds a dormant treasure.
"Whatever comes, I will meet it."
Her name is called,
And the hundreds of women
who too, have passed through this door,
Stand with her to greet it.

Author's note: Although I have not had breast cancer, I had surgery for uterine cancer last year, and recently my breast symptoms needed further investigations, both additional mammograms and an ultra-sound. My poem was written as a reflection of that waiting-cubicle time

Breast Events to come

● **17 August – BCRT: Launch of the Trelise Cooper Summer 2013 Collections.** Tickets $75 with proceeds going to the Breast Cancer Research Trust. 6:30 at Coutts Mercedes Benz, 2 Great South Road, Newmarket. Go to www.breastcancercure.org.nz or phone 0800 227 828.

● **5 September – Men's Evenings:** See 27 June entry for more info. Please rsvp to reception staff at dove house 575 4555, Mercy Hospice 361 5966, or Sweet Louise 0800 112277.

● **15 September – Associate Professor Fran Boyle** (Medical Oncologist Chair of the Scientific Advisory Committee of the ANZ Breast Cancer Trials Group) will speak at the Canterbury-West Coast Division of the Cancer Society of New Zealand from 3 to 5pm at the Oxford Baptist Church Hall. Free entry. Please email groups@canty.cancernz.org.nz or phone 379 5835 to book.

● **25-26 October - Strength to Strength:** Breast Cancer Network Australia National Conference. Sydney Exhibition and Convention Centre, Darling Harbour, Sydney. Registration: $200 early bird closes 23 August, $250 full registration closes 22 October. For more information go to www.bcna.org.au

● **7 November – Men's Evenings:** See 27 June entry for more info. Please rsvp to reception staff at dove house 575 4555, Mercy Hospice 361 5966, or Sweet Louise 0800 112277.

YWCA ENCORE: programmes commencing from August in the following regions: Palmerston North, 23 August, contact Adrienne Taylor on 06 356 9620; Mairangi Bay, 19 October, contact Joce Burlton-Bennet on 09 418 2080; Takanini, 17 October contact, Connie Zein on 09 636 9439; Remuera, 18 October, contact Lynne Walker on 09 528 7413; Hamilton, 4 October, contact Abby de Lisle on 07 838 2219 or 021 845 333; Tauranga 24 October, contact Kath Vickers on 07 543 3458 or 021 023 52600; Napier, 2 October, contact Shelley Hanna on 06 870 3838 or 021 406 643; New Plymouth, 2 October, contact Shona Lee-Salter on 06 751 3136 or 021 029 27976. Please call 0800 Encore (362 673) for further details or email encore@akywca.org.nz

Buy a pillow from Forlongs of Hamilton and $5 will be donated to the Waikato Breast Cancer Trust. See or www.wbct.org.nz or www.forlongs.co.nz/gift-ideas/trust-pillow.html for more information.

Breast Cancer Network would really like to help you publicise your event. The deadline for Breast Events for every edition of *Upfront U Kaiora* is now the 10th of the month before publication (*Upfront U Kaiora* is published in February, April, June, August, October and December each year). If you would like to be reminded prior to each issue of publication date, so that you can ensure your event gets in to Breast Events, please send the email address of the person who should receive the reminder to Sue at sclaridge_bcn@clear.net.nz.

VISIT THESE SITES FOR MORE BREAST INFO! www.bcn.org.nz www.breast.co.nz

TO JOIN BCN

To support the work of BCN and receive a regular copy of **UPFRONT U KAIORA** send your name and address to:
Breast Cancer Network NZ, PO Box 24 057, Royal Oak, Auckland 1345

☐ **Membership $40** ☐ **Institutional $100** **(Subscriptions include GST)**

Name: Miss/Mr/Mrs/Ms/Dr

Address:

City: Postcode

Phone: Home (0) Email

Amount enclosed: membership $ donation $

My payment has been credited to account **06-0284-0088795-00** (Please use your name as reference and mail this form to us)

A/c name: Breast Cancer Network NZ Incorporated, National Bank, Penrose Branch.

☐ I prefer to receive ***Upfront U Kaiora*** (in colour) by email ☐ I prefer to receive ***Upfront U Kaiora*** (black and white) by post

☐ Please tick here if you have experienced breast cancer. ☐ I am interested in helping with BCN activities

☐ I agree to BCN (NZ) contacting me by email with news, information and updates

Age Group (Optional - Please circle applicable group) (Under 45) (45 – 49) (50 to 69) (Over 69)

Breast Cancer Network (NZ) Inc., PO Box 24 057, Royal Oak, Auckland 1345. (Office: 101 Onehunga Mall, Onehunga, Auckland 1061). Phone: (09) 636 7040 Email: admin@bcn.org.nz Web: www.bcn.org.nz

Breast Support

By Gwendoline Smith, M.Soc.Sc. Dip. Clin. Psych.
Foreword by Dr Wayne Jones (General, breast and endocrine surgeon).
Reviewed by Robyn Kingdon-Mason

Author, Gwendoline Smith, suggests this book is 'A map for both the traveller and navigator'. It is an informative directory, to assist you and your loved ones through the avalanche of emotions, procedures, and treatments concerning a breast cancer diagnosis.

The book begins with a 'A nudge from the universe', in the form of a Breast Screening van parked across the road from where she is working which reminds her she is due for her mammogram. With such prompting she duly makes her appointment, has her mammogram and forgets about it, until the phone call asking for her to return for further investigation.

Then the list of procedures present themselves: another mammogram, ultra-sound then onto the biopsy, beginning an avalanche of emotions and the 'highway' of her personal journey with a breast cancer diagnosis.

Gwendoline entwines splashes of humour through out this book, while executing the technical and medical content simply and factually. She bursts with good solid advice. One such piece is to always take a support person along to any consultations as "you become a deaf mute".

One chapter concerns her personal battle with depression and is compelling reading, along with those on depression itself, diet, relationships, body image, breast reconstruction, doctors' consultations and a whole host of others.

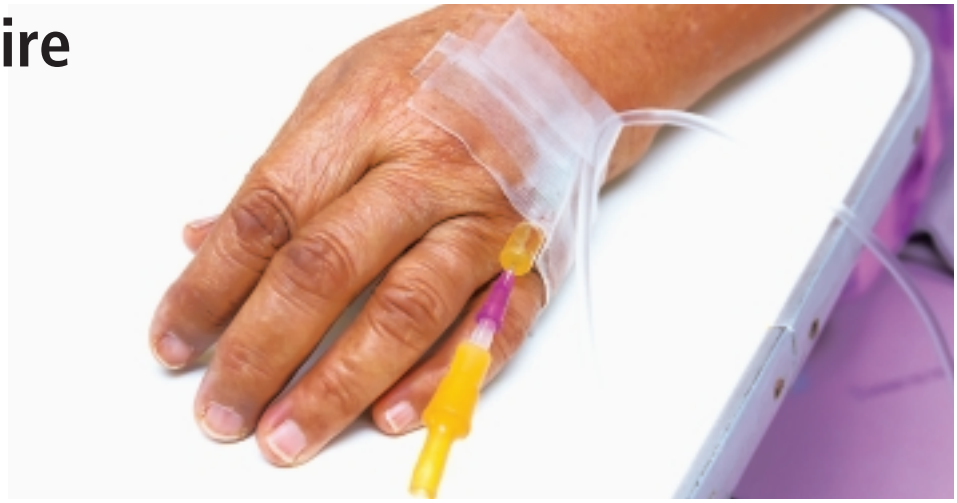
Each chapter has a condensed check-list, which provides information you may need for a procedure or appointment on any given day, for example, what you may need to wear, or clothes to take or what to expect.

Gwendoline decided to not research or make comment on medication or treatments she hadn't experienced herself.

I share her view when she states "that there will be similarities in our experiences", but that our journeys are as unique as we are.

This book certainly delivers. It tailors itself to a wide age group and audience, and its informal style makes for easy reading. It is a good 'Go to Book' for those with breast cancer and great reading for family and friends especially when emotionally, you just can't go there.

Chemo can backfire



Cancer-busting chemotherapy can cause damage to healthy cells which triggers them to secrete a protein that sustains tumour growth and resistance to further treatment, a newly published study has found.

Researchers in the United States made the "completely unexpected" finding while seeking to explain why cancer cells are so resilient inside the human body when they are easy to kill in the lab.

They tested the effects of a type of chemotherapy on tissue collected from men with prostate cancer, and found "evidence of DNA damage" in healthy cells after treatment, the scientists wrote in Nature Medicine.

Chemotherapy works by inhibiting reproduction of fast-dividing cells such as those found in tumours.

The scientists found that healthy cells damaged by chemotherapy secreted more of a protein called WNT16B which boosts cancer cell survival.

"The increase in WNT16B was completely unexpected," said study co-author Dr Peter Nelson of the Fred Hutchinson Cancer Research Center in Seattle.

The protein was taken up by tumour cells neighbouring the damaged cells.

"WNT16B, when secreted, would interact with nearby tumour cells and cause them to grow, invade, and importantly, resist subsequent therapy," said Nelson.

In cancer treatment, tumours often respond well initially, followed by rapid regrowth and then resistance to further chemotherapy.

Rates of tumour cell reproduction have been shown to accelerate between treatments.

"Our results indicate that damage responses in benign cells... may directly contribute to enhanced tumour growth kinetics," wrote the team.

The researchers said they confirmed their findings with breast and ovarian cancer tumours.

The result paves the way for research into new, improved treatment, said Nelson.

"For example, an antibody to WNT16B, given with chemotherapy, may improve responses (kill more tumour cells)," he said.

"Alternatively, it may be possible to use smaller, less toxic doses of therapy."