BULETIN Penyelidikan
PPSP
USMKK
Vol. 4-No.1
April 2004
USM
Universiti Sains Malaysia
For Internal Circulation Only
Research Bulletin Of School Of Medical Sciences, Universiti Sains Malaysia, Health Campus

INVITED EDITORIAL

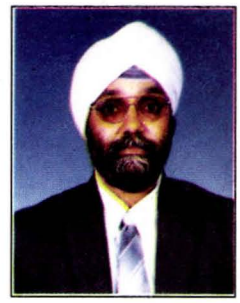
FITNESS PARAMETERS AND ITS ASSESSMENT

Profesor Rabindarjeet Singh
Unit Sains Sukan
Pusat Pengajian Sains Perubatan
Universiti Sains Malaysia
Kampus Kesihatan

One of the many questions asked by sportsmen is "How fit am I?" or "Am I fit?" Yet physical fitness is only one factor of sporting excellence. There are at least seven other elements one has to consider. The athlete must be completely competent in all the techniques of the sport, including the use of the latest equipment, where appropriate. The athlete must be expert in the tactical aspect of the sport and be psychologically prepared to handle the enormous stress of critical situations. He or she must be physical well, free from physical injury including overuse injury, current infection, time zone changes, weather acclimatisation and the over-training syndrome. He also must have weathered the vagaries of selection and must have sympathetic management. Finally, the athlete must be physically 'fit'. There is no single parameter of fitness: it is a composite which varies from one sport to another, containing the elements of cardiopulmonary function, local muscle endurance, muscle strength and speed, joint mobility and body composition. These will be briefly described.

Cardiopulmonary or "aerobic" fitness

Adequate delivery to the muscle is necessary for a wide range of activities and sports. A resting stroke volume (volume of blood that is ejected from the heart at every beat) of 70-80 ml for a subject who weighs 70kg and who has a heart rate of 70 beats per minute produces a resting cardiac output (volume of blood pumped by each ventricle per minute) of around 5 liters per minute. During strenuous exercise the stroke volume may increase by 30-40 ml, giving a cardiac output of 20-25 liters per minute at near maximum heart rates. In highly trained athletes, the cardiac output may reach 35 liters per minute.



Venous blood contains about 12% volume of oxygen, but under conditions of strenuous exercise this may fall to 3%, following greater extraction of oxygen. Highly trained endurance competitors may have an increase in blood volume of up to 50%, often accompanied by lowering of haematocrit (percentage of total blood volume that is red blood cells) and haemoglobin (a protein in the red blood cells that binds oxygen), known as sports pseudo-anemia.

A liter of blood delivers about 200 ml of oxygen. In our laboratory we have recorded cases of maximum oxygen uptake of 4.9 liters per minute. Values of 7 liters per minute have been reported for large rowers (1,2). In terms of relative aerobic capacity, values of 66 to 78.8 ml/kg/min. have been reported for elite athletes in the field of triathlon, cycling, cross-country skiing and rowing (3,6). As each liter of oxygen may release 5 kcal (21kJ) of energy this implies that the energy cost of aerobic work may reach more than 30 kcal (126 kJ) per minute over periods of up to 10 minutes, and 20 kcals per minute (84 kJ) are seen in longer periods of strenuous exercise.

The aerobic test itself is performed on

IN THIS ISSUE

Assalamualaikum wbt. and Salam Bahagia

THE GENOMIC ERA

April 14, 2003 was claimed as a birth date of the genomic era and now we are in the second year of the era. The date is a coincident with the achievement of the last goal of the Human Genome Project: to complete sequencing (mapping out) of the human gonome. The extend and pace of progress in genomics are suggested by the fact that this achievement occurred 11 days shy of the 50 th. anniversary of the publication of Watson and Crick's seminal description of the DNA double helix. Its scope and potential consequences has much in common with the International HapMap Project.

The goal of the International HapMap Project which was formally initiated with a meeting in Washington D.C on 27-29 October 2002, is to determine the common patterns of DNA sequence variation in the human genome and to make this information freely available in the public domain. An international consortium is developing a map of these patterns across the genome by determining the genotypes of one million or more sequence variants, their frequencies and the degree of association between them, in DNA samples from populations with ancestry from parts of Africa, Asia and Europe. The HapMap will allow the discovery of sequence variants that affect common disease, will facilitate development of diagnostic tolls, and will enhance our ability to choose targets for therapeutic intervention.

Both projects have been scientifically ambitious and technologically demanding, have involved intense international collaboration, have been dedicated to the rapid release of data into the public domain, and promise to have profound implications for our understanding of human biology and human health. The sequencing project covered the entire genome, including 99.9% of the genome where we all the same; whereas the HapMap will characterise the common patterns within the 0.1% that we defer from each other.

In fact, we already witnessed the advancement in genomic medicine before this date: the use of genomics for the rapid identification of newly discovered pathogens such as that involved in the severe acute respiratory syndrome (SARS); the use of gene-expression profiling to assess prognosis and guide therapy, as in breast cancer; the use of genotyping to stratify patients according to the risk of a disease, such as the long-QT syndrome or myocardial infarction; the use of genotyping to shed light on the response to certain drugs, such as antiepileptic agents; and the use of genomic approaches in the design and implementation of new drug therapies, such as imatinib for the hyperesonophilic syndrome, and to improve our understanding of the role of a specific genes in the causation of common conditions, such as obesity.

Although genomoics provides powerful means of discovery of hereditary factor in disease, we should realised that it is not genes alone but the interplay of genetic and environmental factors that determines phenotype (i.e., health or disease). Since it remains difficult to alter genes in human although we are in the genomic era, (for both technical and ethical reasons), the next couple of decade, we will generally use personalised modifications of the environment, but not of genes translate genomics-based knowledge into improvemen in health for most of our patients. For examples, clinician will likely suggest to their patients with hereditary hemochromatosis that they avoid iron supplement than that consider gene therapy. Women who carry mutations in BRCA2 will benefit more from taking tamoxifen than from manipulations of their genotype.

With the end of pregenomic era in sight, more than 600 experts recently collaborated to produce a vision for the future genomic research and its application to biology, health and society. According to that vision, for instance, within a decade or two, it will possible to sequence entire genome for a laboratory cost of less than USD $1,000. If this proves true, one can imagine how not only research, but also clinical care, may change dramatically. However, as is true for so much of the applications of genomics; ethical, legal and social issues complicate this optimistic picture. The attention must also be paid to the ethical issues that will be raised by the HapMap and the studie that will use it. It will be ongoing challenge to avoid misinterpretations or misuses of results from studies that use the HapMap.

While recognizing such challenges, we look forward with curiosity and real hope to the advances of the next 50 years – the first 50 years of the genomic era. Today's researches and clinicians have already started using the power of genomics to improve health and we anticipate this; a hint of the progress to come. It is hope that the benefit of genomic medicine will not accrue only to people in developed countries but also for all of the mankind. Regarding the HapMap Project, it hold much promise as a powerful new tool for discovery – to enhance our understanding of the hereditary factors involved in health and disease.

Profesor Mohd. Razali Salleh
Editor

CONTINUED FROM 1st PAGE

an ergometer appropriate to the sport: for example, a treadmill is used for running sports, cycle ergometers for cyclists and rowing ergometers for rowers. Whatever the ergometer used, the work rate is increased at constant intervals until exhaustion while heart rate is recorded and a variety of respiratory parameters are measured and computed on our gas analysis system. The object is to asses the maximum oxygen uptake (VO_{2max}) which correlates reasonably well with the athlete's aerobic performance.

A very useful parameter to the VO_{2max} is the assessment of the 'anaerobic threshold' or the onset of blood lactate accumulation (OBLA). This is the rate of work at which plasma lactate reaches 4 mmol/l and it reflects the percentage of the VO_{2max} which can be sustained for the duration of continuous exercise such as running, cycling, swimming, rowing and canoeing. Thus the VO_{2max} gives an indication of the potential aerobic power available, while the anaerobic threshold gives a measure of the current state of training. The anaerobic threshold may also be measured directly as lactate from od samples or indirectly by determining at what rate exercise or oxygen uptake or heart rate a non-linear increase in pulmonary ventilation occurs. The adult VO_{2max} may improve by 20% with training and the anaerobic threshold may be raised from 60% of VO_{2max} to 80% or higher.

Over the years runners may decrease the oxygen cost of running at a particular speed or improve their running economy, by increasing the biomechanical efficiency of their running action. These performance economy also applies to cycling, swimming and rowing.

Local muscle endurance

Local muscle endurance is often termed 'anaerobic fitness', which is a misnomer, as there is an aerobic contribution to all supramaximal muscular effort lasting longer than about 5 seconds. It is needed particularly for the 'muscular' sports such as judo, wrestling, boxing and rowing. It is also vital for the 'multiple sprint sports' such as squash, badminton, hockey and football in which rapid successive anaerobic attacks/movements have to be made throughout the game, against a varying high aerobic background.

The aerobic elements of muscle endurance depends oth on the cardiac delivery of oxygen and the ability of muscle to utilise it. With training, the number of capillaries per square millimeter of muscle doubles, myoglobin may increase threefold and the mitochondria may increase their volume about threefold.

The anaerobic side of muscle endurance involves the energy systems of creatine phosphate and anaerobic glycolysis. The former can be increased three or four times with suitable interval training. Furthermore, appropriate interval training will trigger muscle synthesis of the enzymes involved for glycolysis, considerably improving the metabolic control mechanism of anaerobic function.

The increase in the rate of glycolytic anaerobic work leads to increased production of lactic acid with its damaging protons. Blood buffers increase with training, and there is an increase in Cori cycle function, whereby lactate is taken up by the liver, the renal medulla and the myocardium and resynthesised as glucose. It is not clear to what extend the other lactate removal systems are increased with training.

Blood lactate levels of more than 18 mmol/l have been recorded in events such as slalom canoeing, rowing and the longer running sprints from a resting level of around 1.0 mmol lactate per liter. This can lead to a fall in plasma pH from 7.4 to 7.1. Protocols for optimising the reduction of lactate removal, involving 'active rest' interval training have been developed (7).

The most rigorous test of anaerobic function is the Wingate test plus its variants (8). Developed by Professor Oded Bar-Or, it is a supramaximal 10-second or 30-second test whereby the subject works computer linked ergometry with either his upper or lower body. In our laboratory, anaerobic leg work is tested by the single cycle ergometer and the upper body is tested by a modified arm cranking ergometer (9).

Four results can be obtained from a Wingate test. First, the peak anaerobic power output, which is measured in watts. The time to reach this peak may be a useful measure, particularly in 'off the mark' sports such as rowing, and sprinting. The mean power sustained during a 10-second period or 30-second period is a useful measure of anaerobic endurance, as is the 'fatigue index", the rate of decline from peak to finish, measured in watts per second. A rate of decline of less than 10 watts per second is considered excellent, 10-15 very good, 20 good and so on.

For the multiple-sprint sports, recovery from one bout of intense anaerobic activity before sprinting into the next is one of the most important attributes. This is assessed by a repeat test at a given time, such as four minutes, later. The total work done is expressed in kilo joules and the second test is expressed as a percentage of the first. A value of 80% would be considered fair at elite level, 85% would be good, 90% very good and 95% excellent. Some competitors, especially squash players, have values of more than 100%; that is, their rate of recovery is so good that they can take advantage of their hot muscle to perform a greater volume of work four minutes later.

Muscle strength and speed.

Weight-lifting and the scrum in rugby, together with certain situations in artistic gymnastics, judo, karate, and wrestling require sheer muscle strength. In most other sports it is not simply high muscle tensions which are required - the speed is also crucial. This rate of development of tension is power and it is frequently important to measure the production of muscle power throughout a defined range of movement. Sophisticated isokinetic dynamometers are needed to test these aspects of muscle function. The muscle force and power at a speed of movement of 80, 140 or 200 degrees of arc per second, whatever is appropriate to the sport, is measured. The faster a muscle contracts, the lower the force which it develops, although the rate of change varies with different muscle groups. For example a hamstring which may only generate 55% of the tension of its quadriceps antagonist isometrically, may generate 78% at 140 degrees a second and at 200 degrees a second give a value of 92% of the quadriceps. Similar variations are seen when comparing lumbar flexion and extension> Thus, movement speed is important in assessment of muscle force.

Joint mobility

Some sports, such as artistic gymnastics and sepak takraw, require extraordinary ranges of movement at particular joints. Other sports - karate, hurdling, high jump and pole vault - also require considerable joint mobility. many other sports, including games and racket sports, require a degree of mobility to supply some degree of prophylaxis against damage resulting from acute overstretch. Goniometry, preferably in the hands of a physiotherapist, is the required measure.

Body composition

Assessing body fat is of considerable use to a sportsman. An athlete may put on a couple of kilograms during training and may wish to be sure that this is muscle, not fat. Those in weight-categorised sports may wish to know of their chances of going into a lower weight class. If their fat level is relatively high, they may easily be able to lose the required weight; if their body fat is low, it may be inadvisable.

Following injury or lay-off, a competitor may wish to know if fat has been gained during the period, even though body weight may have remained constant, as some degree of muscle atrophy may have occurred. A variety of techniques are available for assessing body composition. Many of the elite male competitors in a variety of endurance sports, such as gymnastics have body fat percentage in the range of 6 to 9%, with females ranging from 15 to 20%. By comparison, the mean body fat levels of untrained 20-year-old are 12-14% in males and 26-28% in females. High levels of body fat are essential, however, for long distance sea swimming.

Value of testing

These measurements are most accurate and of greater use when compared with previous assessments of the same subject at earlier times i.e. when the subject acts as his own control. Physiological testing may be 'diagnostic" in pinpointing a unilateral muscle weakness in a wrestler or a rower, or in establishing that a squash player is excellent aerobically but relatively poor anaerobically. It may be helpful to competitors in complex sports such as hockey, to know that physically they compare well with others of world class. Track and field athletes and swimmers, par excellence, are quantified in every aspect of their training, but in most other sports the results of training may not be measured at all.

References

1. Clark JM, Hagerman FC, Gelfand R. (1983) Breathing patterns during submaximal and maximal exercise in elite oarsmen. J Appl Physiol 55: 440-446

2. Koutedakis Y, Sharp NCC. (1989) The need for laboratory monitoring of rowers.Sports Coach April-June: 38-42.

3. O'Toogle M, Douglas W, Hiller B, Crosby LO, Dugar PS. (1987) The ultraendurance triathete: A physiological profile. Med Sci Sports Exerc 19: 45-50.

4. White JA, Quinn G, Al-Dawalibi M, Mulhall J. (1982) Seasonal changes in performance, Part I. The British Olympic road race squad. Br J Sports Med 15: 4-12.

5. Strømme SB, Ingjer F, Meen HD. (1977) Assesment of maximal aerobic power in specifically trained athletes. J Appl Physiol 42:833-837.

6. Joussellin E, Handschuh R, Barrault D, Rieu M. (1984) Maximal aerobic power of French top level competitors. J Sports Med Phys Fit 24: 175-182.

7. Koutedakis Y, Sharp NCC. (1985) Lactic acid removal and heart rate frequencies during recovery after strenuous rowing exercise. Br J Sports Med 19: 199-202.

8. Bar-Or O. (1977) Wingate Anaerobic test. Wingate Institute Report 6 :24-38.

9. Singh R, Singh HJ, Sirisinghe RG. (1995) Physical and Physiological profiles of Malaysian Dragon boat rowers. Br J Sp Med.. 29; 13-15.

REPORT FROM DEPUTY DEAN (RESEARCH)

Research in School of Medical Sciences — Rosy Achievement in 2003

The School of Medical Sciences has been a leader and continues to maintain leadership in research at Universiti Sains Malaysia. The money received through 6th -8th Malaysia Plan thus far supported 145 long term projects under the Intensified Research in Prioritized Areas (IRPA), 296 short term projects, 12 Fundamental researches under the Fundamental Research Grants Scheme (FRGS), 29 incentive grants. There is a total of 225 lecturers of the School of Medical Sciences as of December 2003, the majority is in the rank of lecturers, comprising 152 persons. Out of the total number of academic staff, the non-contract lecturers make up 73.5%. Almost all of these non-contract lecturers are holding or ha held research grants and a total of 49.4% are princip investigators. Only 17.1% of the contract lecturers are or were participating in research.

There is an impressive increasing trend of the number of grants held by the academic staff with 112 projects in the 6th, 193 projects in the 7th and 335 projects for the 8th Malaysia Plan. The trend is corresponding to an increase in the number of academic staff in SMS.

For the 8th Malaysia Plan thus far, we record grant acquisition of over 20 million Ringgit , as shown below

Type of grants	Jan - Dis 2001		Jan - Dis 2002		Jan - Dis 2003	
	No of active projects	Grant amount (RM)	No of active projects	Grant amount (RM)	No of active projects	Grant amount (RM)
IRPA RM8 - PR	-	-	28	4,363,462.09	35	8,858,535.09
IRPA RM8 - EA	-	-	3	900,156	6	1,257,281
USM short term	70	956,867	86	1,285,580	81	1,286,338
Outside grants	1	12,630	4	876,732	3	864,102
FRGS	-	-	6	487,604	12	959,756
TOTAL	71	969,497	127	7,913,534.09	137	13,226,012.09

The year 2003 has been a successful year in research. The medical school of USM records a total number of 51 papers published in the year 2003 at national and international journal, improved from 24 papers published in the preceding year. Thirty three (33) members of the medical school have received various awards from winning best research papers in scientific meetings to innovative inventions at national and international levels.

Profesor Nor Hayati Othman
Timbalan Dekan (Penyelidikan)

SHORT COMMUNICATION
CLINICAL TRIALS - MY EXPERINCES

Shaiful Bahari Ismail
Department of Family Medicine,
School of Medical Sciences,
Universiti Sains Malaysia,
Health Campus.

INTRODUCTION

Clinical trial or clinical study is an investigation in human subjects intended to discover or verify the clinical, pharmacological and/or other pharmacodynamic effects of an investigational product(s), and/or to identify any adverse reaction to an investigational product(s), with the objective of ascertaining its safety and/or efficacy. Clinical ials may be divided into commercialised and non-commercialised clinical trials. In the former, pharmaceutical companies provide the protocol and funds for the researcher to recruit patients and implement the study and in the latter; the investigator initiates clinical trials with or without involvement of the drug companies.

Good Clinical Practice (GCP) is a standard for the design, conduct, performance, monitoring, auditing, recording, analyses and reporting of clinical trials that provide assurance that the data and reported results are credible and accurate; and that the rights, integrity and confidentiality of trial subjects are protected (ICH-GCP glossary 1.24). As long as we follow GCP guidelines strictly, we and our patients are safe. At the same time the local ethical committee will monitor the trials closely. The rule of 'do no harm' to the patients is very important principle in clinical trial.

MY EXPERIENCE

My first involvement in clinical trial in 1999 was as a o-investigator on the new combination of drugs for hypertension. After several clinical trials as co-investigator, I was given the opportunity to be the principal investigator in 2002 in one of the study on diabetes mellitus. To date I have been involved in about 20 clinical trials including 5 as principal investigator. I was confused when I attended my first ever GCP workshop at USM in 1997. I was able to appreciate better with the second workshop in 1999. Certificate of GCP now is a prerequisite to conduct the clinical trial. For the past two years I was frequently invited as facilitator for the GCP workshop run by the Clinical Trial Unit.

ADVANTAGES OF DOING CLINICAL TRIALS

1. Advantages to The Investigator

a. Extra money

As many people think, money is not the only reason for doing clinical trials. There are many clinical trials that do not generate money. Most provide funds just sufficient to buying drugs, reagents, etc. I've been involved in studies that gave me good money and other benefits including travels abroad, as well as in clinical trials that that does not generate any money. In USM, the budgets for clinical trials are scrutinised by the **ethical committee** to ensure that the investigators do not go overboard in requesting money from the pharmaceutical companies. The studies that I have been conducted so far do not provide money directly to the investigator; however the university provided grants for PhD and Masters students who are involved in the trial. In fact, the clinical trials involving post graduate students really consume much of my time, sometime including my lunch-hour breaks. So, the perception that clinical trials are for generating money only is not true.

b. Travels overseas

The clinical trials may provide an incentive for the investigators to travel abroad attending meetings with other collaborators involved in the multi-centre project. This is the opportunity to learn valuable skills from their counterparts, enrich the knowledge of other investigators and establish linkages for future work.

c. Academic achievement

Clinical trials are regarded by the university as private consultation. The university will consider each grant that you get from the pharmaceutical company as additional point for promotion exercise. When doing clinical trials with post graduate students, assured that you will have a few publications; it is better aimed for the international journal as the mark is higher. You can also present the data in conferences; however this is depend on your agreement with the sponsor.

d. Experience in well planned clinical trials

Having involved in multi-centre trials, the clinician will gain confidence to undertake major clinical trials including benchmark trials. At the moment, I am involving in a long-term study on diabetes mellitus which will be completed in 2008. It helps me a lot to evaluate the outcome of major trials especially in diabetes, such as United Kingdom Prospective Diabetic Study.

e. Practice better medicine.

In doing clinical trials one have to follow protocols and GCP guidelines. The protocols are usually planned by experts in the field taking into consideration of feedback from the investigators. The investigators need to inform and communicate about the trial to the study subjects and take informed consent. They need to spend adequate time with their patients to complete a thorough history and conduct detailed physical examinations; which required medical competent and good clinical skill. Documentation of all adverse events, including trivial one such as toothache is very important in clinical trials. The investigators should be in contact with their patients frequently to ensure the safety. If the patient is hospitalised, the investigator will visit the patients and notify to the sponsored company as well as the ethics committee. Whenever necessary, the investigator will also do home visits to see the patient.

f. Gaining experience

The principal investigator is usually the expert in the field. In the beginning, a new investigator may start as a co-investigator, learn the art and gradually progress to principal investigator. For example, as a primary care

physician, initially I was not comfortable of initiating insulin to my patients with type 1 and type 2 diabetes. After my involvement in the clinical trials with good supervision, I learnt a lot and now I am comfortable with the technique and able to teach others on the usage of insulin to out-patients.

g. Experience with the new drugs

Learning and using new drugs in the trial ahead of others is another advantage to the clinician. One will be able to gain knowledge and confident in using the drug, and educate the others on the advantage and disadvantage based on this experience.

2. Advantages To The Patients

In general, the participation of subjects in clinical trials is totally voluntary. They can withdraw anytime during the study even without any reason. Upon withdrawal, the relationship with the doctor/investigator and future treatment won't be affected. The following are some of the advantages to the patients:

a. Better monitoring and effective screening

In the clinical trial, patients will be followed-up closely and the medical problems and treatment can be monitored regularly. Based line investigations such as blood tests, ECG etc. will help in detecting some of the hidden problems. For example, when we went to offices and public places to conducted Oral Glucose Tolerance Tests; we have detected subjects with diabetes and impaired glucose tolerance. Otherwise, they would not have been detected under normal circumstances.

b. Better management.

Usually the investigator is the authority on managing the problem related to the study. For example endocrinologist, in a diabetic study, cardiologist in hypertension studies and so on. They definitely can manage and treat the patients much better than the general physician.

c. Better relationship and outcome

Good doctor-patient relationships is established, especially when the trials is going on for long time (about 5 years). The physician even gives his personal contact number to their patients.

3. Advantages To The Institution

More trials mean more money for the institution and the investigator. The university will collect money by certain percentage of each project plus an additional percentage on the excess income of the investigator. The hidden advantage to the institution is that the investigator with this extra income feels happy.

4. Advantage to The Pharmaceutical Industries

Clinical trials will help companies advertise its products. In the era of evidence-based medicine, the trials would prove or disapprove the beneficial claims of the product. As mentioned earlier, the investigators are the opinion leader in their field; after successful trials, the usage of the products will be extended further down. It is a win-win situation between the companies and the clinicians that will result in better patient care.

5. Benefits to The Country

Bring more investment to the country and at the same time Malaysia will be known worldwide as one of the multi-center drugs trials.

DISADVANTAGES OF CLINICAL TRIAL

1. Disadvantages to The Investigator

Time consuming and extended commitment. Many time the subjects called me and asking for non-related problems that I have to entertain and document it. This will take up my valuable time beside the burden of evaluating whether the situation warrants immediate attention or not.

2. Disadvantages to The Patient

In any drug trial, there is always a risk of developing side effects especially if the trials are at the earliest stage. Of course patient's safety is our foremost importance. One of my clinical trials was abandoned abruptly when the company realised the possibility of developing bladder carcinoma on high doses of the compound. The patients were subsequently screened on a yearly basis for the malignancy but so far, there are no reported cases of bladder carcinoma on the participants involved globally.

3. Disadvantages to The Pharmaceutical Industries

They will be a great loss if the outcome of the trials do not favour them or if they have to stop further development of the new drugs. The company may lose billion of dollars and a drop in the share market may ensue if the study is stopped half-way. We know for sure that if the outcome does not favour the sponsor, it is unlikely to publish the result unless the sponsor is an independent body. For example, the outcome of one of our clinical trials completed in 1999 is still not sent for publication by the sponsor . The likely cause is that the result is not good for them.

CONCLUSION

If you are a clinician and GCP certified, you can be an investigator; but you must give full commitment in order to make it successful. Clinical trials have many advantages to the clinicians including primary care physicians, pharmaceutical industries, institutions, country and to certain extend, patients participated in the trials. It is noted that more and more trials will be coming to this part of the world and hopefully all of us will get the benefit out of it.

ACKNOWLEDGEMENT

Thank to Assoc.Prof Phua Kia Kien, Department of Immunology and Prof. Wan Mohamad Wan Bebakar, Coordinator, Clinical Trial Unit, Universiti Sains Malaysia for their support

REFERENCE

1. Pharmaceutical industry sponsorship and research outcome and quality: systematic review. BMJ, volume 19, August 2003 (529-532)

DEPARTMENTAL RESEARCH ACTIVITIES

DEPARTMENT OF MEDICINE

THE CURRENT FUNDED RESEARCH ACTIVITIES IN WHICH THE DEPARTMENT STAFF MEMBERS ARE THE PRINCIPAL INVESTIGATORS

No.	Title	Grant Type / Funding Body	Staff Member
1.	A six months, multi-centre, open, randomized, parallel safety and efficacy comparison of Actrapid produced by the current process and human insulin with the same formulation as Actrapid, produced by the NN 729 process in subjects with type 1 diabetis on a basal/bolus regimen	Novo Nordisk	Prof. Wan Mohamad Wan Bebakar
2.	Acute dialytic support for the critically ill. Continuous venovenous haemodialysis versus continuous venovenous haemofitration	USM short term	Dr. Kamaliah Mohd Daud
3.	Understanding the Mechanism of Systemic Lupus Erythematosus – the Role of Th1 and Th2 Cytokines	FRGS Grant	Dr. Kamaliah Mohd Daud
4.	A multicentre, randomized, double-blind, parallel group, placebo-controlled study to investigate the long term effects of salmeterol/fluticasone proprionate (SERETIDE) 50/500ug bd, salmeterol 50ug bd and fluticasone 500ug bd, all delivered via ACCUHALER inhaler, on the survival of subjects with chronic obstructive pulmonary disease (COPD) over three years of treatment	Glaxo-Smithkline	Dr. Che Wan Aminuddin Hashim
5.	A Multicenter, Double Blind, Randomized, Placebo-And Active-Controlled, Parallel Study to Evaluate the Glucose and Lipid-Altering Efficacy and Safety of L-410198 (MK-0767) in Patients with Type 2 Diabetes	Merck Sharp Dome	Profesor Mafauzy Mohamed
6.	A Multicenter, Randomized, Double Blind Study to Evaluate the Safety and Efficacy of MK-0767 Monotherapy in Patients with Type 2 Diabetes Mellitus	Merck Sharp Dome	Profesor Mafauzy Mohamed

THE CURRENT FUNDED RESEARCH ACTIVITIES IN WHICH THE DEPARTMENT STAFF MEMBERS ARE THE CO-INVESTIGATORS

No.	Title	Grant Type / Funding Body	Staff Member
1.	The association of HLA class II antigens with anti-cardiolipin antibody expression in Malay patients with systemic lupus erythematosus in Hospital Universiti Malaysia	USM short term	Dr. Kamaliah Mohd Daud
2.	Role of anti-nucleosome antibodies as a disease marker in SLE and it's correlation with disease activity.	USM short term	Dr. Kamaliah Mohd Daud
3.	The relationship between stone chemical composition and urinary biochemical abnormalities in urinary tract stone formers in Kelantan	USM short term	Dr. Kamaliah Mohd Daud
4.	Human Acetyltransferase Polymorphisms : A Pharmacogenomic and Pharmocokinetic Study of Isoniazid in Tuberculosis	IRPA	Dr. Che Wan Aminuddin Hashim
5.	Risk Management of Occupational Asthma	IRPA	Dr. Che Wan Aminuddin Hashim
6.	Atrial Fibrillation Clopidogrel Trial with Ibesartan for prevention of Vascular Events	Sanofi-Synthelabo	Dr. Mohd Sapawi Mohamed

RESEARCH PROJECTS SUBMITTED FOR FUNDING BY THE STAFF OF THE DEPT. OF MEDICINE

No.	Title	Grant Type / Funding Body	Staff Member
1.	Detection of PIA2 gene polymorphism of platelet glycoprotein (GPIIIa) in patients with migraine headache	USM short term	Dr. Atul Prasad

NON FUNDED RESEARCH PROJECTS IN WHICH THE DEPARTMENT STAFF ARE SUPERVISORS (MAIN OR CO-SUPERVISOR) OF POST-GRADUATE STUDENTS

No.	Title	Name of Student	Staff Member
1.	The Study of Outcome and Survival of Patients with Chronic Mycloid Leukemia in Hospital Universiti Sains Malaysia and Hospital Kota Bharu – A Retrospective Analyst	Dr. Mat Zuki Mat Jaeb (M.Med)	Professor Abdul Aziz Baba
2.	Quality of Life Among Patients on Regular Haemodalysis Comparing Diabetic Versus Non-Diabetic Groups	Dr. Amir Ramli (M.Med)	Assoc. Prof. Zainal Darus
3.	Carotid Intima-Media Thickness as an Independent Predictor of Coronary Artery	Dr. Wan Mohd Razin Wan Hassan (M.Med)	Assoc. Prof. Zurkurnai Yusof
4.	Clinical Review of Warfarin Usage in Clinical Practice	Dr. Siti Khairani Zainal Abidin (M.Med)	Assoc. Prof. Abdul Rashid Abd. Rahman
5.	Pattern of Typhoid Fever Among Adult Patients in HUSM and the Outcome of Treatment Comparing Ceftriaxone Versus Chloramphenicol	Dr. Wan Hasnul Halimi Wan Hassan (M.Med)	Assoc. Prof. Zainal Darus

PREPARED BY: PROF MADYA ZAINAL DARUS (HEAD OF DEPARTMENT)

R & D ACTIVITIES IN PPSP

RESEARCH AND DEVELOPEMNET (R&D) ACTIVITIES IN PPSP

(DATA DIKEMASKINIKAN SEHINGGA 25/2/04)

SENARAI PROJEK IRPA (RM 8-EA) YANG DILULUSKAN DARI 1/11/03

JABATAN	TAJUK PENYELIDIKAN	PERUNTUKAN
Farmakologi	Effects of P-Glycoprotein inhibitors on chloroguine/ mefloquine resistant malaria model system in vitro : towards identifying chemosensitizers for malaria	RM 172,000.00

SENARAI PROJEK GERAN PENYEIDIKAN FUNDAMENTAL (FRGS) YANG DILULUSKAN DARI 1/11/03

JABATAN/ UNIT	TAJUK PENYELIDIKAN	PERUNTUKAN
Pembedahan Plastik	The mRNA expression of inducible nitric oxide synthase and its role in tocotrienol treated human keratinocysts and skin fibroblast in-vitro in normal and hypertophic scar	RM 98,841.00
Pediatrik	Undersatbding the role of survival motor neuron 1 (SMN) and neuronal apoptosis inhibitory protein (NAIP) genes in the pathogenesis of spinal molecular atrophy (SMA) patients	RM 78,500.00
Patologi	Molecular characterization of ret/PC mutation in normal, benign and malignant thyroid lesions.	RM 79,615.00

SENARAI PROJEK GERAN INSENTIF YANG DILULUSKAN DARI 1/11/03

JABATAN	TAJUK PENYELIDIKAN	PERUNTUKAN
Pendidikan Perubatan	Survey of lecturers' lifestyle in School of Medical Sciences, USM	RM 1,000.00
Pediatrik	Determination of the common cystic fibrosis gene mutations in Malays	RM 1,000.00
Oftalmologi	Cross sectional study to determine visual impairment and ocular abnormality among preschool children in Kelantan	RM 1,000.00

PEMENANG-PEMENANG ANUGERAH DI IENA (INTERNATIONALE AUSSTELLUNG IDEEN-ERFINDUNGEN-NEUHEITEN), 30 OKT - 2 NOV 2003, NURENBURG, JERMAN.

NAMA PEMENANG	KATEGORI HADIAH	TAJUK
PROFESOR ASMA ISMAIL	*PINGAT EMAS*	*TYPHIRAPIDS*
PROFESOR NOR HAYATI OTHMAN	*PINGAT GANGSA*	*NEURALPAP*

AKTIVITI-AKTIVITI BAHAGIAN PENYELIDIKAN, PUSAT PENGAJIAN SAINS PERUBATAN TAHUN 2004

1. ***Kursus Intensif Metodologi Penyelidikan (untuk pensyarah)***
   Tarikh : Mac 2004
   Tempat : Bilik Tutorial 18,
   Jabatan Pendidikan Perubatan
   Bilangan Kehadiran : 70 orang

2. ***Kursus Intensif Biostatistics & Hands-On Statistical Software Application (untuk pensyarah)***
   Tarikh : Mac 2004
   Tempat : Bilik Persidangan Utama & CAI Lab
   Bilangan Kehadiran : 70 orang

3. ***Bengkel Penyediaan Tesis dan Disertasi Berkualiti (untuk pelajar sarjana)***
   Tarikh : April 2004
   Tempat : Dewan Kuliah 1,
   P.P. Sains Pergigian
   Bilangan Kehadiran : 150 orang

4. ***Bengkel File Maker Pro Asas (untuk staf R&D)***
   Tarikh : April 2004
   Tempat : CAI Lab
   Bilangan Kehadiran :15 orang

MESYUARAT YANG DITETAPKAN

1. ***Mesyuarat Jawatankuasa Penyelidikan & Etika, PPSP***
   Tarikh : 2 kali sebulan
   Tempat : Bilik Mesyuarat Dekan, PPSP
   Bilangan Kehadiran : 30 orang (+ penyelidik dibilik menunggu)

2. ***Mesyuarat Khas JK Penyelidikan & Etika, PPSP***
   Tarikh : 2 bulan sekali
   Tempat : Bilik Mesyuarat Dekan, PPSP
   Bilangan Kehadiran : 18 orang

3. ***Mesyuarat Timbalan Dekan (Penyelidikan) Dengan Pegawai Sains***
   Tarikh : 3 bulan sekali
   Tempat : Dimana-mana bilik mesyuarat yang akan ditentukan
   Bilangan Kehadiran : 25 orang

4. ***Mesyuarat Timbalan Dekan (Penyelidikan) Dengan Staf Bahagian Penyelidikan***
   Tarikh : 1 kali sebulan
   Tempat : Bilik Mesyuarat Dekan, PPSP
   Bilangan Kehadiran : 12 orang

HILARIOUS COLUMN-HILARIOUS COLUMN-HILARIOUS COLUMN-HILARIOUS COLUMN

HAPPINESS & LONGEVITY

To be happy with a man, you must understand him a lot and love him a little. To be happy with a woman, you must love her a lot and not try to Understand her at all.

-Dr. Nazihah (M.Med-Rad)

CONFLICT

"A woman, about to be married, asked her mother what to wear on her wedding night. 'Wear a heavy, long, flannel nightgown that goes right up to your neck. But when she asked her best friend, she got conflicting advice. 'Wear your most sexy negligee, with a V-neck right down to your navel."

-Dr. Hj. M. Abdul Kareem (Rad)

DISCREDIT

In a New York park, a young boy was attacked by a crazy, savage dog. A passerby came to the rescue. Having tackled the dog, he strangled it to death, and saved the young boy. A reporter for a newspaper who happened to be there took snap shots. Approaching our hero the reporter says:
" Your heroic feat shall be published in tomorrow's paper under the headline - Brave New Yorker rescues boy". " I'm not from New York ", replied our brave hero.
" Oh in that case, we'll change the headline to - Brave American rescues boy from savage dog ". " I'm not American either ", replied our brave hero. On being asked about who he really is? Our hero replied „I'm a Pakistani".
The next day the headline on the front page of the paper said: "A Muslim Fundamentalist strangles an innocent American dog to death in New York park. FBI are investigating possible link to the Al-Qaeda."

-Dr. Muhamad Hanafiah (M.Med-Rad)

ABSTRACT OF THE SELECTED PUBLICATION FROM ACADEMIC STAFF PPSP

Title of the article
Genetic polymorphism of CYP2D6 in Chinese subjects in Malaysia.

Name of the Journal
Journal of Clinical Pharmacology and Therapeutic 2003; 28(4):279-284

Authors
Ismail R[1], Teh LK, Amir J, Alwi Z, Lopez CG.

[1]Department of Pharmacology, School of Medical Sciences, Universiti Sains Malaysia, Health Campus.

ABSTRACT

Background: *Although Malaysian Chinese share an origin n the mainland Chinese, their evolution has been uenced by intermarriages. With a gene such as CYP2D6, which is highly polymorphic, it is expected that the Malaysian Chinese would exhibit a polymorphism profile different from those of the Chinese populations in other geographical locations.*
Objective: *To study the genotype distribution of CYP2D6 among the Chinese people in Malaysia.*
Method: *We obtained DNA from 236 Chinese individuals in Malaysia and used PCR-based methods to identify any common CYP2D6 alleles.*
Results: *A total of 236 subjects were enrolled and were successfully genotyped. Malaysian Chinese were relatively heterogeneous in terms of their CYP2D6 genotypes with nine genotypes recorded. CYP2D6*4, *5, *9, *10 and *17 were detected with the most common genotype being *1/*10. No subject had genotypes that predicted poor metabolic activity. However, 40% showed genotypes (e.g. CYP2D6*10/*10, *17, *4 and *9 and *9/*9) that predicted intermediate metabolizer phenotype. Another subject ried the defective CYP2D6*17 allele and six carried the defective CYP2D6*9 allele. Both these alleles have not been reported in other earlier Chinese studies.*
Conclusion: *This study revealed that, in terms of CYP2D6 polymorphism, Malaysian Chinese were a heterogeneous group of people. Although sharing some similarities with other Orientals, they also seemed to have some notable differences. The alleles CYP2D6*4, *5, *9, *10 and *17 were all detected. CYP2D6*3 was however absent.*

Title of the article
Classification of Cervical Cancer Cells Using HMLP Network with Confidence Percentage and Confidence Level Analysis

Name of the Journal
International Journal of The Computer, The Internet and Management 2003; 11(1):17-29

Authors
N. A. Mat-Isa, M. Y Mashor, N. H. Othman

Pathology Department, School of Medical Sciences, Universiti Sains Malaysia, Health Campus.

ABSTRACT

In most previous studies, the analysis on the ability of neural networks to be used as a good cervical cancer diagnosis technique is only based on accuracy, sensitivity, specificity, false negative and false positive. In the current study, we go one step further by introducing analysis of diagnosis confidence percentage and diagnosis confidence level to analyses the ability of neural network to produce a good diagnosis performance. The current study used hybrid multilayered perceptron (HMLP) network to diagnosis cervical cancer in the early stage by classifying cervical cell into normal, LSIL and HSIL cell. The proposed diagnosis confidence percentage and diagnosis confidence level analysis have been proved to give clearer picture on the strength or confidence level of each diagnosis, which is done by HMLP network.

Keywords : *Cervical cancer, HMLP network, diagnosis confidence percentage, diagnosis confidence level, Pap test.*

Title of the article
Multicentre laboratory evaluation of Brugia Rapid dipstick test for detection of brugian filariasis.

Name of the Journal
Tropical Medicine and International Health. 2003; 8(10): 895-900.

Authors
Rahmah N[1], Shenoy RK, Nutman TB, Weiss N, Gilmour K, Maizels RM, Yazdanbakhsh M, Sartono E.

[1]Department of Medical Microbiology & Parasitology, Universiti Sains Malaysia, Health Campus.

ABSTRACT

A multicentre evaluation of the Brugia Rapid dipstick test was performed using 1263 serum samples in four international laboratories, i.e. T.D. Medical College (TDMC, India), National Institutes of Health (NIH, USA), Swiss Tropical Institute (STI, Switzerland) and Leiden University Medical Centre (LUMC, Netherlands). In comparison with microscopy, the dipstick demonstrated sensitivities of 97.2% (70 of 72) at TDMC, 91.6% (175 of 191) at LUMC and 100% (six of six) at STI. Sera of chronic patients

showed a positivity rate of 11.3% (19 of 168) and 61.2% (71of 116) at TDMC and LUMC, respectively. All 266 sera of non-endemic normals from STI, NIH and LUMC tested negative with the dipstick. At LUMC, sera of 'endemic normals' (amicrofilaraemics with no clinical disease) from an area with approximately 35% microfilaria positivity showed 60.8% positive results (31 of 51), thus demonstrating the likelihood of many cryptic infections occurring in this population. Specificities of the test with Onchocerca volvulus sera were 98.8% (80 of 81) and 100% (10 of 10) at the NIH and STI, respectively; while specificity with Loa loa sera at the NIH was 84.6% (44 of 52). At the STI, the dipstick test also demonstrated 100% specificity when tested with 75 sera from various protozoan and helminthic infections.

Title of the article
Clinical experience of medical students in a developing country.

Name of the Journal
Educational Health 2003; 16(2):163-75.

Authors
Malik AS, Seng QB[1].

[1]Department of Paediatric, School of Medical Sciences, Universiti Sains Malaysia, Health Campus.

ABSTRACT

***Objective**: This paper compares the clinical experience in acute conditions of the undergraduate students of a medical school from a developing country (Malaysia) with those from a developed country (UK).*
***Method**: This study was conducted at the School of Medical Sciences, Universiti Sains Malaysia (USM). Through questionnaire survey enquiry was made about 27 acute medical conditions (i.e. conditions related to internal medicine, paediatrics, and psychiatry), 15 acute surgical conditions (i.e. conditions related to general surgery, orthopaedics, ophthalmology, otorhinolaryngology, gynaecology and obstetrics), 15 surgical operations and 26 practical procedures. The results obtained were compared with published data from the UK.*
***Results**: Acute medical conditions were seen by higher number of the USM students but with less frequency than the British students. The USM students saw practical procedures more frequently than the British students did, but almost an equal number performed these procedures independently. The British students attended surgical operations more frequently than the USM students did.*
***Conclusion**: Given the limitations of comparison (epidemiological, cultural and geographical differences, conventional curriculum (in the British medical schools) vs. problem based learning curriculum (in the Malaysian medical school)) the overall clinical experience of the medical students in the USM and the UK was comparable. The USM students had more opportunities to observe cases and procedures but "hands on" experience was similar to that of the British students.*

Title of the article
Skeletal union following long bone reconstruction using vascularised fibula graft.

Name of the Journal
Singapore Medical Journal 2003; 44(6): 286-287.

Authors
Imran Y, Zulmi W, Halim AS

Department of Orthopaedics, School of Medical Sciences, Universiti Sains Malaysia, Health Campus.

ABSTRACT

Thirteen patients had skeletal reconstruction using vascularised fibula graft following resection of the diseas bone. Eleven patients had reconstruction of the lower lim and two patients of the upper limbs. Clinical and radiographical evidence union were achieved with the average time of 32 weeks (earliest eight weeks). Six out of 11 patients (54%) in lower limb reconstruction started weight bearing at the average of 27 weeks. Bony union in this study is comparable with other studies using vascularised fibula graft.

Tap into people's dignity, and they will do anything for you. Ignore it, and they won't lift a finger

GEOGRAPHIC INFORMATION SYSTEM (GIS) AND REMOTE SENSING IN MAPPING OF CHILDREN WITH MALNUTRITION - AN INTRODUCTION

Zabidi Azhar Mohd Hussin MRCP (UK), FRCPCH,
Syahrul Hisyam Baharudin B Eng. (Aerospace)

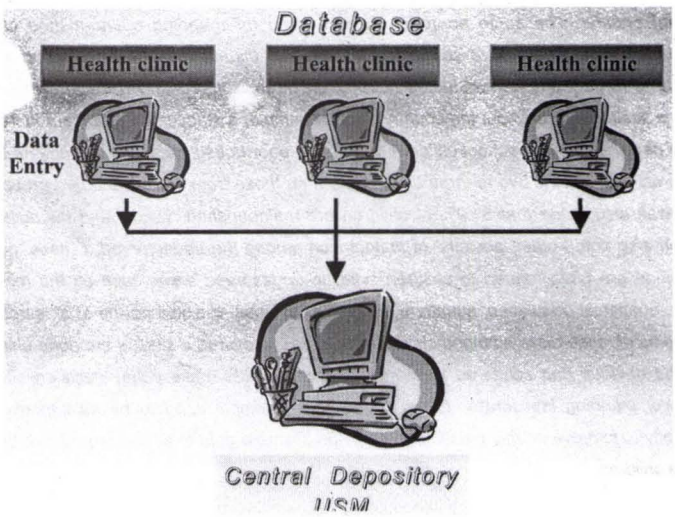
The Geographic Information System (GIS) is a satellite-based system that has been used widely in a number of settings from civilian to military use. Using this system, one is able to map accurately a location on the ground such as earthquake areas, river flow, and military build up.

This system has been used to map population with infectious diseases such as Malaria and AIDS with great successes. Previous studies on malaria have demonstrated the usefulness of GIS by providing clues r further analysis of the disease. The display of data rtaining to the study area provided an overview of the malaria incidence in relation to geographically and ecologically important entities. The same approach can be used for mapping malnourished children in Malaysia. Published data have shown that the precise distribution of malnourished children in Malaysia is largely unknown. Studies have often been isolated and have shown pockets of problems scattered throughout the country. As an example, a study in Kula Lumpur in 1992 noted that the percentage of preschool children from urban poor households with inadequate intakes of calories and nutrients is two to three time higher then those from the advantaged group. A study in Sarawak also noted that 81.9% of children are malnourished. Zulkifli and his colleagues in Kelantan also noted other 'pockets' of malnutrition among the underserved. These 'pockets' of malnutrition are often related to children living in undeserved areas such as the resettlement villages, aboriginal population, squatters and fishing villages. It would not be at all surprising that other areas of these isadvantaged children would be discovered if studies e done elsewhere. It would be obvious that scattered nowledge like this would make policy decision difficult and manpower planning inaccurate. There is therefore a logical need to be able to use existing technology to improve on this problem and provide accurate data to all concerned with the welfare of these children.

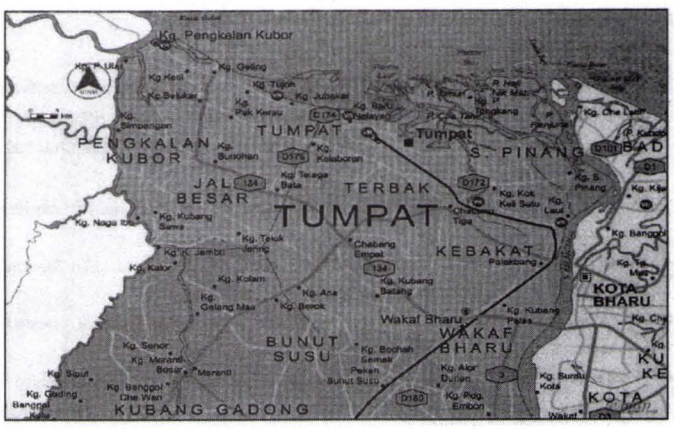
The burden of malnutrition to the country is fairly obvious. Significant links have been established between poverty, malnutrition and outcome. It is clear that children living under multiple hardships often have a poorer outcome measure such as lower IQ, low rates of school completion and delinquency. Socioeconomic inequalities have also been shown to have an adverse link to cardiovascular mortality. Present available data in Malaysia has adequately shown that social and medical inequalities are present between various states in the country and also between different socio-economic groups.

The coverage of Health accessibility of children in Malaysia is good. It would be a wonderful opportunity if we could design a study that utilizes ready-made data present in all these Health Clinics and relate them to the geographical area where these families live. At present, routine anthropometrics measurements are done in children during their attendance at regular immunization clinics. Data integration from these measurements and linking them to the GGIS would be a logical step towards having a map of these families. Other technologies would be necessary to supplement these data. The use of the Global Positiong System (GPS) to accurately locate these families would then be the next logical step. Having an effective easy-to-use affordable database system that could be developed to 'capture' these measurements into a central depository can then further refine the system. Such a data-base, when linked to facilities such as the Geoinformation System (GIS) would enable those planning for the care of children in this country to target their resources to the most vulnerable group of children in need of assistance.

The workflow for such initiatives is as shown:



A pilot study is currently undertaken in the district of Tumpat, Kelantan to map areas of malnourished children in area, considered as one of the poorest areas in Malaysia



Our visits to the district clinics in this area has brought us into contact with 2000 young children since the project started 3 months ago. From initial analysis, we

discovered that more than 30% of these children are malnourished but appeared completely acceptable by their families and even the health workers. Data from this initial study is currently being analyzed. At the same time accurate geographical location and other socio-demographic data of the children will be superimposed and then transferred to an overall geographical map allowing the researchers to link factors that would provide further information on the precise location of these malnourished children and the surrounding locations. At the same time, data from previously taken National Census will aid us on understanding the demographic information in this area.

Our next phase of the study will be to have a period of intensive intervention to the targeted group, hoping to reverse the trend of malnutrition to these unfortunate children. By re-plotting the follow up study results on the GIS, one would be able to do an accurate follow up analysis on trends of the problem of malnutrition and hopefully provide health workers an immediate intervention plan, relevant to all.

Acknowledgement

This project is made possible from the IRPA Research Grant Geoinformation System (GIS) and Remote Sensing in Mapping of Children with Malnutrition *and won the Best Paper Award during an International Conference MAPASIA 2003, held in Kuala Lumpur.*

References

1. Zulkifli A., Khairul Anuar A., Atiya AS., "*The Nutritional Status Of Children In Resettlement Villages In Kelantan*". *Southeast Asian J Top Medical Health 1999*;30(1):122-8

2. Brooks-Gun J and Duncan GJ., "*The Effect Of Poverty On Children*". *Future Child 1997 Summer-Fall*; 7(2):55-71

3. Zulkifli A. et. al. , "*The Prevalence Of Childhood Malnutrition-Its Measurement, What It Means And Its Uses*",. *Med J of Malaysia 1980*; 34(4):329-335

4. World Health Organization, "*Turning The Tide Of Malnutrition. Responding To The Challenge Of The 21st Century*". *World Health Organization; 2000;* :19 pages

5. World Health Organization, *"Nutrition For Health And Development. A Global Agenda For Combating Malnutrition". World Health Organization; 2000;* :86 pages

6. Mercedes de Onis, Edward A. Frongillo, & Monika Blossner. *"Is Malnutrition Declining? An Analysis Of Changes In Levels Of Child Malnutrition Since 1980". Bulletin of the World Health Organization*; 78: 1222–1233.

PCR MADE EASY – WITH EZDNA AMP

One of the most significant discoveries in the field of biotechnology is the polymerase chain reaction (PCR). PCR is a process of *in vitro* enzymatic amplification of a specific region of DNA, using a reaction mixture containing a DNA polymerase, nucleotides, buffer, a small amount of DNA as starting template and its complementary pair of primers. The reaction mixture undergoes thermal cycling to produce about a million-fold DNA copies, generating sufficient material for analysis. At School of Medical Sceinces, Universiti Sains Malaysia (USM), research team headed by **Dr. M. Ravichandran** have developed a simplified thermostabilized kit for DNA amplification by PCR called EZDNA Amp. The other researchers involved in the development of this product are Dr. P. Lalitha, Lee Su Yin, Lim Kun Lee, Melissa Chan Li Ann, Syed Atif Ali, Kurunathan a/l Sinniah and Nor Hayati Ismail

The EZDNA Amp contains all the necessary reagents for a PCR reaction (except primers and DNA template) in a single tube. All reagents are thermostabilized for easy transportation without cold storage, making it highly accessible to underdeveloped countries. EZDNA Amp can be used for amplifying DNA from all types of organism, making it ideal for use in all molecular diagnostic laboratories, such as medical diagnostics, agricultural research, environmental studies, and veterinary research.

The preparation of PCR reaction mixture is made easier by using EZDNA Amp. The user can perform PCR in 3 simple steps: 1) Add water to reconstitute the reagents, 2) Add primer pair, 3) Add DNA sample and place in thermal cycler.

Product highlights:
- Single tube test
- Easy to use – only 3 pipetting steps involved: just add water, primers and DNA sample
- Reduces pipetting error and carry-over contamination
- Value added – includes an EZDNA Amp Positive Control and a 25mM $MgCl_2$ reagent
- Easy storage and transportation – no cold chain required
- Inexpensive and affordable
- Requires no skilled manpower
- Ideal for use in all molecular diagnostic laboratories
- Creative educational tool for teaching PCR in schools

The EZDNA Amp received Silver medal at EXP Science and Technology 2003 organized by Ministry Science, Technology and Environment (MOSTE). Also this product has been selected by the Technology Incubation and Funding Partnership (TIFP) program of USAINS, USM, as one of the top 10 products of USM which has commercialization potential.

Continued from page 16

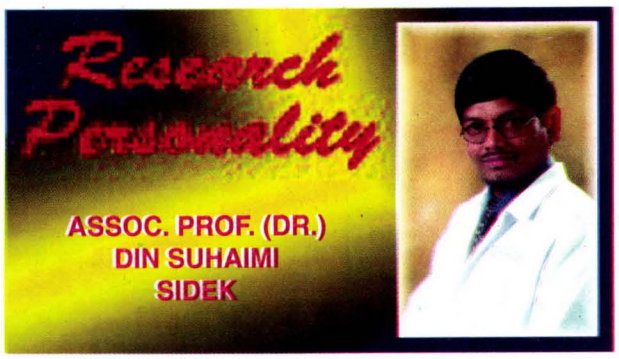
been to built a foundation for helping the deaf and hope to fight for their betterment including free hearing aids and cochlear implants.

Associate Prof (Dr) Din Suhaimi Sidek is married to Dr. Norhani Abd Rani, his junior in the University of Tanta. They studied together while in London till she completed the Fellowship in Dental Surgery and MSc.in Periodontology. The couples are bestowed with 4 children, of which 3 of them are in the higher learning institutions. Both of them hope to serve the government and people of Malaysia and the world in the best means.

ANNOUCEMENT

CADANGAN TARIKH MESYUARAT JAWATANKUASA PENYELIDIKAN & ETIKA PUSAT PENGAJIAN SAINS PERUBATAN BAGI TAHUN 2004

BIL.	PERIHAL MESYUARAT	TARIKH AKHIR PERMOHONAN DITERIMA	TARIKH MESYUARAT	CATITAN
1.	JK Penyelidikan & Etika	31 Disember 2003 (Rabu)	6 Januari 2004 (Selasa)	
2.	JK Penyelidikan & Etika	14 Januari 2004 (Rabu)	20 Januari 2004 (Selasa)	
3.	JK Penyelidikan & Etika	21 Januari 2004 (Rabu)	10 Februari 2004 (Selasa)	
4.	JK Penyelidikan & Etika	19 Februari 2004 (Selasa)	25 Februari 2004 (Rabu)	
5.	JK Penyelidikan & Etika	03 Mac 2004 (Rabu)	09 Mac 2004 (Selasa)	
6.	JK Penyelidikan & Etika	18 Mac 2004 (Khamis)	24 Mac 2004 (Rabu)	
7.	JK Penyelidikan & Etika	31 Mac 2004 (Rabu)	06 April 2004 (Selasa)	
8.	JK Penyelidikan & Etika	15 April 2004 (Khamis)	21 April 2004 (Rabu)	
9.	JK Penyelidikan & Etika	30 April 2004 (Ahad)	05 Mei 2004 (Rabu)	
10.	JK Penyelidikan & Etika	12 Mei 2004 (Rabu)	18 Mei 2004 (Selasa)	
11.	JK Penyelidikan & Etika	2 Jun 2004 (Rabu)	08 Jun 2004 (Selasa)	
12.	JK Penyelidikan & Etika	17 Jun 2004 (Khamis)	23 Jun 2004 (Rabu)	
13.	JK Penyelidikan & Etika	30 Jun 2004 (Selasa)	06 Julai 2004 (Selasa)	
14.	JK Penyelidikan & Etika	15 Julai 2004 (Khamis)	21 Julai 2004 (Rabu)	
5.	JK Penyelidikan & Etika	28 Julai 2004 (Rabu)	03 Ogos 2004 (Selasa)	
16.	JK Penyelidikan & Etika	12 Ogos 2004 (Khamis)	18 Ogos 2004 (Rabu)	
17.	JK Penyelidikan & Etika	01 September 2004 (Rabu)	07 September 2004 (Selasa)	
18.	JK Penyelidikan & Etika	16 September 2004 (Khamis)	22 September 2004 (Rabu)	
19.	JK Penyelidikan & Etika	30 Setember 2004 (Khamis)	05 Oktober 2004 (Selasa)	
20.	JK Penyelidikan & Etika	14 Oktober 2003 (Khamis)	20 Oktober 2004 (Rabu)	
21.	JK Penyelidikan & Etika	03 November 2004 (Rabu)	09 November 2004 (Selasa)	
22.	JK Penyelidikan & Etika	18 November 2004 (Khamis)	24 November 2004 (Rabu)	
23.	JK Penyelidikan & Etika	01 Disember 2004 (Rabu)	07 Disember 2004 (Selasa)	
24.	JK Penyelidikan & Etika	16 Disember 2004 (Khamis)	22 Disember 2004 (Rabu)	



Associate Prof. (Dr.) Din Suhaimi Sidek was born and spent his early childhood in the state of Negri Sembilan. He was groomed in the prestigious secondary institution, Malay College Kuala Kangsar also known as "Eton of the East" before proceeding to the Middle East in 1977. He obtained his MBChB from the University of Tanta, Egypt in 1984 and started his career as a doctor, first in the Hospital Besar Kuantan as a house officer and later as a medical officer in the Surgical Department. He also had an opportunity to enjoy his district posting as the Medical and Health Officer in Bandar Bera, Temerloh where he learned how to survive with limited electricity and water supply and venturing into the remote areas to render service to the *orang asli.* He was transferred back to Kuantan after a year before he resumes the training post of Registrar in ENT at Penang General Hospital in April 1987.

He joined the School of Medical Sciences, USM in December 1988 and soon after that in May 1989 was sent to Universiti Kebangsaan Malaysia (UKM) for the postgraduate training. He completed the Masters of Surgery (Otorhinolaryngology-Head and Neck Surgery) in May 1993 and went to London in September 1993 to pursue his MSc (Audiological Medicine) in University College London. He had the opportunity to do research for his MSc in the world famous temporal bone lab at the Institute of Laryngology and Otology, London under the supervision of Professor Leslie Michaels. His teachers also included Professor David Kemp (founder of the otoacoustic emissions) Professor Linda Luxon and Professor A. Davies. He continued another year in the Royal Throat, Nose and Ear hospital as well as in the Nuffield Hearing and Speech Centre for Pediatric Audiology. There he had the opportunity to attend the clinics of Dr. Navnit Shah (famous for his Shah Gommet) and observed the surgery by renown Surgeons such as Dr TR Bull, Dr.Valerie Lund, Dr.David Howard and Dr. Tony Cheeseman. While in UK he actively participated in student activities and was the President of the Kesatuan Melayu United Kingdom.

When he was in United Kingdom he also visited centres such as the Neurosurgery Institute in Queen's Square, Great Ormond Street Children Hospital, London, the Audiology Units in Universities of Southampton and Nottingham, the Deaf centres and schools around London and, the Royal National Institute of the Deaf. The exposure to all the centres inspired him to modernize the service of audiology in Malaysia after his return in 1995. To further enrich his experience in 1997 he attended a one-month course in the United States at the International Centre for Otologic Training, Savannah. He was also offered a one-month WHO fellowship in 2002 where he visited the states of North Carolina and Georgia, and attached to the Hearing Screening and Cochlear implant programs.

In the field of audiology, his main research was on Hearing Screening. He did a study on "Hearing screening of infants of the Special Care Nursery, UKM with brainstem auditory evoked potential" in 1992. "A study of histopathological changes affecting the inner ear in Acoustic Neuroma" conducted at the London temporal bone laboratory in 1994. He received a long term IRPA grant (1998 – 2002) entitled "A study of the High Risk Factors for Deafness and Problems of Rehabilitation among the Deaf Children in Kelantan". He developed the audiology service and research facilities and with that he supervised several M-Med dissertations such as "A study of the Prevalance of ear diseases among the population of Tumpat, Kelantan. October 1998 – Mac 2000" ; "Newborn hearing screening in the special care nursery of Hospital Universiti Sains Malaysia-2002" ; "An evaluative study of Distraction Test and TOAE in Detection of Hearing Impairment in Early childhood" ; "The Predictive value of tympanometry in otitis media with effusion" ; "Faktor malnutrisi dan sosial terhadap penyakit otitis media kronik di kalalngan kanak-kanak di Kelantan" ; "Praktis jururawat dalam Penyaringan Pendengaran Kanak-kanak di Klinik Kesihatan". In the year 2004 a nationwide study on the National survey on Hearing and Ear diseases will be undertaken with the Kementerian Kesihatan Malaysia. This is in accordance with the recommendation of the WHO that every country should have its own data on hearing.

Assoc.Prof (Dr) Din Suhaimi also has interest in natural products for use in the ear and has done several studies including "A study to assess the efficacy of Gamat on the healing process of traumatic tympanic membrane perforations in guinea pig" and "In–vitro evaluation of the growth enhancing or cytotoxic effect of Sticophus horrens (Gamat) fibroblast cell Line cultures". He will soon be studying on the cytotoxic effect of Tee-tree oil on Human Keratinocyte and fibroblast cell lines cultures. His other research interest includes sleep apnea whereby he has supervised a pilot study on prevalance of sleep apnea among USM population and another on children with tonsils and adenoids. He also attended several sleep apnea courses locally and abroad. With that research interest, the sleep study laboratory was established in the O HNS ward with a multidisciplina team. As a surgeon his interest has been in the ear, neuro-otology and endoscopic cystorhinostomy (EDCR) and sphenoid sinus surgery.

As the head of Department of ORL-HNS he has been at the helm in innovating and improving the undergraduate and postgraduate studies especially in bioethical issues. He was instrumental in setting the ORL-HNS ward and the Audiology "Hearing for all" centre. He also spearheaded the formation of the Audiology and speech unit, a service unit under the Hospital and together with the maxillofacial unit marks the strong cooperation and symphony of the ORL-HNS department. He has also held other administrative posts in the University such as the M.D. Phase III chairman, Co-curriculum chairman a member of the curriculum commit Currently he heads the ORL-H... conjoint board and planning to start a new program in the School of Health Sciences- BSc. in Audiology and BSc. in Speech Pathology hopefully in 2004. He has organised many workshops and seminars; amongst others are the Bone Anchored Hearing Aid workshop, Hearing Seminars and ORL courses for General Practitioners.

He also loves social services and currently holds the post of president of the Malaysian ORL-HNS society, President of the Society for Helping the Deaf, Kelantan (PEMANCAR). He was also the School Board Chairman for Sekolah Menengah Islam Aman (a private school) when it started in 1997. He is also one of the board members for Rumah Raudatul Sakinah, a welfare shelter home for girls with social problems. His ambition has always

Continued on page 14