Welcome to the first issue of the Busselton Medical Research Foundation Newsletter. The Foundation is embarking on a new and exciting phase in the Busselton community and this newsletter aims to keep you in touch with what is happening, provide feedback on the current Busselton medical research, and provide information on how the community can help to continue the unique and world renowned ‘Busselton Health Study’.

A place of our own

The Busselton Population Medical Research Foundation believes the future Busselton Health Surveys can be made more efficient and arrangements with survey participants more effective if surveys can be carried on continuously through the year rather than being squeezed into a few very busy weeks.

The Busselton Health Study warrants a permanent local base, an office equipped with survey equipment, computers and office equipment and a local secretary/coordinator. This is the plan for the future with the help of the Busselton community.

The major population surveys and research studies have been, and hopefully will be, funded by grants from government agencies such as the National Health and Medical Research Council of Australia and Healthway. The work at the survey facility has been largely carried out by volunteers on ‘holidays’.

Unfortunately research grants never provide funds for so called “infrastructure” and this is how a Busselton Health Study office is regarded.

For the time being the Foundation has been loaned space in South West Area Health Service. In an effort to raise funds we have decided to ask the Busselton community who are real partners and beneficiaries in the Busselton Health Study to help us.

Local Marketing and PR consultant, Natalie Venosi of MOSAIC, is assisting with a fundraising and communications drive over the next few months. With the help of Elspeth Inglis, a long time Survey Volunteer and Coordinator, they have secured sponsorships to help cover some of the costs of producing and distributing the first Busselton Health Study Newsletter.

Please support these sponsors who have recognized the worth of the Busselton Health Study to the people of Busselton.

The first major fundraising event is a dinner dance and auction on Friday November 19, 2004 with Patron Michael Chaney (details inside). Planning is also underway for the “Good Living Expo” to be hosted in September 2005 at the Geographe Leisure Centre, which will showcase activities, demonstrations, products and services relating to health, fitness and wellbeing.

Without your past cooperation and future support the Busselton Health Study would not be able to continue contributing to the better understanding of common health problems, lifestyle and environmental factors impinging on health in Busselton and beyond.

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Become a FREE Supporters’ Group Member

Be kept informed about all the latest Foundation news, plans and health seminars. Membership is free of cost and obligation. A register of member’s address and phone numbers will help to ensure future communications.

Donations are always welcome and will greatly help to establish a local health survey office in Busselton.

All donations of $2 and over are tax deductible.
Registration coupon inside back page
Enquiries ph: 08 9754 0548
Is being a participant in the Busselton Health Study good for your health?
By Associate Professor Matthew Knuiman, School of Population Health, University of Western Australia

The Busselton health surveys, inspired by local GP Kevin Cullen, commenced in 1966 and represent one of the longest running health studies in the world. They are internationally known thanks to the people of Busselton and the 250 health research articles that have been based on the findings from these surveys. You can easily verify this for yourself simply by doing a Google internet search of “Busselton Health Study”.

The findings have helped health professionals, researchers, planners and managers to identify and understand trends in health behaviours (like smoking) and health outcomes (like heart disease) and, very importantly, to understand why some people have higher risks of certain diseases than others.

It is absolutely fantastic that the community of Busselton, through the surveys, has been able to help Western Australia and the world in general achieve a better understanding of health and disease that slowly but surely leads to a better life for us all.

However, what about the health of the community of Busselton and the health of the survey participants themselves? In the early 1990s a special study was conducted that compared the mortality rates in the survey participants with the whole Busselton community and the whole South-West region of WA. This study showed that survey participants had lower death rates in total and lower death rates from cardiovascular diseases than the whole Busselton community and the community had lower rates than the whole south-west region. The complete findings from this study were published in the Australian Journal of Public Health (vol 18, pages 129-135, 1994) and the West Australian on 14 July 1994 reported “Busselton death rate fall linked to study”. This evaluation study however could not provide scientific proof that the differences were actually due to the surveys.

More recently, Busselton Health Study researchers, conducted another study but this time they also looked at rates of hospital admission as well as death rates. Once again the findings showed that survey participants (especially those who participated in multiple surveys) continued to enjoy lower death and hospital admission rates than the whole Busselton community and the Busselton community had lower rates that the whole south-west region. The complete findings were published in Australian and New Zealand Journal of Public Health (vol 28, pages 267-272, 2004). However, once again, the evaluation study could not provide scientific proof that the differences were actually due to the surveys.

Although the scientific proof of the reason remains elusive, the fact remains that the Busselton community (especially the people who came to the surveys) enjoys some of the lowest death and illness rates in Australia. Long live the people of Busselton and long live the Busselton surveys!

Coeliac Disease in Busselton – More Common Than We Thought
By Dr Digby Cullen, Department of Gastroenterology, Fremantle Hospital

Coeliac disease is an inherited allergy to gluten, a protein in wheat barley and rye (not oats but its virtually impossible to grow oats without contamination by the other cereals). This may cause malabsorption and result in iron and vitamin deficiencies, osteoporosis (reduced bone density), diarrhoea, rashes, fatigue, depression and rarely other neurological problems. The number of people in Australia with coeliac disease is unknown. Fortunately new diagnostic blood tests for coeliac disease with improved accuracy have recently become available that allow a better way of screening the population. The stored blood specimens so generously donated by participants in previous Busselton Surveys provided a perfect opportunity to find out the frequency of this condition and hopefully improve the health of those people identified.

A study was therefore conducted by Busselton Health Study researchers in the year 2000 on 3011 people who donated blood at the 1994-5 Survey. This showed that 1 in 250 Busselton people had coeliac disease using anti-endomysial antibody as the screening test. A current study using anti-transglutaminase antibody as the screening test suggests that this figure is much too low and the true frequency of coeliac disease is 1 in 100 people. Individuals who have a positive anti-transglutaminase antibody are being contacted so that the definitive test, endoscopy and microscopic examination of tissue specimens taken from the upper small bowel can be arranged.

Most people in the study group so far diagnosed with coeliac disease in Busselton were unaware that they had the condition although most had symptoms and a significant minority were iron deficient or osteoporotic.
**Coming to Blows in Busselton**

Clinical Associate Professor Alan James, Department of Pulmonary Physiology, Sir Charles Gairdner Hospital; School of Medicine and Pharmacology, University of Western Australia

One of the simplest and most useful tests undertaken in the Busselton studies is the blowing test where subjects are asked to blow and blow and blow, and blow “right out” after taking in as big a breath as possible. From this test it is possible to derive the amount of air that can be blown out in one second – the forced expiratory volume in one second – the FEV₁. This single measurement is very stable within an individual and is a good way to compare people with each other. Other things being equal, the FEV₁ is greater in males than females, taller persons and in younger versus older adults. The rate at which the FEV₁ increases with growth in children and gets smaller with age in adults is altered by respiratory illness such as asthma or by smoking. Like serum cholesterol, blood pressure and blood sugar, the FEV₁ is a predictor of future health, even after taking smoking into account. No-one knows why this is so.

By studying the FEV₁ and comparing it between people and relating it to other markers of health it is possible to examine the effects of the environment and genetic factors on the health of the lungs. The FEV₁ is easily measured and had been a part of the Busselton Population Health Survey measurements made since 1966 (in men) and 1969 (in women). It has been useful to have this objective measurement of lung health when trying to determine the reasons behind the steady increase in asthma that has been observed in Busselton (and elsewhere) over the last 30 years. This has been particularly useful recently when we have examined the sensitivity of the airways by measuring the change in FEV₁ after breathing histamine – a drug which contracts the airways. By showing that airway sensitivity has remained stable while the amount of asthma, diagnosed by a doctor, has increased in the community, we can surmise that the doctors are diagnosing respiratory symptoms as asthma more often than they used to or that something in the environment is provoking the airways more, or both. Only by having the FEV₁ measurement can we analyse changes in diagnostic patterns. Of course the FEV₁ is also a good marker of your current health. In the future, we will be looking for more blow-hards from Busselton to find out more about the FEV₁ and establish its usefulness as part of normal health screening.

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**A Cold Shower**

Clinical Associate Professor Alan James, Department of Pulmonary Physiology, Sir Charles Gairdner Hospital; School of Medicine and Pharmacology, University of Western Australia

The medical journal Nature is considered to be one of the top few medical journals where only the most important advances in medical knowledge are published. Medical researchers consider it a considerable achievement to get a paper in Nature – like getting on the cover of “The Rolling Stone” for musicians. So we were proud when our team, along with our colleagues from Oxford in England, were part of a study published in Nature in 1996 that showed for the first time that there were regions of human genetic code (the human genome) that were associated with asthma. This genetic study, and many subsequent studies, used the DNA from white cells in blood samples from volunteers in Busselton. The DNA, from people with and without asthma, was compared using a number of markers that stick to known parts of the genetic code. Some markers appear more often in people with asthma than in those without asthma.

To do this comparison, blood samples were taken from family members of 250 families with 2 or more children. Our research teams travelled to each family home to collect information about asthma, smoking and respiratory symptoms, to measure lung function and to test for common allergies using skin tests, to collect small samples of dust from the floor and beds. Since the prick of the needle was numbed by anaesthetic cream, vacuuming the beds seemed to cause the most consternation! Collection of all the samples was completed by a number of “SWAT” teams, scouring the streets and by-ways of Busselton and surrounding countryside, armed with our equipment, questionnaires and a local road map. The study was undertaken during the winter of 1992. We soon discovered that winter Busselton is COLD! However, in most places it was HOT indoors.

We visited many cosy houses which soon had us sweating in our winter gear, we visited dairy farms (on one occasion we met, but did not shake hands with, the owner who was assessing pregnancy rates in his cows!) and we visited numerous farms and businesses to complete the studies. Our team lived for a 2-month period in a rented house. Volunteer researchers (doctors, including Dr Dick Adams, nurses, scientists and assistants) rotated through the house, taking weekends or time off from their usual duties, over a 2 month period. The whole project was completed at a nominal, cost based upon the goodwill and efforts of the people of Busselton and the research team. Subsequent studies in the US have been undertaken with a budget approaching AUS$2 million!! To get the study started, I took possession of the rented house around 1 am on a cold Busselton winter night. After having driven from Perth after work, been fined for (unknowingly) speeding through Busselton (67 km/hr) at 1 am and then being unable to light the gas heater, lying on cold concrete outside with a box of matches in a brisk Southerly gale, I had to treat myself to a cold shower in the morning! I remember saying, out loud, “It can only get better than this!”

It did – now we even have a paper in Nature and many publications elsewhere, attesting to the unique importance of the sample from Busselton families. Twelve years later these samples are still making a major international contribution to sort out which genes are important in asthma. From little things, big things grow.
The inaugural Busselton Health Study Newsletter is proudly sponsored by these local businesses. Please support them!

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Please sup...
HDL - the Good Cholesterol
Adjunct Associate Professor John Beilby,
Senior Scientist, PathCentre.

Cholesterol is important for normal operation of the body and it exists in the blood in several forms. The two main forms are low-density lipoprotein (LDL-cholesterol) and high-density lipoprotein (HDL-cholesterol). LDL carries cholesterol from the liver to the rest of the body where it is used by growing cells. LDL is known as the ‘bad cholesterol’ since it is a risk factor for heart disease as it contributes to the narrowing of the arteries in the heart. On the other hand, HDL clears excess cholesterol from the body and has the effect of reducing blood LDL levels and has been labelled the ‘good cholesterol’. A number of studies have shown that higher levels of HDL can protect against heart disease.

HDL levels are controlled by factors such as smoking, level of exercise and how much weight we carry, diabetes and by the genes we are born with. Genetic factors are responsible for up to 50% of the variation in HDL levels. A key protein in HDL metabolism is cholesteryl ester transfer protein (CETP) and is known to increase the movement of cholesterol from the cells back to the liver, causing a reduction the blood levels of LDL.

In a study of the Busselton samples collected in the 1994/95 population survey we have found that small changes in the gene for the CETP protein can cause significant increases in HDL levels, even after correcting for other factors that are known to affect HDL levels. In the future other genes involved in HDL metabolism will be studied to gain a better understanding of what factors control our HDL levels. This work may lead to new ways to treat low HDL levels.

Don’t let your body “rust”
Professor John Olynyk
and team from the University of Western Australia
Department of Medicine and co-workers from the Queensland Institute of Medical Research

If the body accumulates too much iron, a disorder known as haemochromatosis can occur and may result in cirrhosis of the liver, liver cancer, diabetes, arthritis and heart failure if left untreated. By far the commonest type of haemochromatosis in the Australian population is hereditary haemochromatosis where a single faulty gene or less commonly a combination of several faulty genes results in the genetic predisposition to absorb too much iron.

For the past 6 years The Busselton Health Study has conducted groundbreaking research looking at the impact of iron overload disease in an Australian population. A total of 3011 Busselton Health Study participants had iron studies performed and were also tested for iron overload genes (h63D and C282Y mutations). This testing showed that haemochromatosis affects 1 in 190 adults in the Busselton population. 16 individuals were identified as having hereditary haemochromatosis and most have benefited from treatment to reduce body iron stores (bloodletting also known venesection). The study also revealed that common mutations in the genes responsible for this disorder are carried by up to 1 in 3 individuals although 2 “bad” genes are usually required for iron overload to occur.

A landmark study on Busselton participants published in the world’s most famous medical journal, the New England Journal of Medicine in 1999 described the impact of the newly described Haemochromatosis gene in a normal population level for the first time. Following this study, several projects have examined the relationship between iron status and cardiovascular disease (there isn’t one). More recently, interest has turned to the study of the role of iron status and haemochromatosis gene mutations as risk factors for intellectual impairment, Alzheimer’s disease and Parkinson’s disease.
The asthma gene
Clinical Professor Bill Musk, Department of Respiratory Medicine, Sir Charles Gairdner Hospital; School of Population Health and School of Medicine and Pharmacology, University of Western Australia

The Busselton community has been an ideal population to study the genetic determinants of asthma because lung function tests have been part of the Busselton surveys since 1966 and the Busselton people have understood the value of epidemiological studies. The first gene associated with asthma was described by Professor Bill Cookson of Oxford University in a clinic population in Oxford UK and families from Busselton who joined a study in which we collaborated in 1992.

It is believed that asthma is a complex disease with multiple environmental and genetic factors interacting with each other. This makes it particularly difficult to study because all asthmatics are not quite the same and because since 1992 other genetic markers have been found. A better understanding of the genetic associations of asthma will help understand the abnormalities that may give rise to asthma, detection of people predisposed to developing asthma on exposure to agents in the environment and assist in the development of new treatment approaches.

This is a rapidly expanding field and Busselton has already made important contributions to it. In 1994/95 5,000 people who had been in previous Busselton surveys also carried out lung function tests and provided blood cells for genetic studies. There is now a great deal of interest worldwide and Western Australia now has its own genetic epidemiologists with the establishment of professional chairs in genetics at the University of WA to carry on the collaborative work commenced 12 years ago.

SW Good Living Expo
The inaugural “Good Living Expo”, which is planned for the 23 – 25 September 2005, is set to become a major annual signature event for the Foundation and the south west.

Coordinator, Natalie Venosi, has received incredible support for the concept and recently secured $2,000 from the South West Development Commission’s annual events funding program. It is hoped that the event will attract some major corporate sponsors and a great diversity of exhibitors.

The major fundraising event will be hosted at the Geographe Leisure Centre … more information in the next newsletter!

BUSSELTON HEALTh STUDY SUPPORTERS GROUP MEMBERSHIP ACCEPTANCE

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Home address ................................................................................................P/Code...................
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I would like to make a donation to the Busselton Population Medical Research Foundation (Inc.) to assist with the establishment of the Busselton Health Study office in Busselton
Donation amount: ........................................ Cheque / cash / credit card
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EXP ........ / ....
MAIL TO: or DELIVER TO: Busselton Health Study Office South West Area Health Service 18 West Street BUSSELTON Ph 9754 0548

Donations of $2 and over are tax deductible
**Fundraising news and promotions**

The Busselton Health Study requires a permanent local base; an office equipped with survey equipment, computers and a local secretary/coordinator along with communications tools such as this newsletter.

With minimal grant funding available for communication activities and infrastructure the Foundation has engaged the help of marketing consultant Natalie Venosi of MOSAIC to assist with a fundraising and communications drive. Natalie, together with the assistance of local Foundation secretary, Elspeth Inglis, is planning a number of events and activities to begin the fundraising drive.

Already they have secured a major portion of the funding required to produce and distribute this newsletter with the generosity of the local businesses featured and Councillors Bev Clarke and Helen Shervington who donated $500 from the Shire Small Projects Fund. Busselton Telephones have kindly donated $100 towards a much needed mobile telephone for Elspeth in her role as local secretary. Sponsors are now being sourced to assist with product donations for the Auction to be held at a Dinner Dance on November 19, 2004 (see below).

**Website**

A new website is currently under construction at [www.busseltonhealthstudy.com](http://www.busseltonhealthstudy.com) where up-to-date information about events, activities, research, surveys, news and fundraising progress can be easily sourced. This is being sponsored by Leanne Williamson of new Dunsborough business WebID.

It is expected to go live by the end of October 2004.

**The Inaugural Busselton Health Study Fundraising Dinner Dance and Auction 2004**

With Special Guest Speaker: Foundation Patron Mr Michael Chaney

**Venue:** The Geographe Bayview Resort
Hermitage Room
Bussel Highway Busselton

**Date:** Friday November 19, 2004

**Time:** 7pm for 7.30pm sit down (tables of 10)

**Tickets:** $120 per head

**Includes:**
- 4 Course Meal
- Wine from Cullen & Pierro
- Beer and soft drink
- The Kyla Brox Band: 5 piece British R&B Sensation (www.kylabrox.com)
- Auction of fine Wine, Jewellery, Art & more
- Door and Spot Prizes

Limited tickets available please contact Elspeth Inglis to secure your booking for this night of nights!

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Methods of Payment:
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**A sample of what will go under the hammer on Friday 19th November...**

**Nina’s Jewellery** brings you the latest in jewellery design using the cream of Western Australian jewels and precious metals. With two locations in Western Australia - Kununurra and Dunsborough - we pride ourselves on our ability to create the perfect jewellery piece for you or your loved one.

Nina’s have a strong community charter and are proud to sponsor these stunning pearl neck pieces for the Busselton Health Study Auction.

**Jenny Taylor Hang Ups Gallery** has kindly donated a Jenny Taylor original and **Caves Realty Yallingup** has donated two exclusive pieces from Peter Davies’ private collection.

Limited edition wines, collector items and other exclusive pieces of art and jewellery will also be auctioned on the night.

**Our creative sponsors**