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Chairman's Report 2008

The Waikato Medical Research Foundation (WMRF) is pleased to have funded our largest amount ever this year. We would like to thank and acknowledge the following support, which we would've not done this without their help; Trust Waikato and the Cancer Society of New Zealand Inc., Waikato/Bay of Plenty Division providing us funds to support an excellent study relating to telemedicine and moles. This study will be very helpful especially to rural Waikato patients remote from Hamilton. We also like to thank and acknowledge Braemar Charitable Trust, with their help to further research related to limiting cardiac injury with heart attacks. It is with great pleasure that I report that Dr Rathan Subramaniam is the first PhD to graduate from the Waikato Clinical School, The Universty of Auckland. His work on pulmonary embolism was funded by WMRF.

It is vital to patient care in the Waikato region to maintain active medical research. Most of the research conducted in the Waikato Region is immediately applicable to healthcare. Some research is more basic scientific study which is highly valuable to promoting further advances. Without our funds and other research funding opportunities staff retention becomes a major problem. The WMRF Trustees in the coming year will be working with Gordon Chesterman, giving attention to marketing and fund raising to help us to sustain our strategy. Canterbury and Wellington Medical Research Foundation's fund $1million annually, so we have a lot of work to do to get to this level.

It is with great sorrow that we note the passing of Mr James Grace; he will be remembered not only for being one of the founding members of the Waikato Medical Research Foundation, est. July 1986 and a patron for many years until 2005, but also for his willingness to share his time and expertise with his colleagues. It is difficult to measure the impact he has had on the many people's lives he touched, personally and professionally. His commitment to helping others and to serving the Waikato Medical Research Foundation leaves a wonderful legacy.

Dr Noel Karalus
Chairman

Year 2008 **Report of the Grants Committee**

This year we received 18 applications requesting a total of $430,000. Unfortunately this far exceeded the available funds so many deserving applications were unsuccessful while some were excluded because funding them would have meant that a significant number of more modest but worthy applications would not have been supported. With additional support as detailed in the Chairman's report, the WMRF was able to distribute $165,000 among 8 applications. Most of the applications were cross institutional in the Waikato research community.

This year the applications supported included work on; prophylactic antibiotics in preventing traumatic wound infections, vitamin D in immunity and respiratory conditions, brain seizures, anti-pathogenic agents from milk, access to their health records for the mentally ill, screening skin conditions by remote, and new targets for the treatment of tremor ataxia and heart conditions.

With the seed support from the WMRF, many of these projects generate data for more substantial support elsewhere and are translated into useful tool products and services relevant to the Waikato community and beyond.

I thank; Maggie Fisher, Amanda Oakley, Roy Daniels, Richard Bedford and Michael Jameson from the Grants Committee, and Warwick Aitken from the Finance Committee who helped assess the applications this year, the Foundation chair, Noel Karalus for his guidance and approaches to other funding bodies, and Fiona Williams for her administrative support.

Adrian Molenaar

Chair, Grants Committee

Reports from Grant Recipients

Reports from 2007 Grant Recpients

The barriers to effective clinical management of subclinical hypothyroidism.

Investigators:

Veronique Gibbons

Steven Lillis

John V Conaglen

Ross Lawrenson

Abstract

Subclinical hypothyroidism refers to elevated serum thyroid stimulating hormone (TSH) level combined with normal thyroid hormone levels in patients who have mild or minimal symptoms. The aims of this study were to review current diagnostic practice and management of those with subclinical hypothyroidism (SH) and to identify barriers to care for patients with SH

Method

We reviewed medical records from a cohort of patients with SH identified from laboratory tests in the previous year. Symptoms noted at the time of the first SH result and symptoms identified in the following 12 months were noted. We noted patient characteristics such as age, ethnicity, gender, smoking status, family history of thyroid disease, history of diabetes, and further investigations undertaken. We undertook focus groups with GPs to identify their management of subclinical hypothyroidism through the rationale for requesting thyroid function testing and management of raised TSH.

Results

A 12-month follow-up of a cohort of 270 patients identified from lab results (Dec 2005-Nov 2006) as fitting the definition of subclinical hypothyroidism underwent note review. The age ranged from 19-93 years (mean age 61yrs). The majority of patients were female (70%) and of European ethnicity (87.4%). Symptoms were poorly recorded; rationale for requesting thyroid function tests were not easily identified from GP records. Tiredness and lethargy were the most commonly reported symptom in 9% of patients at the time of initial test increasing to 12% in the following 12 months. Following initial SCH result, 38% percent (58/151) retested had normal levels. Nearly 58% (87/151) had a second SCH result. During the follow-up year 13 patients were coded as having some form of thyroid dysfunction and 17 were placed on thyroxine (although no TSH levels went over 10 IU/ml). Antibody testing and scan requests were undertaken in less than 5% of these patients.

Three focus groups with 4-5 GPs were undertaken in the Waikato area. The results indicated that thyroid function tests were carried out to rule out illness rather than to identify illness. Rationale for managing subclinical hypothyroidism was based on individual clinical judgement and patient preference. The focus groups revealed differences in the evidence base and practice.

Conclusion

Questions raised during focus group interviews indicated a lack of consensus between clinical judgement and clinical guidelines for patients with subclinical hypothyroidism.

Reports from 2007 Grant Recpients

Protection against cancer by vegetable components.

Rex Munday

AgResearch, Private Bag 3123, Hamilton

Humans are continually exposed to carcinogens, which are present in the atmosphere and in our food, and which are produced in our bodies by the natural processes of metabolism. But we do not all develop cancer, because we are protected against carcinogens by a family of enzymes that convert them to unreactive metabolites, which are readily excreted from the body. These are the Phase II detoxification enzymes, and there is evidence from animal experiments that, after exposure to carcinogens, cancer occurs only when these enzymatic defences are overwhelmed. If we could increase the strength of our defences against carcinogens by increasing the levels of these beneficial enzymes in our tissues, we could decrease the likelihood of developing cancer.

In work funded by the Foundation, we have found that isothiocyanates, which are substances derived from plants of the Brassica family, which includes many commonly consumed vegetables such as cabbage, broccoli and Brussels sprouts, are excellent inducers of Phase II enzymes in the rat bladder. Furthermore, we have shown that a broccoli extract, containing high levels of isothiocyanates, protects against bladder cancer in rats. This work has recently been published in Cancer Research (2008, 68, 1593-1600).

This work supports the results of epidemiological studies indicating that a high dietary intake of Brassica vegetables affords protection against bladder cancer, and together with our earlier work on Phase II enzyme induction by other vegetable components, illuminates the potential benefits of a diet high in fruit and vegetables.

Reports from 2007 Grant Recpients

Rabbit Clomipramine Pharmacokinetics following Intralipid Infusion and Intralipid Peritoneal

Dialysis: Support for the Lipid Sink

Authors (and correspondence) *Dr Martyn G Harvey (BHB, MBChB, FACEM)*
Dr Kerry Hoggett (MBBS)
Dr Grant Cave (BHB, MBChB, FACEM)

Objective

To evaluate hemodynamic response and clomipramine pharmacokinetics in plasma and peritoneal diasylate following intralipid resuscitation from clomipramine induced cardiotoxicity in rabbits.

Interventions

Clomipramine (8mg/mL) was infused (30mL/hr) to target mean arterial pressure (MAP) of 50% baseline MAP. Animals were resuscitated with 12mL/kg 0.9% saline solution or 12 mL/kg 20% Intralipid over four minutes. Hemodynamic parameters and plasma clomipramine/desmethylclomipramine estimation via gas chromatography with mass-selection method was performed to 59 minutes. Peritoneal dialysis with 10 mL/kg 0.9% saline or 20% Intralipid diasylate indwelling from 39 to 59 minutes and commensurate with intravenous rescue was assayed for clomipramine concentration.

Measurements and Main Results

Intralipid infusion accelerated recovery from clomipramine induced hypotension (∂MAP 12.3 +/- 4.4 mmHg/min Intralipid vs. 6.17 +/- 2.6 mmHg/min saline at 7minutes, p=0.006). MAP was greater in the Intralipid treated group (F[1,14]=7.121,p=0.018, [MANOVA]). Plasma clomipramine assay was greater in the Intralipid treated group with reduced apparent volume of clomipramine distribution (6.19 +/- 2.04 L/kg Intralipid vs. 17.03 +/- 6.00 L/kg saline, p=0.004). A trend toward elevated MAP increment following peritoneal diasylate administration was observed (MAP increment 19.63 +/- 23.27 mmHg Intralipid vs. 6.56 +/- 9.71 mmHg saline, p=0.083). Clomipramine peritoneal diasylate concentration was greater in the Intralipid treated group (1162.5 +/- 591.1 nmol/L Intralipid vs. 119.8 +/- 43.7 nmol/L saline, p=0.002). Lipid peritoneal dialysis did not significantly reduce plasma clomipramine concentration.

Conclusion

Amelioration of Clomipramine induced cardio-toxicity is associated with elevated plasma clomipramine in support of the lipid sink. Peritoneal dialysis with lipid emulsion resulted in greater clomipramine extraction.

Reports from 2007 Grant Recpients

Tuberculosis Persistence and the Role of Toxin-antitoxin Proteins

Principal Investigator

Associate Professor Vickery Arcus

Associate Investigators

Dr Ray Cursons

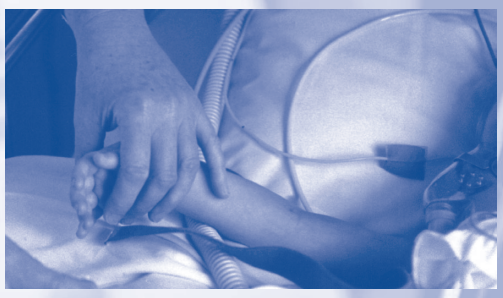
Dr Noel Karalus

Mycobacterium tuberculosis, the causative agent of tuberculosis (TB) in humans, is a devastating infectious organism which kills approximately two million people annually. In New Zealand, TB disproportionately affects lower socio-economic, and immigrant populations including Maori, Pacific peoples and South East Asian communities. The current suite of antibiotics used to treat TB faces two main difficulties: (a) the emergence of multidrug-resistant (MDR) strains of M. tuberculosis, and (b) the persistent state of the bacterium which is less susceptible to antibiotics and dictates very long antibiotic treatment regimes of 6-8 months. We recently discovered a set of M. tuberculosis proteins called "PIN" domains which potentially play an important role in TB persistence. M. tuberculosis has a surprisingly large repertoire of 48 PIN-domain proteins and our hypothesis is that these form an array of auto-toxins which arrest the growth of M. tuberculosis in response to external stress. This may be one mechanism by which M. tuberculosis enters a dormant or "persistent" state. Each PIN-domain has an inhibitor or antitoxin associated with it so that under conditions of normal growth the toxin (PIN-domain) and its cognate antitoxin form a benign protein complex.

The Waikato Medical Research Foundation awarded a grant of $17,950 to fund the research of a very talented young PhD student, Joanna McKenzie, who has been working on PIN-domain toxin-antitoxin proteins from the mycobacteria. Jo developed an assay to identify the sequence specificity of RNase activity by the PIN-domains in vitro. To our great surprise, the PIN-domains showed no discernible sequence specificity for the substrate RNA. The reason for our surprise is that if the PIN-domains are non-specific RNases, this would make them extremely toxic to any organism which expressed them and would necessitate the co-translation of a very efficient inhibitor (antitoxin) for the protein. Indeed, if the PIN-domain were found alone in a bacterium for any reason (degradation of the antitoxin, for example), it would effectively signal the death knell for the cell. This has very important implications for possible future tuberculosis treatment.

Jo has also developed an expression and purification system for the PIN-domain toxin-antitoxin proteins from Mycobacterium smegmatis, a model organism. She achieved this by co-expressing the antitoxin with the toxin in the natural host so that their co-expression is properly regulated. Jo has been able to produce large amounts of toxin-antitoxin protein complex and this protein has been used for biochemical studies.

When this grant was awarded, the project was at an early stage and the funding of a PhD student was vital. We are very grateful to the WMRF for funding the project at this early juncture and we can now report that we were subsequently successful in getting a large grant from the Health Research Council which will carry the project forward.



Abstracts of 2008 Grant Recipients

Abstracts of 2008 Grant Recipients

Improving access and grading evaluations using In-depth Teledermatology

(IMAGE IT)

Principal Investigator
Dr Eugene Tan

New Zealand has the highest rate of skin cancers in the world, which leads to a large number of referrals to skin specialists in hospitals. In this study, we want to see whether taking photos of suspicious moles or spots in the skin with a sophisticated camera and sending these by computer to skin specialists for a diagnosis is as accurate as being seen by skin specialists for a "face to face" diagnosis.

Referrals to the Dermatology Department for assessment of suspicious skin lesions will be selected for inclusion by one of the two participating Consultant Dermatologists. Eligible and consenting patients will attend a teledermatology consultation and a face-to-face consultation at outpatients. At the teledermatology consultation, a trained nurse will take a standardised history and digital images of the skin lesion(s) of concern. The patient will then be seen face to face by both dermatologists. If further treatment is required, this will be arranged in the usual way.

The diagnosis and management of the digital images will then be compared to those made at the face to face consultation.

This "teledermatology" approach may be able to reduce the number of patients who need to be seen in hospital outpatient clinics. This feasibility study will test the accuracy of teledermatology and assess whether it can be used in a larger study to prove the benefits of this technology. The aim is to improve healthcare delivery and costs, overcome geographical barriers and improve care for the most vulnerable groups affected by skin cancer – the young and elderly.

Abstracts of 2008 Grant Recipients

Access to one's own health records

A pilot study of uptake, acceptability, and health outcomes in severe mental illness

Menkes D, Southey K, Puckey N, Dutu G, Orr M, Warren J, Fitzgerald J

People experiencing severe mental illness often suffer complex disadvantages including stigma, limited opportunities, financial constraints, side-effects of medication, and poor physical health. Many affected individuals are keen to learn about their illness and its treatment, but access to reliable, personalized, up-to-date information is difficult.

Consumers have a right to view and hold their health information (Health Information Privacy Code; Code of Consumers' Rights), but requests for information are often challenging and subject to delay. Consumers face further problems with the frequent unintelligibility of information once obtained, and the need to somehow store, collate and use it. Requests for drug information meet with mixed results; pharmacies may provide brief 'consumer orientated' handouts or overly detailed product data sheets; there is generally little calibrated to the needs of the individual.

The current proposal: We have selected a software product for this project (SmartMed) which facilitates consumer access to their treatment plan, laboratory results, prescription details, and other relevant health information via a secure server. Consumers will be given the option to grant access to health professionals, family and friends. SmartMed also provides tools to interpret, manipulate (e.g., collate, tabulate, graph) store and reuse this information.

In this study, health professionals (doctors, nurses, pharmacists, psychologists) will be able to enter personal health data and make comments or recommendations; consumers will be able to view but not modify their data. Individuals are encouraged to comment on their treatment plan, particular interventions, test results, or any matter they choose. They can also stipulate whether their comments are to be shared with their GP, psychiatrist or other clinician.

In order to assess the impact of the system, we propose several outcome measures, including how much use is made of the system, consumer satisfaction, use of hospital and pharmacy services, and changes in illness severity measured with the Health of the Nation Outcome Scale (HoNOS). These results will be complemented by interviews to capture expectations and experiences of people given such access. This project is ba sed on the principle that IT systems may aid communication between those involved in an individual's care – including the individual themselves.

Our pilot study will provide an indication of how much use is made of such an IT system, and how it may help close the gap between consumers and health professionals. Benefits are expected to include the following:

For consumers with severe mental illness, the results will indicate the extent to which an available software system is acceptable and effective in providing information and facilitating feedback, and whether such access is perceived to be helpful in terms of supporting self-esteem or promoting recovery.

For mental health services, the study will provide preliminary evidence of whether such information provision assists communication with consumers, and whether its use impacts outcomes, in terms of symptoms, functioning, health service utilisation, and treatment adherence.

This study is funded by the Waikato Medical Research Foundation

Abstracts of 2008 Grant Recipients

The evaluation of the BK channel as a potential drug target for the treatment of tremor, ataxia and heart conditions.

Principal Investigator
Dr Sarah Finch

Ion channels are present in membranes of all cells, from bacteria to humans, and are essential for life. They are responsible for the electrical signalling that underlies movement, sensation and thought. An ion channel that has a specialized role in regulating this electrical signalling is the BK channel. BK channels (large-conductance calcium-activated potassium channels) are present in many tissues and regulate important physiological processes. Interest in this channel is currently high and it is being proposed as a pharmacological target in neural and smooth muscle dysfunction.

Ryegrass staggers is a disease of livestock characterized by tremors and uncoordinated movement caused by the ingestion of a fungal toxin. We have recently shown that this toxin is the most potent BK channel inhibitor yet discovered and that ryegrass staggers is mediated via inhibition of BK channels. Furthermore, we have shown that toxins which block BK channels have a direct effect on the heart, decreasing heart rate. This research has shown that BK channels play an important role in not only motor control but also the regulation of heart rhythm. The BK channel is therefore a potential drug target for the treatment of disorders involving tremor, ataxia and heart rate. In the current study, this potential will be assessed by using compounds known to modify the activity of BK channels to see if movement disorders and heart rate effects caused by the fungal toxins can be reversed.

Abstracts of 2008 Grant Recipients

Disarming pathogens with natural products from milk

Principal Investigator

Dr Paul Harris

Antibiotics available today are primarily variations on a single theme – bacterial eradication. Their mode of action is to target bacterial processes that are essential for their growth and viability. Although this mode of action is highly effective, it also imposes selective pressure that fosters the growth of antibiotic-resistant strains.

There is therefore a need to develop drugs that have a different mode of action.

Pathogens have developed a number of ways to establish themselves within the host and cause disease. These are collectively known as virulence factors, which help them to invade, colonize, adapt, subvert the immune system and weaken the host.

Therapies geared at 'disarming' the pathogen by inhibiting virulence factors provide a promising alternative approach to traditional antibiotics. Anti-virulence drugs have several potential advantages, including having an expanding repertoire of bacterial targets, preserving the host natural flora, and exerting less selective pressure, which may result in decreased resistance.

The search for anti-virulence drugs is being increasingly explored and a number of potential small molecules and proteins have been discovered, either from natural sources or that have been derived synthetically. Some proteins found in milk have been shown to have anti-virulent properties. For example, the milk protein lactoferrin can interfere with the formation of bacterial biofilms, and thereby inhibit the colonization of the bacteria on surfaces. Mucin and other glycoproteins found in milk can bind to Helicobacter pylori, Escherichia coli and other bacteria, and inhibit these bacteria from attaching to (and therefore infecting) mammalian cells.

Milk is a rich source of proteins many of which have not been fully explored or their roles not fully understood. We believe that milk may contain many more proteins that are involved in host defence and that, for some of them, their mode of action is to disarm pathogens.

It is the aim of this proposal to explore the potential of milk to provide molecules with anti-virulent properties. It is hoped that these molecules could be used to develop antimicrobial therapies. These will be used primarily as a preventive treatment of patients at risk of infection, particularly topical infections such as those found in burn wounds.

Astracts of 2008 Grant Recipients

Does myostatin regulate damage to and/or repair of the heart after myocardial and infarct?

Investigators
Dr GP Devlin
Dr C D McMahon
Associate Professor J V Conaglen

Dr Sarina Lim

Heart disease is a leading cause of death in the New Zealand population, accounting for approximately 22% of all deaths annually. Heart disease is a major health problem for Maori in particular, resulting in twice as many deaths as in the non-Maori population. Patients who develop heart disease following a heart attack experience considerable suffering and multiple hospital admissions until their eventual death. Heart disease also represents a significant cost to the health budget.

Drs. Devlin, McMahon, Conaglen and Lim are investigating the role of myostatin in the heart after myocardial infarct (MI). Myostatin is a member of the transforming growth factor- superfamilty and is a key regulator of muscle development. Myostatin inhibits the development of skeletal muscle principally via blocking the recruitment and proliferation of satellite cells (specialised stem cells) and also induces the breakdown of skeletal muscle. We postulate that myostatin is a key player in regulating the debilitating chronic condition of muscle wasting known as cachexia, which often occurs after MI. We have shown that expression of myostatin is increased in the peri-infarct region of the heart after MI, which supports the notion that myostatin plays central role in regulating cardiac muscle and which also suggests that myostatin may regulate the degradation of myocardium deprived of oxygen. The team will investigate the hypothesis that myostatin acts to block survival of cardiomyocytes subjected to hypoxia and acts to block stem cells from being recruited into the infracted area after MI. If successful, this would result in fewer people who have a heart attack going on to suffer the poor quality of life and disability associated with heart failure, and would greatly reduce spending on hospital admissions due to heart failure, releasing health funding for other purposes.

Abstracts of 2008 Grant Recipients

Are gap junctions important in neocortical seizures?

Principal Investigator

Dr Jamie Sleigh

Gap junction (electrical synapse) blocking drugs have significant anti-seizure effects. However these drugs have many other molecular actions; and it is unclear if their anti-seizure activity is indeed mediated by their gap junction blockade or by some other mechanism. By comparing the potency of the anti-seizure effects of these drugs in brain tissue obtained from a breed of mice which lack the dominant protein required for gap junctions (called Cx36 knockout mice), with normal control mice; we will be able to see if the gap junction blockade is crucial for the anti-seizure effects of these drugs. To do this we will accurately measure the threshold of the current required to stimulate seizures in the brain tissue – in the presence of increasing concentrations of the gap junction blocking drugs. If the dose-response curve for the drugs in the Cx36 knockout mice is the same as that found in tissue from the normal mice, then we could conclude that the gap junction blockade is NOT an important anti-seizure effect. If the drugs have a significant effect in normal mice at concentrations below that in the Cx36 knockout mice, then these effects can be confidently attributed to the gap junction activity. In which case development of specific gap junction blocking drugs (or even – in the future – RNA interference) could be valuable for seizure control. We will also repeat the experiments in the presence of drugs that increase inhibitory neuronal activity. These drugs are commonly used at present to treat severe seizures. From this information we will be able to see whether adding gap junction blocking drugs on top of the traditional drug treatments might be a useful thing to do. We are applying for funding to provide a half-time salary for one year at a post-doctoral level for a visiting scientist (Dr Jonathan Mason) to do this research. He has a wide previous experience in neuroscience and physics, and his visit will enormously benefit our nascent international collaborations.

PRESS RELEASE

Nerves communicate with each other in the brain by both chemical and electrical connections (called "gap junctions" – hence the title of the project). Most anti-seizure drugs act primarily to damp down the chemical connections, thus decreasing the brain's excitability – and hence the propensity to seizures. It is unclear whether the electrical connections are clinically important in the generation and spread of seizures. By carefully comparing the drug effects in tissue in which the electrical connections have been removed, versus drug effects in normal tissue; we can understand whether the electrical connections are important in causing or controlling seizures – and hence provide some guidance for new avenues of drug development in the future.

Abstracts of 2008 Grant Recipients

A double-blind, randomised controlled trial of the Efficiency of Prophylactic Antibiotics in preventing wound infection of simple traumatic wounds in the emergency setting.

Principal Investigator

Dr Martyn Harvey

Background

There have been no studies to date, in the emergency setting, investigating whether antibiotics prior to wound manipulation affect the rate of infective complications of wound closure. Previous studies have looked at the use of a course or stat dose of IV or IM depot antibiotics given after a wound has been manipulated and sutured. These studies have not shown any benefit in reducing the rate of infection, and a meta-analysis of these studies confirms this finding. However, data from plastic surgical studies would suggest that antibiotics are of use, but only if given before wound manipulation. This has not been established in the emergency setting.

Aim

To examine the hypothesis that prophylactic antibiotics administered at triage (prior to wound manipulation) decreases wound infection rates following closure of minor traumatic wounds, in the emergency setting.

Method

This is a prospective, double blinded, randomised control trial. Adult patients who presented to the Emergency Department with traumatic open wounds requiring closure (suturing, 'steristripping' or other method of wound closure) will be randomised to one of two groups. The first group of patients would receive a stat oral dose of 500mg Flucloxacillin; a drug with broad spectrum antibacteriocidal activity, good bioavailability, and good tissue penetration. The second group of patients would receive an identical placebo pill. The patients and the nurses at triage would be blind to which group was receiving the antibiotic, as would the investigators. Patients will then enter the triage system and be assessed and treated as usual, with no change to their standard wound management from there on. Subsequent method of wound closure, tetanus prophylaxis, use of intravenous antibiotics, or a script for antibiotics on discharge will remain the prerogative of the attending physician. Evidence of wound infection will be sought via structured telephone interview, inpatient hospital record, and general practitioner review at one and four weeks.

Results

Fisher's exact testing will be used to analyse infection rates between groups.

Conclusion

We hope the present results will allow definitive recommendation of antibiotic use in minor traumatic wounds presenting to Emergency Departments.

Abstracts of 2008 Grant Recipients

A Study of Vitamin D, innate immunity and Severity of Community Acquired Pneumonia and Exacerbations of COPD in Adults

Principal Investigator

Dr Leong Leow

Abstract

Community Acquired Pneumonia(CAP) and Exacerbations of COPD are major causes of morbidity and mortality in the New Zealand population. Microbial infections are the cause of community acquired pneumonia, and are also thought to be a common cause of acute exacerbations of Chronic Obstructive Pulmonary Disease (COPD). [1-3]

In recent years, Vitamin D has been shown to be a potent mediator of the human innate immune response, to viral and bacterial antigens. It has been shown that Vitamin D status is low in adult New Zealanders, especially in winter months. [19,20] It is in the winter months that acute respiratory infections mainly occur. If Vitamin D status has a significant effect on the outcome of these conditions, this could lead to important public health interventions in reducing the morbidity and mortality in these common conditions.

The CURB-65 score predicts 30-day mortality in adults admitted with community acquired pneumonia [4,5] and exacerbations of COPD [6], and is a marker of severity in these conditions.

We propose a descriptive study of Vitamin D status, measures of innate immunity and CURB-65 scores in a cohort of patients admitted to Waikato Hospital with Community Acquired Pneumonia and exacerbations of COPD.

Understanding the relationships between innate immunity, Vitamin D status and severity of these respiratory infections may lead to a larger randomised controlled trial of the effects of Vitamin D supplementation in respiratory infections.

Waikato Medical Research Foundation (Inc)

Financial Statements

For the year ended 31 May 2008

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Waikato Medical Research Foundation (Inc)

Statement of Financial Position
As at 31 May 2008

	2008 $	2007 $
Accumulated Funds	**1,240,545**	1,301,577
Represented by:		
Current Assets		
Westpac	**14,393**	25,335
ASB	**436**	80
	14,829	25,415
Investments		
Cash and Equivalents	**211,861**	260,631
NZ Fixed Interest	**852,337**	877,720
NZ Listed Property	**89,574**	73,377
Australian Investments	**58,075**	75,130
American Investments	**13,061**	15,279
Brittish Investments	**5,495**	-
	1,230,403	1,302,138
Total Assets	**1,245,232**	1,327,552
Current Liabilities		
Accounts Payable	**4,687**	25,975
Net assets	**$1,240,545**	1,301,577

N Karalus
Chairman

R Baird
Treasurer

The notes to these statements should be read in conjunction with the financial reports

Waikato Medical Research Foundation (Inc)

Statement of Movements in Equity
For the year ended 31 May 2008

	2008 $	2007 $
Accumulated Funds		
Opening balance as at 1st June 2007	**1,301,577**	1,248,562
Plus: Net Surplus/(deficit)	**(61,032)**	53,015
Closing Balance as at 31st May 2008	**$1,240,545**	$1,301.577

The notes to these statements should be read in conjunction with the financial reports

Waikato Medical Research Foundation (Inc)

Statement of Financial Performance
For the year ended 31 May 2008

	Note	2008 $	2007 $
Income			
Dividends		**9,637**	4,525
Donations	3	**15,075**	2,475
Grant - Trust Waikato		**65,000**	65,000
Grants refunded		**-**	34,835
Interest		**80,367**	83,947
Income on realisation of investments		**14,364**	3,529
Unrealised gain on investments		**-**	28,516
		184,443	222,827
Expenditure			
Administration expenses including website		**11,556**	21,742
Advertising and promotion expenses		**1,918**	1,899
Audit fee		**2,447**	2,194
Fees paid to auditor for other services		**5,012**	5,501
Foreign exchange loss		**9,695**	1,573
Grants	2	**165,000**	131,117
Loss on realisation of investments		**1,904**	1,461
Portfolio management fees		**5,368**	4,325
Unrealised loss on investments		**42,575**	**-**
		245,475	169,812
Net surplus/(deficit)		**$(61,032)**	$53,015

The notes to these statements should be read in conjunction with the financial reports

Waikato Medical Research Foundation (Inc)

Statement of Cash Flows
For the year ended 31 May 2008

	2008	2007 $
Cash Flows from Fund Raising Activities		
Receipts from donations and grants	**80,075**	67,475
Less Fundraising expenses	**(1,918)**	(1,899)
Net cash flow from fund raising activities	**78,157**	65,576
Cash Flows from Investing Activities		
Receipts from dividends and interest	**90,004**	88,472
Plus Sale of investments	**291,405**	426,012
Less Investments made	**(259,482)**	(494,271)
Less Portfolio Management fees	**(5,368)**	(4,325)
Net cash flow from investing activities	**116,559**	15,888
Cash Flows from Research Activities		
Grants made	**(185,000)**	(111,118)
Administration and audit fees	**(20,302)**	(25,145)
Grants refunded	-	34,835
Net cash flow from research activities	**(205,302)**	(101,428)
Net increase/(decrease) in cash held	**(10,586)**	(19,964)
Add Opening cash brought forward	**25,415**	45,379
Ending cash carried forward	**14,829**	25,415
Cash balances in statement of financial position	**$14,829**	$25,415

The notes to these statements should be read in conjunction with the financial reports

Waikato Medical Research Foundation (Inc)

Notes to the Financial Statements
For the year ended 31 May 2008

1. Statement of Accounting Policies

Reporting Entity
Waikato Medical Research Foundation is a non profit organisation registered under the Incorporated Societies Act 1908.

General Accounting Principles
The general accounting principles recognised as appropriate for the measurement and reporting of income and financial position on an historical cost basis, except for valuation of investments, have been consistently followed by the Foundation. Accrual accounting has been used to match revenue and expenses.

Particular Accounting Policies
The following particular accounting policies which materially affect the measurement of income and the financial position have been applied.

Investments
Investments are valued at market value in NZ dollars.

Income Tax
The Waikato Medical Research Foundation (Inc) has been approved for legal charitable status and has obtained from the Inland Revenue Department an exemption for income tax.

Differential Reporting
The Society qualifies for differential reporting because of it's size and nature. The Society has taken advantage of all available differential reporting exemptions, except in that it has produced a Statement of Cashflow.

Changes in Accounting Policies
There have been no changes in accounting policies since the previous annual financial statements.

Waikato Medical Research Foundation (Inc)

Notes to the Financial Statements Continued
For the year ended 31 May 2008

2.	**Grants Made**	**2008**	2007
		$	$
	V Arcus & Associates	-	17,950
	G Devlin	**17,653**	-
	S Finch	**18,500**	-
	V Gibbons & Associates	-	8,900
	D Graham & Associates	-	15,000
	P Harris	**24,500**	-
	M Harvey	**3,720**	10,850
	L Leow	**28,500**	-
	D Menkes	**23,850**	-
	R Munday	-	17,417
	M Prinsep	-	17,000
	S Parkar & Associates	-	20,000
	J W U & Associates	-	24,000
	J Sleigh	**30,000**	-
	E Tan	**18,277**	-
		$165,000	$131,117

3.	**Donations**		
	Cancer Society	**15,000**	-
	General	**75**	2,475
		$15,075	$2,475

4. Commitments and Contingencies

At balance date there are no known contingent liabilities. (2007: Nil)

At balance date there are no known capital commitments. (2007: Nil)

STAPLES RODWAY
dynamic financial answers

Audit Report
To the Members of Waikato Medical Research Foundation (Inc)

We have audited the financial report on pages 20 to 25 The financial report provides information about the past financial performance of the Foundation and its financial position as at 31 May 2008. This information is stated in accordance with the accounting policies set out on page 24

Trustees' Responsibilities
The Trustees are responsible for the preparation of a financial report which fairly reflects the financial position of the Foundation as at 31 May 2008 and the results of operations and cash flows for the year ended on that date.

Auditor's Responsibilities
It is our responsibility to express an independent opinion on the financial report presented by the Trustees.

Basis of Opinion
An audit includes examining, on a test basis, evidence relevant to the amounts and disclosures in the financial report. It also includes assessing:

- the significant estimates and judgements made by the Trustees in the preparation of the financial report; and
- whether the accounting policies are appropriate to the Foundation's circumstances, consistently applied and adequately disclosed.

We conducted our audit in accordance with New Zealand Auditing Standards. We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to obtain reasonable assurance that the financial report is free from material misstatements, whether caused by fraud or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial report.

Other than in our capacity as auditor we have provided accounting services to the Foundation.

Unqualified Opinion

We have obtained all the information and explanations we have required.

In our opinion the financial report on pages 20 to 25 fairly reflects the financial position of the Foundation as at 31 May 2008 and the results of its operations and cash flows for the year ended on that date.

Our audit was completed on 16 July 2008 and our unqualified opinion is expressed as at that date.

Staples Rodway

STAPLES RODWAY
Hamilton

Major Donors and Life Members

The Waikato Community Trust
Donny Charitable Trust
Norah Howell Charitable Trust
P J Holman Family Trust
Sir John Logan Campbell Residential Estate
W E & A M Fullerton
Hamilton Pakeke Lions Club
Don McInnes
Ngaruawahia Lions Club
Te Aroha Mountain Lions
South Waikato District Council
Dianne Yates
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A & I Bojesen-Trepka Family Trust
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Rose Optometrists
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Parke Davis Pty Ltd
Sandoz Pharma Ltd
Turners Waikato Markets Ltd
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Mr LH Bradley
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- ○ $20,000 Platinum Sponsor
- ○ $5,000 Major Sponsor
- ○ $2,000 Major Donor
- ○ $500 Life Member
- ○ or become an Annual Subscriber
  ○ $50 ○ $100 ○ $200 ○ $300
- ○ I would like to discuss making a financial contribution or bequest. Please have a trustee call me to discuss this.

Name _____

Address _____

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Phone _____

Cheque enclosed $ _____

○ Please send me a receipt

Post to:

Waikato Medical Research Foundation
Peter Rothwell Academic Centre
Private Bag 3200
Waikato Hospital, Hamilton

We have a new website: www.wmrf.org.nz
We have a new email address: wmrf@waikatodhb.govt.nz
Telephone (07) 839 8750 Fax (07) 839 8712