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The Continuing Challenges of FWBD: Safe Food, Safe Water

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Deputy Director General OF Health (Public Health),
Ministry Of Health Malaysia.
The major environmental risk factors for cancer are carcinogen and co-carcinogen exposure in tobacco, insufficient exercise and above all an unhealthy diet. What we eat or do not eat is exceedingly important in determining what cancers or other chronic disease we may suffer from. Carcinogens may be integral contaminants of the diet, like nitrosamines in some situations and aflatoxins, or may be generated by cooking processes, as is known to be the case for heterocyclic amine pyrolysis products. Examples of co-carcinogenic agents may include grit in bread products, salt in pickles or betel in chewing quids. Dietary insufficiencies, for example of zinc, may also act to increase sensitivity to genetic damage, for example. Influence on metabolism of carcinogens, like induction of phase II enzymes like glutathione S transferases, further directly impacts on carcinogenicity.

Antioxidants in fruits and vegetables are typical examples of protective agents acting in this way. In addition we have dietary fibre which can decrease carcinogen exposure through accelerating passage of faeces through the gut. Other types of fibre, the soluble forms, can act to decrease uptake of glucose and thus suppress insulin exposure, an important factor for colon cancer. Natural anti-inflammatory agents like N-3 fatty acids in fish offer another example of preventive factors in the diet. Individual dietary components, like isoflavones in soy products, can interfere with hormone function to exert a beneficial action, as on the breast. Other compounds may act via stimulation of the immune system like lactoferrin and betaglucans. Perhaps the most important influence of diet on cancer, however, in a world of increasing comfort and ease of access to foodstuffs, is through over-eating and consequent obesity. Given the importance of diet to all our lives, we need to focus on all possible interactive effects in providing an evidence base to guide our choices regarding what we should eat in Asia.

Keywords: Cancer development - dietary factors - constituents - contaminants
Diet and nutrition are important factors in the promotion and maintenance of good health throughout the entire life course. Diet has been known for many years to play a key role as risk factors for chronic diseases. Chronic diseases such as cardiovascular disease, diabetes mellitus and some cancers are long-term diseases and have connection to poor diet. A balanced diet comprising of diverse and nutritious foods is key to promoting good health. Foods contain vital nutrients that provide energy, building material, maintenance and repair and support growth for our body. The body requires macronutrients (carbohydrates, fats, proteins) and micronutrients (vitamins and minerals) to function properly. In order to meet these essential nutrients, it is recommended that the daily diet consists of 60% carbohydrate, of which 50% is complex carbohydrate, 15% is protein and 25% is fat (NCCFN, 2005). Since no single food group can nourish the body with all the vital ingredients it requires, it is important that we consume a variety of foods based on the Malaysian Food Pyramid. There is now a nutrition paradigm shift to also focus beyond basic nutrition, that is, to give emphasis on consumption of whole grains and to recognise the role of phytochemicals and essential fatty acids (EFAs). The protective value of foods and their nutrients in the prevention and delaying onset of chronic diseases must not be underestimated.
Early Detection of Cases and Carriers of Typhoid and Other Food Borne Diseases

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Chronic carriers of Salmonella Typhi are a major problem for public health authorities since these individuals act as the reservoir for the organism which then become the agents of typhoid outbreaks in a community. Typhoid continues to persist in the world due to the inefficient identification and eradication of these carriers. Despite showing low sensitivity results, the stool culture method remains the only available method to detect for typhoid carriers. The requirement for culture facilities makes the culture method unavailable and inaccessible to patients in resource poor countries who needed it most. Serology methods would be preferred over standard stool culture methods as a viable screening tool since these tests are faster, cheaper and easier to perform.

In the efforts towards developing new diagnostics for detection of carriers there is a need to address the gaps of knowledge in the development of these carriers. The findings will elude to more effective screening and confirmatory tools for carrier detection and for effective control measures.

In this paper, chronic carriers in Kelantan, Malaysia were screened using novel serological and DNA based diagnostics and compared to existing conventional methods. Chronic carriage was recorded at 3.6% among individuals who previously had acute typhoid fever for more than a year. Discussions on the development of typhoid carriage and typhoid control policies will also be addressed. The paper will also discuss on the innovative diagnostics developed by USM to detect for other food borne diseases.
Foodborne diseases outbreak is said to occur when the observed number of cases of a particular foodborne disease exceeds the expected number or when there is an occurrence of two or more cases of a similar foodborne disease resulting from the ingestion of a common food. Whenever there is an outbreak, the need to determine the source and to track its spread is of utmost importance so that drastic measures can be undertaken to halt the progression of the outbreak. In the investigation of an outbreak, there should be multi-discipline involvement which requires specific skills in the clinical and laboratory medicine, epidemiology, food safety and risk communication, to name a few. However many foodborne outbreaks are poorly investigated and most of the time, the source of outbreak was not known.

Laboratory support plays an important role in the investigation of outbreak. The causative agent of the outbreak, either biological or toxin-induced can be detected in a well equipped laboratory. The isolation of the same organism from common food source or from patients’ clinical samples may imply that the cases are epidemiologically linked.

Various fingerprinting activities can be conducted to link cases to a common source. Fingerprinting methods include phenotypic and molecular methods. Among the phenotypic methods commonly used are biotyping, antibiogram and serotyping. However these methods may not be able to discriminate bacteria that have the same phenotypic characteristics. For example, antibiogram has limited value because isolates that are not genetically and epidemiologically related may have the same susceptibility pattern. Serotyping have been used for taxonomic grouping of bacterial and has epidemiologic value in differentiating strains within species of foodborne pathogen, for example for serotyping Salmonella species.

Molecular typing methods are more discriminative and have been employed successfully to help in the investigation of outbreak. DNA fingerprinting not only identify the type of microorganism causing the infection but also able to discriminate the causative strains from other strains. Among the methods that have been frequently used are ribotyping, restriction-fragment length polymorphism, multi-locus sequence typing and pulsed-field gel electrophoresis (PFGE). PFGE is the most widely used method in the investigations of foodborne outbreaks. It has been used extensively in several outbreaks in the U.S, Europe and other parts of the world. The linkage of a bacteria causing illness in a patient to a food source located miles away can be made possible using DNA fingerprinting technology. With this knowledge, the authorities can quickly isolate the geographic location where the bacteria originated and can then prevent others from consuming the contaminated food product.
Kelantan Typhoid Initiative: Lessons Learnt

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Food and water borne diseases (FWBD) particularly typhoid fever are one of the important health issues in Kelantan. Poor environmental sanitation, poor cases and carrier management, and unhygienic food handling are among known contributory factors to its occurrence.

The Five Year FWBD Plan of Action was developed and launched in 2003. Several inter and intradepartmental strategies were implemented. The aim is to reduce typhoid incidence rate in Kelantan from 24.4/100,000 in 2003 to 10/100,000 in 2008.

All typhoid cases were followed up with stool clearance at regular interval. Detection of carrier status was enhanced by the usage of serology test and stool culture. All cases and carriers detected were treated according to guidelines.

Incidence of fever and diarrhoea were put on special surveillance system to provide early detection of typhoid cases. Analysis of notified typhoid cases were sent to respective district health offices weekly for further action. Active record and laboratory search were conducted in hospitals to ensure cases were notified and necessary actions carried out accordingly.

Activities to improve latrine and safe water supply coverage were geared up. Joint enforcement on food premises was carried out regularly with local authorities. Health promotion activities including dialogues were conducted to disseminate information and increase awareness in the community.

By 2008, typhoid incidence rate in Kelantan was reduced to 3.29/100,000 population and further to 2.8/100,000 in 2010. It proves that consistent and well planned multidepartmental actions are needed in preventing FWBD occurrences.

Keywords: Kelantan, Food and Water Borne Diseases, Typhoid
Diseases related to unsafe water and poor sanitation are major public health problems in developing countries. One of the MDG target is to reduce by half the world population without access to safe drinking water and basic sanitation by 2015. It was estimated that to reach Target 10 of MDGs, a total of US$101 billion over a fifteen year period or an average of US$ 6.7 billion per year is required to finance supply of safe water and improve sanitation. The UN Millennium Project Task Force on Water and Sanitation stated that the target will not be achieved unless there is increase in donors’ commitment in providing aid to poor countries and for governments of middle income countries to relocate their resource to fund the unserved poor.

Diarrhoeal diseases with more than 4 billion episodes annually caused 1.8 million deaths every year. More than 90% of diarrhoeal diseases deaths among children less than 5 years occurs mostly in developing countries and it is estimated that 94% of diarrhoeal cases are preventable by changing to a more sanitary and safe environment. Worldwide, 133 million suffer from intestinal helminthiasis mainly ascariasis, trichuriasis and hookworm diseases which causes 9,400 deaths annually.

Global cost benefit analysis by WHO shows that for every $1 invested in safe water and sanitation results in economic benefit from $3 to $34 depending on the region. Direct benefits include less expenditure on treatment of diarrhoeal diseases, less expenditure on travel associated with seeking diarrhoeal treatment and less time lost due to treatment seeking. Indirect benefits include avoided loss of days at work for workers, avoided loss of parent time to take care of sick children and avoided deaths. If the target to increase access to safe water and improve sanitation is met, there will be 10% percent in reduction of diarrhoeal morbidity which translates into $7.3 billion health care cost avoided and $750 million gain in value of adult working days.

Lack of data on the financial impact of safe water and sanitation is one of the obstacles to achieve Target 10 of the MDGs in developing countries. It is argued that national and sub-national health care costing data on water borne diseases could assist policy makers in middle income countries to justify decisions in relocating needed resources for the provision of safe water and improve sanitation.

**Keywords:** Safe water, sanitary latrines, diarrhoeal diseases, Millennium Development Goals and water borne diseases.
Seafoods including fishes and shellfish are very popular and important components of Malaysian diets. Occasionally some of these food items are contaminated by natural toxins that can cause poisonings in consumers, some of which can be fatal. These toxin vectors can be of local origin or have been imported from other countries. Many of the toxin producers are marine microalgae. Based on the known presence of these toxic microalgae in Malaysian waters, the toxicities that could potentially occur are paralytic shellfish poisoning, diarrheic shellfish poisoning, amnesic shellfish poisoning and ciguatera fish poisoning. Puffer fish poisoning and scombroid fish poisonings, whilst not due to microalgal toxins, are also of significance in the country. These seafood toxicities are not only of public health importance but they also have significant impacts on seafood trade with other countries. In this paper the history, distribution, and management of these toxic events will be discussed.
New Treatment and Treatment Difficulties in Food Borne Diseases

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Food borne diseases causes 2 million death/year and 3rd common causes of infectious disease death worldwide. The difficulties in managing the disease are multi-factorial such as multiple wide enteric pathogens associated with it and some are easily transmissible that may lead to an outbreak. With rapid globalization and industrialization of our food, the outbreak can spread from one country to another country very fast. In some cases, it may be lethal as the host immune- system are weak, there maybe multidrug pathogen which cause the disease or severe complications arise from it. Antibiotic may not be the solution in the treatment as more and more resistant pathogens were recognized and in some cases antibiotic may further cause deterioration in clinical presentation.

In general, good medical management starts from good history with appropriate fluid management. Prevention of food borne disease that involve personal hygiene, avoiding food contamination, good practice of infection control and vaccination are actually more cost effective.
Food safety control is important and needs to be addressed seriously at the domestic and international level to prevent food safety incidences which can affect public health and the nation’s economy.

For this purpose, several methods on control of food safety issues have been identified such as food safety control along the supply chain, adoption of food safety and quality assurance system, implementation of product traceability, utilization of scientific methods as the basis of determining policies and strategies, application of risk analysis in food safety management and crisis, active involvement in the international arena and increasing consumers awareness on food safety.

Among the weaknesses which have been identified in the present food safety system is lack of coordination between agencies along the food production supply chain, insufficient scientific support, inadequate monitoring and surveillance as well as insufficient laboratory support.

Thus, to ensure the effective implementation of food safety control, Food Safety and Quality Division (FSQD) has been upgraded to a new programme to strengthen its function. Apart from this, the Cabinet has agreed that FSQD shall be the sole agency in ensuring food safety for the nation in line with the global trend in which only one agency has the responsibility over food safety. This also prevents overlapping (duplication) of food safety and quality activities between agencies.

The FSQD is the Central Competent Authority (CCA) for the export of fish and fishery products to the European Union (EU) with other agencies complementing the FSQD as Competent Authorities (CA) to ensure that all EU requirements are fulfilled along the fish and fishery products supply chain. This model of cooperation between agencies can be extended to other food sectors. To make this model a success, all stakeholders along the supply chain need to work closely, be sensitive, proactive and take appropriate action to further strengthen the food safety control in line with the current global trend.
Contamination, Adulterations and Chemical Residues in Malaysian Food: Past, Present and Future

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Food safety is a basic requirement of food quality. Food safety simply means that there is an absence or acceptable and safe levels of contaminants, adulterants, natural toxins or any other components that are detrimental to health on an acute or chronic exposure. In developing countries, food quality and safety are often not well organised and are subjected to various irregularities due to several environmental, economic, social and security problems. In Malaysia, there are various episodes of food contamination and adulterations that has surfaced several times in a few years. The melamine, bisphenol A and DEHP issues are some of the examples of chemical contaminants and adulterations that has affected food safety in Malaysia.

The advancement of technologies and production of large amount of chemicals worldwide could result in cheaper chemicals produced for food components and additives that may be abused or used illegally or excessively in certain food. Toxicity testing and analytical techniques in detection of these chemicals were also becoming increasingly important. Most of these adulterants and contaminations were only detected or identified after some period of time due to lack of surveillance and screening procedures. Testing and screening of these chemicals were also expensive and requires high technology and were not easily carried out in developing countries. Knowing these inadequacies, industries dealing with these type of adulterated and contaminated products were more keen to market their products to these countries as they have less chance of being detected.

Throughout these years, most of the chemicals that were found to be used in adulterations or gets contaminated are the industrial chemicals such as emulsifiers, preservatives, flavours, colourings, heavy metals and drugs. Most of these chemicals acts on the endocrine systems, thus are known as endocrine disruptors, while some are toxic chemicals acting on the central nervous systems. Some are powerful carcinogens and can also cause other health problems to humans and animals.

There is no evidence that evaluated food additives or pesticides used in accordance with international recommendations have been the cause of any harm to humans. There is, however, a risk that the inappropriate use of such chemicals can cause health problems. This paper will discuss the events of adulterations and contaminations of chemicals in Malaysia and the various chemicals that were detected as contaminants and adulterants in food and drinks. These includes dioxins, melamine, antibiotics, pesticides, phthalates, bisphenol A and several other toxic chemicals.
Food borne disease occurs all over the world. In the late hours of 10\textsuperscript{th} November 2009 Terengganu was awakened from its slumber by a major incident following a notification from Hospital Sultanah Nur Zahirah (HSNZ) of seven cases of profuse diarrhoea which escalated to 54 cases by the third day with 3 cases confirmed cholera and one death. The number of cases rose extremely quickly as the incubation period is very short (2 hours to 5 days). A total of 1,751 cases were notified throughout the outbreak. Of the 239 positive culture (Vibrio cholerae) cases detected, 187 cases were symptomatic and 52 culture positive individuals never had any diarrhoea. Onset of symptoms of the first case was on the 5\textsuperscript{th} of November and the last case 24\textsuperscript{th} November 2009. The attack rate was 21.7 per 100,000 population with a case fatality rate of 0.53\%. Of the 187 symptomatic cases, 108 (57.8\%) cases were males. All cases presented with diarrhoea. Vomiting were present in 68.4\% of cases and nausea in 47.4\% of cases. \textit{Vibrio cholerae} is spread by contaminated food, water or direct fecal contact with food handlers as is in this common source outbreak with propagation from person to person via oral-faecal route through contaminated cooked food. There was a link with the cholera cases detected among Thai fishermen in Kelantan and the outbreak among fishermen and family members in Pattani Thailand as the strain cultured was \textit{Vibrio cholerae O1} or \textit{Vibrio cholera O139} and resistant to Tetracycline. Cross infection among the different boats when they go out to sea and move to other ports for fish trade could have occurred. As cholera is an acute public health problem which can also seriously affect travel and trade, a well coordinated, timely, and effective response to the outbreak is paramount. A good routine surveillance system can provide a useful background information to predict outbreaks and help with the epidemiological confirmation of an outbreak when a cluster of cases is discovered or when there is a sudden increase in cases or deaths from acute diarrhoeal syndrome. The “vehicles of transmission” must be investigated for appropriate control measures. Hygiene measures taken in health care facilities and among health care workers can avoid contamination (hand-washing, isolation ward). Partnership with the media is important to ensure an open flow of information and to prevent the spread of misleading rumours. There must be a balance between the two interests - in providing information on preventive and control measures and on spreading news. Health education is crucial to ensure continued participation of the community as they can help to limit its spread.
SYM 4-02  Environmental Challenges in Managing Food Waterborne Diseases (FWBD).

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Food and Waterborne diseases (FWBD) are caused by pathogenic microorganisms which are directly transmitted when contaminated fresh water is consumed. Contaminated fresh water, used in the preparation of food, can be the source of foodborne diseases through consumption of the same microorganisms. FWBD related to contaminated drinking-water, unsanitary food preparation, inadequate excreta disposal and unclean household environments constitute a major burden on the health of people.

Malaya after independence saw a number of major diseases outbreaks in the country, such as typhoid and cholera. The occurrences of these diseases outbreaks are associated with poor hygiene and sanitation. The prevention and control of these and other FWBD can only be achieved through a sustained effort in improving sanitation including water supply and community education on public and personal hygiene.

The Rural Environmental and Sanitation Program or BAKAS (1973) and the National Drinking Water Quality Surveillance Programme or NDWQSP (1986) which were formulated and implemented by MOH to maximise the coverage of portable water and sanitation, and making them reachable to the population. Both of the programme having the objective of controlling the occurrence of WFBD. Other agencies also joined hands to contain the situation and to improve the quality of life of the population.

The interaction between environment and human health is complex. Rapid economic development with less emphasis on environmental control has led to pollution of the air, water and soil. As far as water is concerned, it is essential for sustaining basic human functions, health and food production, as well as for preserving the integrity of the ecosystems. 50 years has passed, economically Malaysia has been transformed from once agriculture base economy into manufacturing and is now developing into industrialized nation by 2020. Amidst all those economic transformation, the integrity of the environmental factors, such as water bodies had been breached and posed challenges to the management of FWBD. The situation could threaten the well being of the population, and in long run will jeopardize the sustainability of our national development programme.

This paper will reflect on the situation of water quality and sanitation in the country which form the backbone to the public health engineering measures to manage FWBD. It will also discuss the challenges that MOH, as the focal agency in this respect, has to play its role in order to effectively manage the FWBD.
SYM 5-01  Community Approach in Diabetic Management

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Diabetes and their related complications is one of the most common, serious, and costly chronic disease and pose a real and significant threat to Malaysia. Thus, the NSP-NCD is required for Malaysia to tackle the increasing prevalence of diabetes and its risk factors more effectively and efficiently. Implementation of the NSP-NCD requires the engagement of all relevant stakeholders from within the government, non-governmental, community and private sectors. It is important to acknowledge that a substantial portion of the activities in this national strategic plan out outside the mandate of Ministry of Health. Therefore an integrated approach is essential for effective implementation of the plan.

Under NSP-NCD, diabetes has been chosen as a proxy of other NCDs. Three main strategies for diabetes are, Prevention and Promotion, Clinical Management, Increasing Patient Compliance. In diabetes, research has shown that when people are taught how to manage their diabetes, they are healthier and have a better quality of life. Pharmaceuticals and health care services are just a portion of the equation for optimal diabetes care. Despite the prevalence of Type 2 diabetes and the known benefits of self management, there is a shortage of diabetes self-management education programs. MOH had launched the NCDP 1Malaysia as a community-based NCD prevention and control project. We hope this NCDP 1Malaysia will provide support and be a model for community-based intervention. A series of open, free community workshops to help people with diabetes learn about food, medications, blood glucose monitoring, exercise, and other aspects of diabetes management. We estimate that 400 people will participate in the workshop series, which will take place over period of one to two years.
Food Related in Non-Communicable Disease Disaster

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Introduction: Cardiovascular disease (CVD) is a major cause of morbidity and mortality in Malaysia. Study shows that major risk factors in CVD such as diabetes, hypertension, obesity and dyslipidemia are preventable through healthy lifestyle such as regular exercise, diet control and taking prescribed medications. National Health and Morbidity Survey however shown that majority of Malaysia adults did not exercise on regular basis and not taking enough fiber in their diet. In 2009, Malaysians consume about 50kg sugar per capita, above 40kg per capita consume by Thailand and 20kg per capita by Indonesia, India and Philippines. Study also shows that high prevalence of hypertension among rural populations is related to high consumption of salt in their diet. The purpose of this paper is to describe evidence-based nutrition principles and recommendation for the treatment and prevention of diabetes and cardiovascular disease, referred as Medical Nutrition Therapy (MNT).

Goals of Medical Nutrition Therapy: To attain and maintain optimal metabolic outcomes including blood glucose level, lipid profile and blood pressure level; to prevent and treat chronic complications of diabetes, obesity, dyslipidemia, cardiovascular disease, hypertension and nephropathy; to improve health and to address individual nutritional needs.

Nutritional Recommendation:

Carbohydrate

- Food containing carbohydrate from whole grains, fruits, vegetables and low-fat milk are important components and should be included in a healthy diet.

- With regard to the glycemic effects of carbohydrates, the total amount of carbohydrate in meals or snacks is more important than the source or type.

- Because sucrose does not increase glycemia to a greater extent than isocaloric amounts of starch, sucrose and sucrose-containing foods do not need to be restricted by people with diabetes, however, they should be substituted for other carbohydrate sources or, if added, be covered with insulin or other glucose-lowering medication.

- Nonnutritive sweeteners are safe when consumed within the ADI levels established by the FDA.

Protein

- In individuals with controlled type 2 diabetes, ingested protein does not increase plasma glucose concentrations, although ingested protein is just as potent a stimulant of insulin secretion as carbohydrate.

Fat

- In all, <10% of energy intake should be derived from saturated fats. Some individuals (ie. those with LDL cholesterol ≥ 100mg/dl) may be benefit from lowering saturated fat intake to < 70% of energy intake.

- Dietary cholesterol intake should be < 300mg/day. Some individuals (ie. those with LDL cholesterol ≥ 100mg/dl) may benefit from lowering dietary cholesterol to <200mg per day.
Energy Balance and Obesity

- In insulin-resistant individuals, reduced energy intake and modest weight loss improve insulin resistant and glycemia in the short-term.

- Structured programs that emphasize lifestyles changes including education, reduced fat, (<30% of daily energy) and energy intake, regular physical activity, and regular participant contact, can produce long-term weight loss on the order of 5 to 7% of starting weight.

- Exercise and behavior modification are most useful as adjuncts to other weight-loss strategies. Exercise is helpful in maintenance of weight loss.

- Standard weight-reduction diets, when used alone, are unlikely to produce long-term weight loss. Structured, intensive lifestyle programs are necessary.

Older Adults

- Energy requirements for older adults are less than for younger adults.
- Physical activity should be encouraged.

Acute complications

- Glucose is the preferred treatment for hypoglycemia, although any form of carbohydrate that contains glucose may be used.

Hypertension

- In both normotensive and hypertensive individuals, a reduction in sodium intake lowers blood pressure
- A modest amount of weight loss beneficially affects blood pressure.

Prevention of diabetes

- Structured programs that emphasize lifestyle changes including education, reduced fat and energy intake, regular physical activity, and regular participant contact can produce long-term weight loss of 5-7% of starting weight and reduce the risk for developing diabetes.

Conclusions: Cardiovascular diseases morbidity and mortality can be reduced by healthy lifestyle changes such as regular exercise and diet control through prescribed Medical Nutrition Therapy (MNT).
Malaysians are now more health conscious and there is a general awareness on the importance of nutrition to overall well being. In recent years many consumers rely on a variety of health supplements as preventive medicine, to improve their health and well being. Hence it is crucial to ensure that the quality and safety of the health supplement products that are consumed. In Malaysia health supplement products are required to be registered with the Drug Control Authority under the Control of Drugs and Cosmetics Regulations 1984.

This presentation gives an overview on the general requirements like registration phases, flows, criteria’s, labeling requirements and allowable claims that need to be complied by industries/applicants for registering a health supplement product in Malaysia. Additionally, a review of how products are categorized by using the Food Drug Interphase to determine whether a product is to be regulated by National Pharmaceutical Control Bureau (NPCB) or by the Food Safety Quality Division (FSQD) will also be mentioned. Lastly, a summary on the common challenges encountered during product evaluation of registering a health supplement product will be presented.
 Updates on Challenges of Pharmaceutical Products in Malaysia: Traditional and Food Supplement

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All pharmaceutical products to be sold in Malaysia must be registered with the National Pharmaceutical Control Bureau Ministry of Health Malaysia under the Sale of Drug Act 1952 to ensure the products are safe, effective and of quality. The products are given registration numbers according to categories which are Control Medicines, Over the Counter Medicines and Traditional Medicines. A part from the registration numbers all products must bear a safety hologram meditag labels as a safety measure against counterfeiting.

Traditional medicines are registered to ensure that the products are of good quality and with safe permitted level of heavy metal, lead, mercury, microbial content and free from any schedule poison. Traditional products must contain only herbal remedies traditionally used for general health.

The latest challenges faced by the authority in controlling the sale of medicinal products are herbal medicines and food supplements which have been adulterated with powerful pharmaceutical active substances such as sibutramine and its analogue in slimming products for women and sildenafil, tadalafil and their analogue in sex stimulants products for men and other schedule poison.

Public are not aware on such products that they are consuming especially food supplements adulterated with poison for example in pre-mix coffee 3 in 1 which the consumers thought can be taken safely without any specific advice since it is only a food product. Such products pose a real high risk to the public especially with diseases associated to hypertension, cardiovascular, kidney failure and diabetes thus endangering their life for taking the schedule poison without professional advices and its analogue which do not have any clinical evaluation, unknown pharmacological characteristics and the safety profile.

Adulteration of scheduled poison is now popular in food supplements and energy drinks due to non-mandatory registration requirement for foods.

Pharmaceutical Enforcement Division Ministry of Health Malaysia currently rely on the provision for adulterated products under section 15 Sale of Drug Act 1952, sale of poison without a licence under section 13 of poison Act 1952 and offences regarding unregistered products under the regulation 7(1) and 7 (1A)(e) of Cosmetic and Drug Control Regulation 1984. Offences under section 12 Sales of Drug Act 1952 is a fine not exceeding RM 25,000.00 or imprisonment for a term not exceeding 3 years or both, and subsequent offence is a fine not exceeding RM 50,000.00 or imprisonment for a term not exceeding 5 years or both. For a body corporate who commits an offence shall be liable to a fine not exceeding RM 50,000.00 and subsequent offence is a fine not exceeding RM 100,000.00.

The sentences is not deterrence enough contributing to the ever-rising illegal activities on adulteration products. The irresponsible parties will continue to their illegal activities for profit where the consumer safety is neglected.
SYM 7-01  Obesity: The Major Determinant of NCD Diseases

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Food Substitutes: Do’s and Don’ts

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This paper discusses the role food substitutes play in the diet. It focuses on the types of food substitutes, the appropriate foods for their use and the food-like qualities they possess. Safety issues and the long-term impact of food substitutes are also reviewed. In Malaysia, the availability of “fat free”, “low fat”, “reduced fat”, “low sugar”, “less sugar” foods has skyrocketed in the recent years. The safety using food substitutes have received much attention, but comparatively few studies have investigated how these products will influence food intake and energy regulation in humans. Overall, recommendations focused on controlling weight by regular physical activity and avoidance of excessive energy intake from all sources is the key to be healthy. This conclusion is consistent with current recommendations for disease prevention and treatment as promulgated by the Malaysian Dietitian Association and Nutrition Society of Malaysia.
Food and Oral Health: Sociocultural Influences and the Impacts

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Food is a source of nutrition. The body requires these nutrients for growth and ensures health. Different kinds of foods provide different nutrients. A balanced diet is recommended to ensure the body obtains all essential nutrients. However, food intake is influenced by the socio-cultural factors. Helman (2001) stated that cultural groups differ markedly from one another in many of their beliefs and practices related to food. These beliefs and practices, sometimes, affect health as well as oral health. Understanding these cultural beliefs and practices on foods will help the health providers to promote healthy eating and subsequently improve the health of the patients and community. This presentation will discuss about beliefs and practices related to food intake and how food intake affects health and particularly to oral health.
Relationships of Diet and Nutrition with Oral Health in Children

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This talk aims to review a range of oral health problems in children that are caused by dietary factors. It will illustrate the relationship of these problems with the common food and beverages taken by our Malaysian children and also how these problems can be prevented.
Introduction
Typhoid fever is endemic in Kelantan. Despite having the highest incidence rate in Malaysia, little is known regarding the genetic diversity of Salmonella enterica serovar Typhi (S. Typhi) strains in this state.

Objectives
This study was conducted to investigate retrospectively the type of strains isolated in Kelantan between the year 2002 and 2009 using Pulsed-Field Gel Electrophoresis (PFGE) method.

Methods
264 individual S.Typhi isolates from patients with acute typhoid fever admitted to Hospital Universiti Sains Malaysia, 14 isolates from asymptomatic subjects and 1 isolate from a water source from the Kelantan Public Health Department, were tested. The Dice Coefficient of Similarity (F value) was calculated for all typeable isolates and a dendrogram were constructed using Fingerprinting Quest™ software (Biorad), and interpreted according to the guidelines of Tenover et al. (1995).

Results
38 strain types (designated X001 to X038) and 6 major clusters were found. Cluster B consisting of 4 strains (X001, X002, X009 and X037) was the predominant group which accounted for 78% of the total isolates. However, strain X001 was identified as the ‘endemic strain’ with 44% of the total isolates, and was found in all years and in all districts within the study period. Kota Bharu and Bachok which recorded the highest incidence of typhoid infections, had the highest number of strains. The S.Typhi isolate from water (strain X023) was also found in acute typhoid fever patients.

Conclusion
These findings suggest a close circulation of a few strains of S.Typhi that perpetuate the disease in Kelantan, and highlight the need for identification and treatment of the asymptomatic carriers and improvement of the water systems in order to control the transmission of the disease in this state.
A Preliminary Study of Comparative Genomics of *Salmonella* Typhi Isolates in Kelantan

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**Introduction**

*Salmonella enterica* serovar Typhi (S. Typhi) causes systemic intracellular infection in human (typhoid fever) especially in underdeveloped and developing countries due to improper sanitary condition and water supply. The bacteria are considered as monomorphic organism with limited genetic variation.

**Objectives**

This study aims to investigate the similarities and differences by comparative genomics analysis between the six *S. Typhi* isolated from different sources using next generation sequencing via Solexa (Illumina) technology especially in the adaptation of Typhi to the specialized niches; acute systemic infections (typhoid fever) and chronic infections (asymptomatic carriers).

**Methods**

Genomic DNA of *S. Typhi* in Kelantan obtained from four sources; typhoid carriers, food handlers, acute typhoid patients and water samples; were extracted using Qia-gen DNA extraction kit. Genomic DNA was shearing into small fragments, followed by cluster generation prior to genome sequencing. Genome sequencing was performed and the sequence reads in Fastq format were analyzed by CLCbio genomics workbench software. Reference assembly was carried out based on *S. Typhi* reference sequence, CT18 (GenBank accession number AL513382). The assembled genome sequence for each isolate was compiled in Fasta format and the comparative genomics was performed using Artemis Comparison Tools (ACT).

**Results**

All six isolates showed high homology (>95%) to CT18 and between each other; suggesting that *S. Typhi* is clonal and closely related. Partial deletions were found in regions encode for nine proteins which were further validated by PCR, sequencing and BLAST analysis. Analysis of SNP using CLCbio genomics workbench detected 97 SNPs with 18 SNPs shared among all the six isolates.

**Conclusion**

No specific deletion sites and SNPs can be considered as specific regions for isolates for each source. Further analysis will be carried out on the gene annotation and prediction for all assembled genomes using Glimmers and Orpheus.
Role of Pulsed Field Gel Electrophoresis (PFGE) in *Vibrio parahaemolyticus* Outbreak Investigation

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**Introduction**

*Vibrio parahaemolyticus* is a halophilic bacterium that causes acute gastroenteritis in human. The bacteria have become a common source of food-borne enteric pathogen in Asia, causing approximately half of the food poisoning outbreaks in Taiwan, Japan, and several Southeast Asian countries.

**Objectives**

To identify the role and function of Pulsed Field Gel electrophoresis (PFGE) in investigation of *V. parahaemolyticus* food poisoning outbreaks.

**Methods**

A total of 51 rectal swabs were received at the National Public Health Laboratory (NPHL) from two outbreaks of food poisoning in Selangor (Bangi and Sabak Bernam) and one outbreak in Kuala Lumpur which occurred between July and September 2010. Twenty eight isolates were confirmed as *V. parahaemolyticus* and they were subjected to genomic DNA extraction protocol subsequent subtyping by Pulsed Field Gel Electrophoresis (PFGE) method using NotI enzyme as described by CDC Pulsenet USA (2009) with in-house modification. The gels were normalized and DNA fingerprint were compared with the use of Bionumerics software.

**Results**

PFGE analysis differentiated all the isolates of *V. parahaemolyticus* into four distinct patterns, namely type A, A1, B and C. All five isolates of *V. parahaemolyticus* from Sabak Bernam were of single PFGE pattern A. Of eight *V. parahaemolyticus* isolates from Bangi, two PFGE patterns were detected i.e. seven isolates were A and one isolate was A1. Patterns A and A1 were closely related to each other with 91% similarity. For 13 *V. parahaemolyticus* isolates from Kuala Lumpur, three distinct PFGE patterns were detected i.e. pattern A (61.5%), B (46.2%) and C (7.6%). The isolates were not related as indicated by less then 90% similarity observed (72.28% & 49.73%). This method revealed that *V. parahaemolyticus* food poisoning outbreaks in these three locations were not caused by single clone of *V. parahaemolyticus*. PFGE pattern A was the predominant type, while pattern A1 which was closely related to A could have mutated from A. It is suggested that these strain might originate from the same clonal lineage of *V. parahaemolyticus*. Further analysis by sequencing could confirm this.

**Conclusions**

The sources and contributing factors of *V. parahaemolyticus* in food poisoning outbreaks can be identified by further investigation of food and environmental samples. This is done by comparing the relatedness of PFGE patterns across clinical and food isolates and also the environment correlations. PFGE is the gold standard method in determining DNA relationship of bacterial strains, and therefore it is very useful in epidemiological surveillance and investigation of bacterial food-poisoning outbreaks.
Effects of *Orthosiphon stamineus* on Blood Glucose, Blood Pressure and Lipid Profile in Healthy Adults

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**Introduction**
*Orthosiphon stamineus* (Misai kucing) extract has been suggested to be effective for alleviating hyperglycemia and improving lipid profile in diabetic rats. To date, however, no study on healthy adults has been reported.

**Objectives**
The aim of this study is to investigate the effects of *Orthosiphon stamineus* supplementation (approximately 5g/day) in the form of dried leaves on blood pressure, blood glucose and lipid profile in healthy adults.

**Methods**
Twenty-eight out of thirty subjects recruited had successfully completed the study and used in the final analysis. Fifteen subjects were in a control group (seven males and eight females) and another thirteen subjects (seven males and six females) were in a treatment group. This study was carried out for eight weeks between May 2010 and July 2010.

**Results**
At the end of study, treatment group with *Orthosiphon stamineus* supplementation showed significant decrease in blood glucose and triglycerides level (p < 0.05). Overall, the anticipated beneficial effects of *Orthosiphon stamineus* supplementation were more pronounced in male subjects than their female counterparts. Male subjects showed significant decrease in systolic blood pressure, blood glucose serum triglycerides and low-density lipoprotein cholesterol (LDL-c) level. However, female subjects showed significant increase in diastolic blood pressure. In the present study, body mass index (BMI) did not show any correlation with blood glucose and lipid profile level. On the other hand, blood glucose showed significant positive correlation with triglycerides level.

**Conclusion**
This study suggests that *Orthosiphon staminieus* supplementation can be effective in lowering blood glucose and triglycerides level in healthy adults.
Benzoic Acid, Sorbic Acid and Boric Acid in Yellow Noodles and Koay Teow in Kedah

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Introduction
According to Malaysian food Act 1983 and Food Regulation 1985, benzoic acid, sorbic acid and boric acid are prohibited to be added into yellow noodle and koay teow.

Objectives
A study was conducted to determine the presence of benzoic acid, sorbic acid and boric acid in yellow noodle and koay teow samples in Kedah State.

Methods
45 samples (for the benzoic acid and sorbic acid test) and 48 samples (for the boric acid test) were bought randomly from all over Kedah State and were sent to Food Safety and Quality Laboratory of Kedah for analysis. The principle of benzoic acid and sorbic acid detection is the use of acetonitrile during the sample extraction. The extract was then directly injected into reversed phase isocratic liquid chromatography. Curcumin is used as an indicator in the qualitative test of boric acid or borate salt as the reaction between them under acidic condition will form red or pink colour, which will change to dark blue green when expose to ammonia fume.

Results
No sorbic acid was detected in any 31 samples of yellow noodles. Boric acid was detected in 6 samples of yellow noodle and 2 samples of koay teow. The benzoic acid level in yellow noodle ranges from 69 to 291mg/kg whereas the levels of benzoic acid and sorbic acid in koay teow ranged from 208-1262 and 142-217 mg/kg respectively.

Conclusion
Violation to the regulation on benzoic, sorbic and boric acid is still detected highlighting the importance of continuous monitoring to ensure safety of food to the community.

Keywords: Benzoic acid, sorbic acid, boric acid, yellow noodles, koay teow, reversed phase isocratic liquid chromatography
Migration of Melamine from Melamine Wares

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Introduction
The migration of melamine or 2,4,6-triamino-1,3,5-triazine from melamine wares into foods is of concern as melamine has been associated with increased risk of bladder cancer and reproductive damage. European Food Safety Authority has established the specific migration limit (SML) for melamine to be 30 mg/kg.

Objectives
The objectives of this research were to study the migration level of melamine from melamine wares obtained from Malaysian market and to compare the level with European SML.

Methods
European standard method EN13130-27 was the method being used. A total of 180 melamine ware samples were taken by health inspectors nationwide for this study. The samples consist of plates, bowls, saucers, trays, spoons, forks, cups and cutlery set. All the samples were identified and confirmed to be melamine using Fourier Transform Infrared (FTIR) Spectrometer before being proceeded with analysis. Melamine from samples were extracted using two food simulants (water & 3% acetic acid) in which water simulates aqueous food that is in contact with the melamine wares while 3% acetic acid simulates foods with pH ≤ 4.5. The simulation condition applied was 70°C at 1 hour. Analysis was done using High Performance Liquid Chromatograph with ultra violet/visible detector (HPLC-UV/Vis) and an established limit of quantitation (LOQ) of 0.6 mg/kg.

Results
The results showed that 25.6% of samples analyzed using water simulant and 32.8% of samples analyzed using 3% acetic acid had migration above LOQ. The highest migration level observed for water simulant and 3% acetic acid were 10.4 mg/kg and 29.0 mg/kg respectively. The results demonstrated that when melamine ware is in contact with acidic type of food, higher migration of melamine into food will occur. Nevertheless, none of the samples analyzed showed migration level above SML.

Conclusion
Melamine wares sold in Malaysian market complied with the EU limit based on the samples received.

Keywords: Melamine, Melamine wares, Migration
Incidental Occurrence and Risk Factors of Brucellosis in Mabar Teaching Hospital, Yemen

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Introduction
Brucellosis is an important public health problem in many developing countries. The disease represents a health problem in Yemen, therefore continued to be notified with increasing frequency in Thamar province.

Objectives
This study aim to review the incidence rate and describe the demographic features of brucellosis patients hospitalized in Mabar teaching hospital at the period 2005-2007.

Methods
A total of 212 brucellosis patients’ records were reviewed for their geographical area and sociodemographic factors.

Results
A high rate of incidence was noted as 16/1000 out of total admission. Most of them were females 124 (58%) while male cases were 88 (41.5%). Those from rural areas (68.4%) were noted to have a higher susceptibility compared to those reside at urban regions (31.6%). High risk age group was within the range from 11-20 years, 21-30 years and less than 10 years old. Occupational risk factors were being a housewife (13.7), raw milk drinkers (11.8%), farmers (8.5%), shepherds and health workers (7.1%). Butchers and meat handlers (6.6%) represent the lowest infection rate.

Conclusion
The frequency of seasonal infection with brucellosis in spring season is more than any other seasons in the year. Sociodemographic risk factors identification may help to increase awareness to diagnose brucellosis.
Cryptosporidiosis: Food and Water Borne Parasitic Disease (FWBPD)

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Introduction
Cryptosporidiosis is a parasitic disease caused by the ingestion of food and water contaminated with oocysts of Cryptosporidium sp. The parasite found in the brush-border of the small intestine in many vertebrates, including humans. The disease can induce self-limiting diarrhoea in immunocompetent people and severe, prolonged diarrhea in children and immunocompromised patients. Many outbreaks of cryptosporidiosis were reported in the world, due to the drinking of contaminated water. There are 62 outbreaks in the world from 1983 to 1998 involving 460,115 human cases. The prevalence rate varying from 1 to 4% in the developed world and 6 to 17% in the developing world. In Malaysia, the prevalence of the disease in children has been reported from 0.9% to 11.4%. Diagnosis of the infection is based on the detection of oocysts in the stool sample. Owing to the small size of the oocyst (4-6 µm), the routine wet mount preparation and concentration methods have limited value in diagnosis. Direct immunofluorescent antibody test proved to be more sensitive than other methods.

Objectives
To describe the infection rate of cryptosporidiosis among children < 12 years old suffering from diarrhea and admitted in pediatric hospitals in Iraq and Jordan.

Methods
Different methods were used for detection of Cryptosporidium spp. oocysts in stool samples including direct wet mount preparation, Sheather’s flotation technique, modified Zielhl-Neelsen method and direct immunofluorescent antibody test.

Results
In Iraq, five provinces were included; Niniva (north), Baghdad, Diala, Babylon (middle) and Basra (south). The infection rate was 14.3, 14.6, 2.7, 11 and 8.8 respectively. In Irbid province in Jordan, the infection rate was 37.3. Most of the patients were presented with abdominal colic, watery diarrhea and dehydration. Direct immunofluorescent antibody test showed the highest sensitivity in comparison with other methods. Source of drinking water appeared to be an important risk factor for transmission of infection. A higher infection rate was recorded during January-May, the rainy season.

Conclusion
Safe drinking water is still in need to prevent cryptosporidiosis especially during rainy season.
OP-09 Cleanliness of Food Premises in Bahau

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Introduction
Cleanliness of food premises is an important public health issue and contributes to foodborne illnesses among their consumers.

Objectives
This study aims to determine the level of cleanliness of food premises in Bahau, Jempol, Negeri Sembilan and its relationship with food premise operators.

Methods
This is a cross sectional study of all registered food premises (restaurants, school canteens and food stalls), utilizing a stratified random sampling method. Data was collected via face to face interview as well as observation, adapted from the criteria of the Negeri Sembilan Health Department consisting of food handling, food handler, utensils and equipments, water supply, drain, toilet and handwashing facilities, food waste and garbage disposal, floor, wall and ceiling or surrounding area and lastly pests and pets control. Consents were obtained from the relevant authorities. Data were analysed using SPSS version 14.0.

Results
Ninety food premises were eligible to participate in this study. However only 79 participated with a response rate of 87.8%. There were 49 (62%) restaurants, 25 (32%) food stalls and 5 (6%) school canteen. The mean score of cleanliness for restaurant were 67(14.22), school canteen 75.3(16.85) and food stalls were 64.6(13.69). There were 41.8% of food premises with non-satisfactory cleanliness. All three types of food premises scored lowest in the toilet and hand washing facilities (mean score 43.0(32.8). Food premise operators were mostly Chinese (58%), female (51%) and between 31 - 40 years old. Majority received secondary education (71.8%), operating for 1-5 years (34.2%) and had attended training programme in the last three years (62.8%). There was a significant relationship between race and level of cleanliness (p = 0.04).

Conclusion
The level of cleanliness of food premises in Bahau during the study period was unsatisfactory.
Kajian Awal bagi Menilai Keberkesanan Senarai Semak Pemeriksaan Premis Makanan Berasaskan Risiko bagi Menjamin Kebersihan Makanan

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Pengenalan
Kepesatan pembangunan ekonomi dan peningkatan kos sara hidup telah mengakibatkan ramai orang memilih untuk makan di luar daripada memasak di rumah. Amalan ini secara langsung telah mendedahkan orang awam kepada penyakit bawaan makanan dan ini dapat dilihat dari segi peningkatan kadar insiden penyakit bawaan makanan di Malaysia.

Objektif
Tujuan utama penyelidikan ini adalah untuk menilai keberkesanan senarai semak pemeriksaan premis makanan berasaskan risiko dapat menjamin kebersihan dan keselamatan makanan berbanding dengan sistem penggredan premis makanan.

Metodologi
Penyelidikan ini telah dijalankan di kawasan Lembah Klang yang melibatkan 2 kantin sekolah, 8 restoran dan 2 kilang makanan. Pemeriksaan kebersihan premis makanan dijalankan dengan menggunakan senarai semak penilaian premis makanan berasaskan risiko yang telah dibangunkan oleh Kementerian Kesihatan Malaysia dan markah penilaian ini telah dibandingkan dengan markah yang diperolehi menggunakan senarai semak berasaskan sistem penggredan premis makanan. Penilaian kebersihan makanan sedia dimakan, peralatan dan perkakas yang digunakan dan kebersihan tangan pengendali makanan dinilai melalui aktiviti persampelan makanan, swab permukaan sentuhan makanan, swab peralatan, swab perkakas dan swab tangan pengendali makanan bagi 

Keputusan
Keputusan kajian mendapati pemeriksaan premis makanan menggunakan senarai semak sistem pemeriksaan berasaskan risiko lebih sesuai berbanding dengan senarai semak penggredan premis makanan bagi menjamin kebersihan dan keselamatan makanan dan risiko untuk kejadian keracunan makanan berlaku lebih tinggi di kantin sekolah berbanding dengan lain-lain premis. Keputusan analisa sampel makanan sedia dimakan menunjukkan 75% tidak mematuhi garispanduan yang ditetapkan oleh Kementerian Kesihatan Malaysia (KKM) dan 79% tangan pengendali makanan tercemar dengan mikroorganisma Coliform.

Kesimpulan
Kekerapan dan kaedah pihak berkuasa menjalankan pemantauan kebersihan dan keselamatan makanan adalah penting bagi menjamin keselamatan makanan.
OP-11 Wabak Kolera di Kg.Geting, Tumpat, September 2010

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Pejabat Kesihatan Daerah Tumpat

Pengenalan
Kolera adalah satu penyakit usus akut, disebabkan oleh jangkitan bacteria *Vibrio cholera* yang mempunyai gejala-gejala awal cirit birit tanpa sakit, loya dan muntah. Di Malaysia, kolera adalah pada tahap endemisiti yang rendah, di mana kes telah menurun daripada 2,209 kes (10.88 per 100,000 penduduk) kepada 386 kes (1.48 per 100,000 penduduk).

Objektif
Untuk menerangkan kejadian wabak, mengenalpasti punca kejadian dan menjalankan kerja-kerja kawalan dan pencegahan

Metodologi

Keputusan

Kesimpulan
Punya jangkitan sebenar wabak kolera di Kg. Geting gagal dikenalpasti memandangkan semua ujian sampel makanan dan air adalah negatif kepada *Vibrio cholera*. Berdasarkan sejarah pergerakan dan pemaknan kes yang terlibat kemungkinan jangkitan berpunca dari kedai makan berhampiran. Semua tindakan kawalan dan pencegahan telah dilaksanakan dengan sewajarnya. Penglibatan semua unit dan agensi-agensi berkaitan menyumbang kepada kejayaan kawalan wabak kolera ini.
Ciguatera Poisoning After Ingestion of Imported Red Snapper Fish in Jeli, Kelantan, Malaysia 8th - 9th September 2010

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Introduction
In 9th September 2010, Jeli District Health Office received notification from Jeli Hospital of more than 20 patients with acute gastrointestinal and neurological symptoms in the Emergency Department. All gave history of consuming red snapper fish during breaking fast a day before and buying the fishes from a wet market in Ayer Lanas Jeli, Kelantan.

Objectives
A study was conducted to describe epidemiological characteristic of the outbreak, to determine the causative agent and to conduct control measures.

Methods
This was a descriptive study which involved case investigation and finding, trace back investigations and laboratory investigations.

Results
There were 22 out of 36 people in five different families and localities who consumed red snapper fish on 8th August 2010 and fell sick (food attack rate of 61.1%). Median (IQR) of age of the cases was 27 (35) years. Twelve (55%) of them were males and 11 (50%) were admitted to hospital. All of them gave history of buying red snapper fish from one of the two fish sellers in the Ayer Lanas wet market. These fishes were imported from China via Sabak Bernam, Selangor and Tok Bali, Pasir Puteh, Kelantan. Majority of cases presented with abdominal pain and diarrhea (86.4%), pruritis and nausea (63.6%), headache (59.1%), paraesthesia (36.4%) and others. The median incubation period was seven hours (2 - 13 hours). Two raw samples from home were noted to have neurotoxin traced at low to moderate level and positive for ciguatera toxin.

Conclusion
All red snapper fishes were removed from Market Ayer Lanas. The distribution of fishes from the same batch was withheld. Neighbouring district, Tanah Merah was alerted for possible similar incidents.
Awareness on Safe Handling of Cytotoxic Drugs among Nurses in Hospital Raja Perempuan Zainab II

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Introduction
Chemotherapy is presently the main systemic treatment available to treat cancer and there was evidence that exposure to cytotoxic drugs in the workplace carries a definite hazard to the health of workers. Exposure may result from direct contact via skin or eyes and inhalation of droplets aerosolization, mainly because of inappropriate behavior during preparation, administration, and disposal of cytotoxic drugs.

Objectives
This study was conducted to determine the awareness on safe handling of cytotoxic drugs among nurses in Hospital Raja Perempuan Zainab II (HRPZ II). This study also reviewed their knowledge, belief and attitude towards cytotoxic drugs.

Methods
The study was designed as a cross sectional study. Questionnaire form was designed accordingly and distributed to the nurses in selected wards involved in the administration of cytotoxic drugs (surgical, medical and O&G wards). A total of 95 participants were involved in this study.

Results
Majority of the participants were found to have minimal experience in handling cytotoxic drugs. However, participants were found to wear gloves, mask and apron for protection in accordance to safety guideline while administering cytotoxic drugs. Majority of the participants also claimed to have basic knowledge regarding handling of cytotoxic drugs while 10% participants claimed otherwise. Most participants had never attended any form of trainings or educational programs regarding safe handling of cytotoxic drugs.

Conclusion
This study revealed that inadequate training and knowledge may lead to inappropriate behavior during the handling of cytotoxic drugs. It is a pharmacist’s responsibility to instruct and educate nurses, physicians, and domestic staffs on safe handling of cytotoxic drugs. A better safety policy should be constructed and implemented in all wards in HRPZ II to ensure quality working condition for all medical staffs while handling cytotoxic drugs.
A Study of Provider Cost on Single Dental Restoration among Students Who were Treated in the Mobile School Dental Clinic in Pasir Mas, Kelantan.

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Introduction
Dental caries has been promulgated as the most significant component of the global oral disease burden and major public health concern as it influences 60-90 percent of the schoolchildren in the world. Dental restoration procedure is the only available physical intervention that constantly in need to treat dental caries. Escalating cost may be incurred from the dental restoration resulted of annual purchasing of material, replacement of the equipment and instrument involved, overheads as well as ascending of annual emolument and benefit. Mobile Dental Clinic is one of the facility infrastructures to have annual escalating maintenance cost that develops the vigilance of the provider to spend wisely the limited resources.

Objectives
To determine the provider cost incurred in single dental restoration among students who were treated in the Mobile School Dental Clinic in the District of Pasir Mas, Kelantan.

Methods
A cross sectional study involving students of standard 4, 5 and 6 in Pasir Mas. Two-hundred-fifty-five dental restorations were selected after multi-stage sampling of the schools, screened and fulfilled the pre-determined inclusion and exclusion criteria. The macro and micro costing with clinical pathway were performed on each of the dental restorations. Data was analysed using SPSS version 18.0. The statistical analysis used was the One-way ANOVA and independent t-test.

Results
The provider cost was found to be significantly higher (p<0.001) in single resin composite restoration compared to amalgam and GIC restoration at RM9.75 (SD 3.28), RM8.11 (SD 1.90) and RM6.32 (SD1.60) respectively. Class II complexity in amalgam (RM9.94, SD 2.14) and GIC (RM7.81, SD 2.44) restoration were found significantly higher provider cost compared to class I complexity in amalgam (RM7.53, SD 1.40) and GIC (RM5.90, SD 0.90) (p<0.001). The provider cost of resin composite, class II complexity (RM11.28, 3.33) was not significantly different than class I complexity (RM8.88, SD 3.03) (p>0.05).

Conclusion
The single dental restoration cost in mobile dental clinic was highest for resin composite restoration. These provider cost was different between Class II complexity in amalgam and GIC restoration.
Perinatal Mortality Analysis 2004 - 2009 for District of Bachok, Kelantan

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Introduction
In 1995, WHO estimated the number of perinatal death worldwide to be greater than 7.6 million, with 98% of these deaths occurring in developing countries. WHO estimates for Asia are in the range 36 - 74 per 1,000 countries. Perinatal deaths are largely the result of maternal health, adverse social conditions and inadequate care during pregnancy, delivery and the immediate post-partum period.

Objectives

Methods
This is descriptive studies based on records review of antenatal cards (KIK / 1(b) / 96) and forms PNM 1/97 from year 2004 - 2009 in district of Bachok.

Results
There were 169 cases of perinatal mortality cases from year 2004 - 2009 in district of Bachok, Kelantan. The mean age of mother was 33 years old with minimum age of 18 and maximum age of 48. Majority of mothers had at least secondary school education. 40% of mothers were multiparous. 60% of mothers were in the green colour coding. The causes of death were congenital abnormality (27%), MSB without Abnormality (42%), FSB without congenital abnormality (11%), prematurity (7%), asphyxia (5%), infection (0.6%) and others (5%). According to the risks factors, pregnancy induced hypertension presented in 13%, gestational diabetes in 13% and anaemia in 24% of cases. 66% of cases had treatment at community clinic and 32% at health clinic and 2% at hospital for first antenatal check-up. SVD accounted for 82% of cases followed by LSCS 16% and forceps delivery in 2% of cases.

Conclusion
Perinatal mortality was high in the district of Bachok. Strategies are needed to improve the perinatal health including the prevention and treatment of pregnancy complications.

Keywords: Perinatal mortality, Bachok,
Audit of Ciprofloxacin Use in Medical, Surgical and Critical Care Wards in HRPZ II

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Introduction
Previous studies had shown that high antibiotic use was found in hospitals, where the trend was increasing from 13.3% to 15.7% for the past decades. Because of the increased use of the ciprofloxacin in hospital settings, it has been estimated that up to 38%-50% of the antibiotic usage in hospitals is inappropriate, which leads to the emergence of antibiotic-resistant problems, higher costs, and lack of therapeutic effectiveness. Therefore, it is important to determine the trends of antibiotic use, in order to identify any possible inappropriateness use of ciprofloxacin in our hospital.

Objectives
To evaluate the appropriateness of the use of ciprofloxacin in medical, surgical, and intensive care wards in HRPZII.

Methods
A cross-sectional study conducted in HRPZ II. 50 patients from medical wards, surgical wards, and critical care wards (February 2010 to April 2010) had been recruited into this study and data were collected using a structured questionnaire by reviewing patient’s bed-head-ticket (BHT).

Results
A total of 50 patients had been recruited into this study where 17(34%) were female and 33(66%) were male. Patients’ age range from 21 years old to 87 years old, with the mean (SD) age of 53.75(18.23) years old and median was 55.5 years. 49 patients were Malay and 1 patient was Chinese. 38(76%) of the patients were from Medical wards, 8(16%) from Surgical Wards and 4(8%) were from Intensive care wards. More than half (66%) of the ciprofloxacin used were indicated for both urinary tract and gastrointestinal tract infection. Mean duration for the ciprofloxacin used was 6.36 (4.004) days, range from 2-29 days. 37(74%) of the total prescription was inappropriate while the remaining 13(26%) was appropriate. A grand total of RM15,099.14 was used for both intravenous and tablet ciprofloxacin used within 3 months.

Conclusion
This study found that the use of ciprofloxacin is inappropriate in terms of the choice of antibiotic as suggested by the National Antibiotic Guideline 2008.
OP-17 Oral Health Status, Dental Services Utilization and Fear Level among Learning Disability Adolescent in Kota Bharu, Kelantan

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Introduction
Learning disability (LD) adolescent are at greater risk to have dental diseases because the rate of dental caries and periodontal disease exceeds that of children without disabilities. Routine dental visit can improve the healthcare of the LD. Dental fear can prevent the LD children from getting the treatment they needed.

Objectives
To determine the prevalence of dental caries and periodontal problem as well as caries experience and plaque levels. The utilization of dental services and assessment of dental fear among the LD children were also determined.

Methods
A cross sectional study was conducted among 125 randomly selected LD children attending special classes in schools of Kota Bharu. DMFT, GI and PI indices were used to evaluate dental caries prevalence and experience as well as periodontal problem and plaque level respectively. This evaluation was done by clinical examination based on visual examination of the dentition using mouth mirror and good lighting. The probe was only used to remove food debris. The utilization of oral health services questionnaire and CFSS-DS for dental fear questionnaire were distributed and filled by the parents with 95% response rates.

Results
Prevalence of caries was 59.2% (95% CI: 50.0%, 68.0%). DMFT score for the group was 3.0 (IQR 6.5). Prevalence of periodontal disease was 47% (95% CI: 38%, 56%). 52.8% of LD children have healthy gingival. Most of the LD children have thin plaque (45.6%). Fear of dental treatment (70.7%) was the highest reason towards barrier from seeking treatment among LD children. By using the CFSS-DS items of fear, the mean score was 42.4 (SD 12.47).

Conclusion
LD children shows a high prevalence of dental caries and periodontal problem, thin plaque level and have high level of dental fear.

Keywords: LD, dental caries, DMFT, fear, choking
Risk Factors for Refractive Error among Year 1 School Children in The Districts of Kota Bharu, Jeli and Gua Musang, Kelantan in the Year 2009

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2Pejabat Kesihatan Gua Musang,
3Pejabat Kesihatan Kota Bharu,
4Jabatan Kesihatan Kelantan

Introduction
Refractive error is one of the primary causes of visual impairment in children worldwide and is the second leading cause of treatable blindness. It is important to detect refractive error in children as early as possible because if left untreated it can result in amblyopia and or strabismus.

Objectives
To identify the risk factors associated with refractive errors among schoolchildren in Kota Bharu, Jeli and Gua Musang District.

Methods
This is a case control study conducted from August to October 2010. Year 1 students from these 3 districts with refractive errors in the year 2009 were identified from school health records. Refractive error is detected by trained staff nurse from the school health team, using tumbling E Snellen chart, and following standard operational procedure. Controls were taken from those with vision 6/6 in both eyes from the same class. Face to face interview with parents / guardian and student using standard questionnaires were conducted.

Results
A total of 200 respondents completed the questionnaires (100 cases and 100 controls) with response rate of 92.6%. The only significant factor contributing to the refractive error among school children is having sibling(s) wearing spectacles with OR of 4.79 (95% CI 2.03-11.33) with p value of <0.005. Gender, ethnicity and parental education level were not significant factors contributing to refractive error. Total screen time and reading time were also not significantly associated with refractive error.

Conclusion
The importance of detecting refractive error in school children cannot be overemphasized. The school health team had done a good job in detecting these cases. In doing so, particular attention should be made to those patients with risk factors to get refractive error especially the presence of sibling(s) wearing spectacles have been found in this study.
Drug-resistant Mycobacterium Tuberculosis in Malaysia, Year 2003 to 2010

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National Public Health Laboratory

Introduction
National Public Health Laboratory established drug susceptibility testing in year 2003

Objectives
To monitor tuberculosis (TB) drug resistance patterns in Malaysia.

Methods
Drug susceptibility testing was done using absolute concentration method for streptomycin (SM), isoniazid (INH), rifampicin (RIF) and ethambutol (ETB). Result on anti-tuberculosis drug susceptibility testing for every isolate has been reported for each calendar year. This report presents 2003 to 2010 drug susceptibility data for TB isolates. A total of 2927 (2003), 4147 (2004), 4933 (2005), 6386 (2006), 6163 (2007), 6278 (2008), 8514 (2009) and 8079 (2010), approximately 30-60% of annual TB cases, respectively in year 2003 to 2010 had undergone drug susceptibility testing.

Results
Drug susceptibility analysis showed in year 2003 to 2010 showed resistance to one or more first-line anti-TB drug(s) in all cases were 4.6% (2003), 5.1% (2004), 10.6% (2005), 9.3% (2006), 9.3% (2007), 8.0% (2008), 6.2% (2009) and 11.8% (2010), respectively. Resistance to SM was the most common type of drug resistance (3.5-8.8%) followed by INH (1.7-3.2%). The percentage isolates classified as multiple-drug resistance (MDR) strains (defined as resistance to at least INH and RIF) in year 2003 to 2005 were around 0.31% but the percentage of cases had arisen from 0.31% to 0.66% in year 2006. The MDR-TB remained the same at 0.6% but slightly increased to 0.79% in year 2010. There are limitations in interpreting the data particularly the category of cases because lack of clinical data in many cases.

Conclusion
Malaysia showed fluctuating trends of resistance cases but increasing trends in MDR among all TB cases. The proportion of resistance to specific drugs with the highest were SM and INH followed by RIF and ETB. This was similar to fourth report of anti-tuberculosis drug resistance in the world conducted by the WHO/IUATLD.
Comparing and Assessing of Chemical Hazardous to Health at Quarrying and Agriculture Industries Using Chemical Health Risk Assessment

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Introduction
Quarrying and agriculture are two industries classified and listed in Schedule 1, Occupational Safety and Health Act, 1994. Both industries have different hazard, danger, risk and exposure to respective workers. YB Datuk Dr Fong Chan Onn, Ex-Minister of Human Resources, Malaysia during the opening of Seminar on Occupational Safety and Health for Owners and Supervisors of Animal Farms at NIOSH Theaterette Bangi, Selangor on 9 October 2000 quoted that “every occupation has its own characteristic hazards and risks to personal safety and health”. In quarrying and agriculture industries, chemical hazards are definitely present and causing risk of occupational diseases and poisoning among workers.

Objectives
To compare and assess the risk of chemicals hazardous to health used in quarrying and agriculture industries.

Methods
Assessment of chemicals hazardous to health was done by competent personal according to guidelines published by Department of Occupational Safety and Health. Chemicals hazardous to health were identified at both industries during preliminary work through survey. Chemical Health Risk Assessment (CHRA) was done to assess and evaluate the Hazard Rating, Frequency Rating, Duration Rating, Magnitude Rating and Exposure Rating for each chemical to produced conclusion of assessment, which is called Risk Rating.

Results
Chemicals hazardous to health were found to be used at both industries. Quarrying used mainly hazardous chemicals whereas agriculture used mainly pesticides. Although chemicals in both industries classified as having same Hazard Rating, but the difference of other rating leads to different Risk Rating. A chemical may have a high Hazard Rating, but if exposure is appropriately controlled, Risk Rating will be low leading to the conclusion of CHRA as “Hazard Is Significant, But Appropriately Controlled, However Risk May Increased In Future”.

Conclusion
In any industry, the most important measure to be done by employers and employees to prevent occupational diseases and poisoning is to control the workers’ exposure rather than focus on control of chemical hazardous to health per se.

Key Words: Chemical Hazardous To Health, Pesticides
The Prevalence of Depression and/or Anxiety among Patient with Diabetes Mellitus in HUSM

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Introduction
Diabetes Mellitus is a group of metabolic diseases characterized by hyperglycemia due to absolute or relative deficiency of insulin, resulting from defects in insulin secretion, insulin action or both. The diagnosis of diabetes is a significant stressor for patients and also for their family because some adjustments are needed in some of their customary routines.

Objectives
To determine the prevalence of depression and/or anxiety and the factors associated with depression and/or anxiety among patient with Diabetes Mellitus in USM.

Methods
This is a cross sectional study involving 260 adult Type 2 Diabetes Mellitus patients, attending Diabetic Center, HUSM from November 2007 till March 2008. The patients were interviewed using a set of questionnaires on socio-demographic, family dynamic and medical history. Screening for depression and anxiety was done using self administered Hospital Anxiety and Depression Score. Those who had scores of 9 and above for both part are positive for anxiety and depression. They were referred to psychiatrist for further assessment to confirm the diagnosis according to DSM-IV criteria.

Results
The prevalence of depression was 20.8% and anxiety was 10.8%. Level of occupation (p<0.05), satisfaction with income (p<0.05), retired and also working in private sector (p<0.05), source of income from other family members (p<0.05), has been taken care by their children during an acute illness (p<0.05), diabetic foot and retinopathy (p<0.05) and compliant to the diabetic follow up (p<0.05) were associated with depression. Factors that associated with anxiety were male (p<0.05), decision making in the family (p<0.05), has been taken care by their children during illness (p<0.05) and presence of diabetic foot (p<0.05).

Conclusion
Prevalence of depression among T2DM was similar with most studies but the prevalence of anxiety was lower in this group of patients. Working in private sector, received source of income from other than family members, taken care by their children during acute illness, presence of diabetic retinopathy and diabetic foot were associated with increased risk for depression among T2DM. Those who received secondary and tertiary level of education, satisfied with their income and retired were associated with reduced risk for depression. Those who had diabetic foot was associated with increased risk for anxiety, however male and those who occasionally dominance in making decision in making the decision in the family were associated with reduced risk for anxiety.
Factors Influencing Oral Health Attitudes and Behavior among Pregnant Women in Kuala Terengganu District, Malaysia

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Introduction
Hormonal changes throughout 9-month gestational period enhance oral diseases such as pregnancy gingivitis and periodontitis. The tendency of taking snacks between meals, craving for sugary beverages and eating for two habits increased the risk of getting carious teeth. Thus, oral health attitude and behavior are very crucial during pregnancy.

Objectives
To investigate factors influencing oral health attitude and behavior among pregnant women in Kuala Terengganu District.

Methods
A cross-sectional study of 240 pregnant women was conducted in six selected public health centres in Kuala Terengganu District. The Malay version of the Hiroshima University-Dental Behavior Inventory (HU-DBI) questionnaire was used to determine the oral health attitudes and behavior of the subjects. Chi-square test was used for statistical analysis.

Results
In general, most of the subjects showed positive dental attitudes. More than half had visited dentist in the past 12 months (62.1%) and 31.1% had the check up done during the current pregnancy. Further, 52.9% of the subjects brushed their teeth more than twice daily and 86.3% used fluoridated toothpaste. The mean HUD-BI score was 6.9 (SD 1.42). Using categorized HU-DBI, significant association was seen between dental fear and maternal attitudes and behavior (OR 2.21, 95% CI 0.97-5.08). Monthly household income was also found to be significantly associated with oral health attitudes and behavior of the subjects (p=0.016).

Conclusion
The mothers in this study displayed good dental attitudes and behavior in general although dental fear seems to have negative influence. Discussion on dental fear and anxiety management should perhaps be included in oral health education module to antenatal mothers.

Keywords: Oral health, pregnancy, attitude, behavior
Kajian Kemurungan, Anzieti dan Stress di kalangan Kakitangan Klinik Kesihatan di Daerah Tumpat, Kelantan 2011

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Pengenalan
Stres akibat pekerjaan adalah diketahui dapat memberi kesan terhadap kesihatan seseorang pekerja. Ia juga memberi kesan terhadap produktiviti sesebuah jabatan.

Objektif
Untuk mengetahui tahap kemurungan, anzieti dan stress di kalangan kakitangan klinik kesihatan di daerah Tumpat mengikut kumpulan umur dan perjawatan kakitangan dan memberi gambaran bebanan stres di klinik kesihatan serta mengenalpasti kakitangan yang berisiko terhadap stress di klinik kesihatan.

Metodologi

Keputusan
Tiga orang (2.5%) kakitangan didapati mengalami stress sederhana dan 5 orang (4.2%) stress ringan. Bagi anzieti, 2 orang (1.7%) mengalami anzieti sangat teruk, 3 orang (2.5%) anzieti teruk, 5 orang (4.2%) anzieti sederhana dan 17 orang (14.4%) anzieti ringan. Kemurungan telah dikesan pada seorang (0.8%) kakitangan pada tahap teruk, 5 orang (4.2%) kemurungan sederhana dan 11 orang (9.3%) kemurungan ringan. Stress mengikut kumpulan umur dikesan pada umur 30-39 tahun; 3 orang (4.8%) stress sederhana dan 1 orang (6.7%) stress ringan. Kemurungan mengikut kumpulan umur, 30-39 tahun adalah seorang (1.6%) kemurungan teruk, 4 orang (6.3%) kemurungan sederhana, 4 orang (6.3%) kemurungan ringan. Pada umur 40-49 tahun; 1 orang (6.7%) kemurungan sederhana dan 2 orang (13.3%) kemurungan ringan. Stress mengikut kumpulan perjawatan dikesan pada jururawat masyarakat; 1 orang (2.2%) stress sederhana, 2 orang (4.4%) stress ringan, pembantu perawatan kesihatan; 1 orang (12.5%) stress sederhana, pembantu farmasi 1 orang (33.3%) stress sederhana, doktor 1 orang (33.3%) stress ringan dan jururawat kesihatan 1 orang (7.1%) stress ringan. Kemurungan mengikut kumpulan perjawatan, jururawat masyarakat; 1 orang (2.2%) kemurungan teruk, 3 orang (6.7%) kemurungan ringan, pembantu perawatan kesihatan; 2 orang (25%) kemurungan sederhana, 2 orang (25%) kemurungan ringan, jururawat kesihatan; 1 orang (7.1%) kemurungan sederhana, 2 orang (14.3%) kemurungan ringan, pembantu farmasi; 1 orang (9.1%) kemurungan sederhana, 1 1 orang (9.1%) kemurungan ringan, pemandu 2 orang (22.2%) kemurungan ringan dan bidan; 1 orang (50%) kemurungan ringan.

Kesimpulan
Gejala anxiety adalah paling tinggi di kalangan kakitangan klinik kesihatan (23%), diikuti gejala kemurungan (14%) dan gejala stres (7%). Kakitangan dalam lingkungan umur 30-39 tahun merupakan golongan tertinggi mendapat gejala stress dan kemurungan. Kategori jawatan jururawat masyarakat merupakan golongan tertinggi mengalami gejala stress dan kemurungan di klinik kesihatan.
Fetal - Maternal Outcome among Pregnancy Induced Hypertension Mothers Attending Klinik Kesihatan Rantau Panjang in 2010

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Introduction
The prevalence of Hypertension during Pregnancy in Malaysia is estimated to be about 23.3 per 1000 livebirths. Pre-eclampsia occurs in up to 5% of all pregnancies, in 10% of first pregnancies, and in 20-25% of women with a history of chronic hypertension (MOH, Malaysia, 2000).

Objectives
This study aims to determine fetal-maternal outcome among Pregnancy Induced Hypertension (PIH) mothers in KK Rantau Panjang.

Methods
A cross sectional study was conducted from January to December 2010 among mothers in KK Rantau Panjang, Pasir Mas. Data was collected using antenatal card record review.

Results
Half of the respondents were high risk mothers (50.0%), had history of previous PIH and multi-parity (50%). Majority of the respondents had primary and secondary school education (83.3%) and not require antihypertensive therapy (69.4%). Most PIH mothers delivered normally (75%). PIH to mothers who had to undergo caesarian section (25%) were due to failed induction of labour (45%), placenta preavia major (33%), preeclampsia (11%) and fetal hypoxia (11%). 8.3% of PIH cases developed pre-eclampsia and 30.6% of them noted to have hypertension after delivery. The outcome of PIH to fetus include low birth weight (11.1%) and premature delivery (5.6%)

Conclusion
This study showed the PIH cases in KK Rantau Panjang higher among mothers who had primary and secondary school education and also among multi-parity and grandmultiparity mothers. The PIH fetal outcomes include low birth weight and prematurity while for mothers, were hypertension after and abnormal delivery.
Review of Deliveries at Alternative Birthing Centre of Chiku 3 Health Clinic in 2009 - 2010

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Introduction
Alternative Birthing Centre (ABC) has been developed as an alternative for hospital deliveries for low risk cases, especially in rural areas. Chiku 3 Health Clinic, situated in Gua Musang district is one of the busiest ABC in Kelantan.

Objectives
To review the profile of cases delivered at the ABC and describe the sociodemographic profile and the reason for conducting deliveries of ‘at risk cases’ at the ABC and its complications.

Methods
A list of all deliveries at the ABC from 1st January 2009 till 31st December 2011 were identified from the ‘Buku Daftar Kelahiran’ at the ABC. Their antenatal cards were then reviewed.

Results
81 patients delivered within the study period. Majority were Malays (96.3%), housewives (75.3%) and had secondary education (69.1%). Two patients were unmarried/unbooked. Eight (9.9%) were teenagers and 3 (3.7%) were more than 40 years. There were 13 (16.1%) cases each for the primigravida and multigravida. 31 had history of delivering at either ABC or at home. On admission, 70 (85.1%) had os opening of ≥ 8cm. 53.1% delivered in less than half an hour and another 22 (27.7%) delivered in the next half hour. On arrival, 6 cases were tagged as red, 4 for prematurity, one for MSB and the other for history of APH (indeterminate). Only 15 (18.5%) were white tagged. Complications that arise include retained placenta (4), increased blood pressure (1) and PPH (1). Eleven cases were referred to the hospital.

Conclusion
Many ‘at-risk cases’ delivered at the ABC were inevitable. In that situation, delivering at the ABC is a better alternative than during transportation. Better health education to the patients and training for the staffs is a must. A QAP program is currently underway.

Keywords: Alternative birth centre
Associated Factors of Perinatal Death in Districts of Pasir Puteh, Machang and Kuala Krai, 2007 to 2009

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Introduction
Perinatal mortality rate indicates quality of care provided to women in pregnancy, at and after delivery and to the newborns in the first week of life. Perinatal mortality rate (PMR) is markedly reduced in developed countries since last two decades but in these three districts, the perinatal mortality rate were higher when compared to Kelantan and Malaysia figure.

Objectives
A case control study was conducted aimed to determine the factors contributing to perinatal death in district of Pasir Puteh, Machang and Kuala Krai from year 2007 to 2009.

Methods
A total of 308 antenatal cards were reviewed in which 153 perinatal death cases and 155 for normal life birth.

Results
Univariate analysis showed that occupation of the mother (p = 0.003), place of delivery (p = 0.005), antepartum haemorrhage (p = 0.003), hypertensive disorder in pregnancy (p = 0.006), prematurity (POG < 36 weeks), baby birth weight, number of antenatal visit, birth asphyxia, lethal congenital malformation (LCM) and other congenital malformations (p < 0.001) were significantly associated with perinatal death. However, further analysis using multiple logistic regressions showed that only prematurity, birth asphyxia and hypertensive disorder in pregnancy remained independently significant associated factors with perinatal death. The result showed that the adjusted odd ratio (OR) of perinatal death increased with period of gestation 22 to 36 weeks compared with the reference POG of more than 37 weeks. Asphyxia was the highest influenced factor contributes to perinatal death with odd ratio of 348.9 (95% CI, 20.70, 5882.41). Hypertensive disease in pregnancy (HDP) was associated with 7 times at odds (p 0.003) higher for perinatal death.

Conclusion
This study found that the significant factors associated with perinatal death were pregnancy induced hypertension (PIH), premature delivery and birth asphyxia hence to reduce the incidence of perinatal death the identified significant factors should be managed appropriately.
Prevalence and Risk Factors of Poor Posture Using Branson Posture Assessment Instrument in Government Dental Personnel in North-eastern State of Malaysia

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Introduction
Dentistry is a high risk profession for the development of back pain which resulted from poor posture. Requirement of high visual demands results in the adoption of affixed and uncomfortable postures.

Objectives
This study was conducted to determine the prevalence of poor posture using Branson Posture Assessment Instrument (BPAI) and its associated factors among government dental personnel in North-Eastern State of Malaysia.

Methods
A cross sectional study was conducted among 350 dental personnel including dentist, dental nurse, technician and dental surgery assistant in all government dental clinics in North-Eastern State of Malaysia. The research tools for the study were a proforma on sociodemographic and occupational profiles, a validated BPAI and direct observation of the respondents while performing their routine task. Descriptive Statistics including mean and standard deviation for numerical and percentage for categorical data were calculated. Multiple logistic regression analysis was performed to determine factors associated with poor posture.

Results
Majority of the respondents were female (79.1%) and Malays (98.0%). Age of respondents ranged from 22 to 56 years old. The prevalence of poor posture was 50.3% (95% CI: 44.76, 55.24). Of all respondents, the highest prevalence of poor posture was among dentists [76.0% (95% CI: 64.16, 87.84)]. After controlling for potential confounders, the significant risk factors associated with poor posture were repeated task [OR 6.2 (95% CI: 2.30, 16.80)], duration of working [OR 1.1 (95% CI: 1.03, 1.11)], no arm rest [OR 1.7 (95% CI: 1.02, 2.82)], long sitting [OR 5.3 (95% CI: 2.84, 9.99)] and education level [OR 2.2 (95% CI: 1.13, 4.35)].

Conclusion
The prevalence of poor posture among dental personnel in North-Eastern State of Malaysia was relatively high. The significant risk factors associated with poor posture were repeated task, duration of working, no arm rest, long sitting and education level. Innovations of ergonomically friendly dental equipment are one of the methods to improve the work practice and health of dental personnel.

Keywords: Dental personnel, Prevalence, Poor posture, Branson Posture Assessment Instrument
Rampant Caries among Pre-schoolchildren in Pasir Puteh, Kelantan

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Introduction
Rampant caries is a common dental problem among young children. Its occurrence is sudden, rampant and aggressively formed the cavity with early pulp involvement.

Objectives
This study explored the prevalence of rampant caries and their contributed factors among pre-schoolchildren in Pasir Puteh, Kelantan.

Methods
A cross sectional study was conducted among randomly selected 320 pre-schoolchildren from 10 pre-school classes in district of Pasir Puteh from July to December 2010. Clinical data was collected through clinical examination by a single researcher and the contributing factors were determined through self administered questionnaires distributed to the parents.

Results
About 195 (60.9%) of the preschoolchildren in the study had rampant caries. Boys had higher prevalence of rampant caries (68.1%) compared to the girls. Most of them in poor income family (44.7%). Rampant caries was prevalent in anterior maxillary teeth (53.9%), followed by posterior mandibular teeth (33.3%) and posterior maxillary (12.8%). None of the anterior mandibular teeth had rampant caries. Among the contributed factors was lack of awareness and inadequate knowledge among the parents (60.3%) and high intake of sweet food (42.2%). Bottle feeding occurred in 20% of the children and 67.2% of them sleep with their feeding bottle.

Conclusion
Prevalence of rampant caries in Pasir Puteh, Kelantan was high. The main contributing factors were unawareness and lack of knowledge among parents as well as high intake of sweet food.

Keywords: rampant caries, preschool children
The Sensitivity of *Vibrio alginolyticus* and *Vibrio parahaemolyticus* Isolated from Mud Crab (*Scylla tranquebarica*) Against Selected Antibiotic and Heavy Metal

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Introduction
Bacteria in marine and estuaries environment are potential human pathogens. The use of antibiotic and heavy metal influenced the bacteria resistant to it.

Objectives
To characterize antibiogram and heavy metal profile of *Vibrio alginolyticus* from mud crab (*Scylla tranquebarica*)

Methods
A total of six bacterial isolates namely *Vibrio alginolyticus* (n = 4) and *V. parahaemolyticus* (n = 2) have been successfully isolated from mud crab (*Scylla tranquebarica*). Antibiotic susceptibility test was carried out by disk-diffusion method against 16 types of selected antibiotics whereas heavy metal resistance was determined by two-fold agar dilution technique against four elements namely chromium (Cr⁶⁺), copper (Cu²⁺), mercury (Hg²⁺) and zinc (Zn²⁺).

Results
The result showed that all the antibiotics were found to be effective in inhibiting the growth of *V. alginolyticus* and *V. parahaemolyticus* except for amoxicillin, ampicillin, erythromycin, novobiocin, spiramycin and sulphamethoxazole. The incidence of sensitive case of *V. alginolyticus* against the tested antibiotics was 76.6 % while *V. parahaemolyticus* was 65.6 %. Meanwhile, the antibiotic resistant percentage of *V. alginolyticus* and *V. parahaemolyticus* was 12.5 % and 9.4 %, respectively. The MAR index of each bacterial species was 0.14 and 0.09 for *V. alginolyticus* and *V. parahaemolyticus*, respectively indicating the sampled mud crab under high risk exposed to tested antibiotics. *V. alginolyticus* was highly resistance to chromium and copper followed by mercury and zinc while *V. parahaemolyticus* was resistance to chromium followed by copper, zinc and mercury.

Conclusion
The finding of the present study indicating the sampled mud crabs were not highly exposed to the tested antibiotics but heavy metal test failed to inhibit the growth of bacterial isolates.

Keywords: *Scylla tranquebarica*, *Vibrio alginolyticus*, *Vibrio parahaemolyticus*, antibiotic, heavy metal, MAR index

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Introduction
Assessment on the place of death and its associated factors is important in health and social care development and planning.

Objectives
This study aimed to describe the profiles and determine the factors associated with place of adults HIV/AIDS death in Kota Bharu, Kelantan.

Methods
A retrospective record review study was conducted using data retrieved from the Kota Bharu District Health Office’s HIV/AIDS deaths registry from 2000 to 2008. A total of 945 cases were included in the study. Descriptive statistics and Multivariable Logistic Regression were applied using SPSS 12.0.

Results
The mean (SD) of age was 34.1(6.70) year old. Most of the subjects were Malaysian (98.9%), Malay (96.5%), males (93.4%) and IVDU (90.4%). About two-third were single and about one third were either unemployed (31.0%) or self employed (31.0%). The frequency of adults who died of HIV/AIDS increased from year to year. Most of them died at hospital (80.3%) than at home (19.7%). Nevertheless, the out-of-hospital showed a yearly increment pattern than the hospital death. Those who were self employed [Adjusted OR=4.42, 95% CI (1.43, 13.62)], unemployed [Adjusted OR=5.29, 95% CI (1.60, 17.49)] and housewives [Adjusted OR=16.77, 95% CI (2.92, 96.24)] had higher probability of dying at home than those employed. Additionally, those who resided outside mukim of Kota Bharu [Adjusted OR=4.22, 95% CI (2.10, 8.48)] were more likely to die outside hospital.

Conclusion
The HIV/AIDS patients in Kota Bharu died at young age and majority were unmarried and jobless. Unemployment and accessibility were significantly related to out-of-hospital deaths in Kota Bharu. The shift from hospital to home HIV/AIDS deaths was also seen. Thus, the development of social supports for HIV/AIDS people at the end of their life is crucial and further studies are also needed to allow assessment on other important contributing factors.

Keywords: HIV/AIDS deaths, out-of-hospital death, factors associated
Kesihatan Spiritual Melalui Makanan dan Implikasinya Terhadap Wanita. Satu Kaji Awal.

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Pengenalan
Kesihatan merupakan elemen penting yang berperanan dalam menjamin kelangsungan hidup manusia. Penjagaan kesihatan, khususnya kesihatan dalam bentuk penting untuk memberi kesempatan kesihatan fisik. Berlakunya masalah rohani atau spiritual disebabkan gaya hidup yang tidak sehat dan seimbang termasuklah kurangnya kesedaran dalam menjaga keseimbangan dan kesederhanaan dalam hidup. Makanan yang dibenarkan dan ditegah mendedahkan individu kepada implikasi yang positif dan negatif. Amalan pemakanan yang sihat merupakan satu perlakuan yang penting dalam memastikan kesihatan yang optimum khususnya kesihatan rohani.

Objektif
Kajian ini akan menfokuskan implikasi makanan terhadap kesihatan spiritual manusia amnya dan wanita khususnya dengan meletakkan peraturan agama terhadap makanan sebagai landasannya.

Metodologi
Kajian dijalankan dengan menjalankan semakan perpustakaan, pemerhatian dan temubual.

Keputusan

Kesimpulan
Sesungguhnya larangan halal dan haram daripada agama Islam itu mempunyai kebaikan jika dilihat dari sudut jangkama panjang dan relevan untuk semua lapisan masyarakat. Matlamat kehidupan manusia ialah untuk mendapat kebahagian dan kesejahteraan yang meliputi kesejahteraan fizikal, mental dan spiritual. Justeru, bagi memastikan kesejahteraan ini terpelihara, sumber-sumber makanan ini harus dijaga untuk melahirkan manusia yang berakhlak mulia.
Adverse Drug Reactions Reporting: Knowledge and Attitude of Healthcare Staff

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Introduction
Adverse drug reactions (ADR) are undesirable effects of drugs, which include prescription and non-prescription pharmaceuticals, biologically and blood derived products as well as radiopharmaceuticals drugs. Spontaneous ADR reporting is the cornerstone of pharmaco vigilance that has tremendously improved in many developed countries and the use was advocated by the World Health Organization (WHO).

Objectives
The study was conducted to determine the knowledge and attitude towards ADR reporting amongst healthcare staff of the pharmacy department in Hospital Selayang.

Methods
A total of 90 healthcare staffs were involved in administered questionnaires pertaining to their knowledge and attitude towards ADR reporting. Provision was also made for suggestions on the possible ways to improve ADR reporting. Data were analyzed using SPSS version 16.0 and Microsoft Excel 2007.

Results
About 94% of the respondents felt that all suspected ADR should be reported. All respondents agreed that ADR reporting should be encouraged if the reactions are serious while only 88% stated that ADR should be done if the reactions encountered are unusual. More than half of the respondents stated that reporting an ADR is compulsory while the others thought reporting ADR as voluntary. Education and training were the most recognized method in improving ADR reporting.

Conclusions
Gaps between knowledge and ADR reporting amongst healthcare staff were identified as they have inadequate knowledge about the conduct, purpose and usefulness of ADR spontaneous reporting system. In general, it has been proven that under reporting of ADR cases has associated with the attitude of the healthcare staff. Continuous medical education, training and integration of ADR reporting into the clinical activities would likely improve reporting.
Kajian Status Pencemaran Mikrobiologi dalam Taugeh Mentah yang dijual di Pasaran Kelantan

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2Pejabat Kesihatan Daerah (Negeri Kelantan)

Pengenalan
Kekerapan taugeh dimakan mentah menjadikan ia berisiko tinggi untuk menjadi faktor penyebab kepada kejadian keracunan makanan dan wabak tertentu.

Objektif
Kajian yang dijalankan adalah untuk mengenalpasti status pencemaran mikrobiologi bagi taugeh mentah yang dijual di pasaran Kelantan.

Metodologi

Keputusan
Berdasarkan keputusan analisis, didapati bahawa kesemua 51 (100%) sampel adalah tercemar dengan Coliform. Manakala bagi parameter E.coli, Coagulase Positive Staphylococci, Bacillus cereus dan Salmonella spp masing-masing hanya 1 (1.96%) sampel adalah positif. Keputusan ini adalah berdasarkan Garis Panduan Mikrobiologi Bagi Makanan Sedia Dimakan dan Minuman, Kementerian Kesihatan Malaysia.

Kesimpulan
Secara keseluruhannya, status mikrobiologi bagi taugeh mentah yang dijual di negeri Kelantan adalah kurang memuaskan kerana kesemua sampel adalah tercemar dengan Coliform. Walaupun mikroorganisma patogenik tidak banyak dikesan tetapi dengan kehadiran Coliform sebagai mikroorganisma petunjuk dapat dianggapan bahawa taugeh adalah berisiko tinggi untuk dijangkiti mikroorganisma patogenik dan seterusnya dapat menjangkiti pengguna sekerana dimakan mentah.
Accidental Ingestion of an Unusual Foreign Body: A Case Report

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Introduction
Foreign body ingestion is a common occurrence in pediatric age group. In adults, it was reported in elderly or psychiatric patients. Although foreign body ingestion in adult can be well tolerated, approximately 10-20% of patients require endoscopic intervention. Delayed diagnosis and unremoved foreign bodies can cause serious and fatal complications including perforation, fistula and gastrointestinal bleeding. Ingested foreign bodies in adult are usually small in size, frequently sharp but not hard such as fish or chicken bone which is fairly acceptable in our society as we rarely eat filleted fish or chicken.

Case report
A 20-year-old lady presented with severe sharp pain at the sternal notch region after eating noodle in a nearby stall. On general examination, she was in severe pain and discomfort. There was no visible foreign body seen on bedside endoscopic examination except for some pooling of saliva. Plain radiograph showed, an opacity which should not be found in food. An emergency esophagoscopic removal was performed under general anaesthesia to relieve her symptoms and to prevent further complications. Intraoperative findings showed a 4 cm spring like metal wire with the top end hooked to the lateral esophagus wall at the level of cricopharyngeus at about 15cm from the incisor. Post-operative recovery was uneventful.

Conclusion
If there is a high suspicious index of foreign body ingestion, a plain soft tissue neck radiograph is indispensable for prompt treatment. We also stress on the importance of increasing public awareness in choosing their meal especially if it’s not self prepared. It is also advisable for individuals to carefully select their food and chew sufficiently to prevent similar incidence.

Keywords: accidental, foreign body, ingestion, metal, wire, endoscope, food
Use of Random Polymorphic DNA Polymerase Chain Reaction (RAPD-PCR) Analysis to determine the Genotypic Diversity among Egg and Raw Beef Isolates of *Escherichia Coli*

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**Introduction**

Typing of *E. coli* among egg and raw meat isolates is of considerable importance in the surveillance of possible public health risk as a research tool for predictive value in epidemiological control especially if those samples associated with the exposure to *E. coli* shiga toxin-producing (STEC) or *E. coli* O157: H7. It also allows the identification of the presence of virulent strains and changing pattern of these bacteria to be monitored which may be achieved by using polymerase chain reaction (PCR)-based technique.

**Objectives**

This study was conducted to examine the genotypic diversity among egg and raw beef isolates of *Escherichia coli*.

**Methods**

A total of forty three genomic DNA of *Escherichia coli* (11 isolates from eggs and 32 isolates from imported beef meats) were characterized by random amplified polymorphic DNA-PCR (RAPD-PCR) analyses. The results of the RAPD-PCR were analyzed using GelCompar II software.

**Results**

The RAPD-PCR analysis with primer Gen 8 produced 10 clusters and 10 single isolate at 70% similarity level.

**Conclusion**

These results demonstrated that RAPD-PCR is useful to differentiate among *E. coli* isolates and suitable tools for molecular typing of those isolates examined.

**Keywords:** Random polymorphic DNA-polymerase chain reaction (RAPD-PCR) analysis, genotypic diversity, egg and raw beef isolates, *Escherichia coli*
Introduction

*Diplazium esculentum* or locally known as ‘Paku’ is a type of edible fern which has long been used in traditional dishes among Malays.

Objectives

This study was to determine yield of mucilage extracted from ‘Paku’ shoots or ‘Pucuk Paku’ using three different extraction methods namely alkaline, acidic and hot water extraction methods.

Results

The results showed that hot water extraction gave the highest yield (2.59%) of mucilage followed by alkaline extraction (2.46%) and acidic extraction (1.58%). There was no significant difference for yield of mucilage extracted using hot water and alkaline extraction. The mucilage obtained from each extraction method was further evaluated for antioxidant activities using 1,1-diphenyl-2-picrylhydrazyl (DPPH), para-anisidine, ferric thiocyanate (FTC) and thiobarbituric acid (TBA) analyses in comparison to a commercial gum Arabic. It was found that mucilage extracted using hot water method exhibited a significant higher (p < 0.05) ability to inhibit oxidation in DPPH analysis (percentage of inhibition = 51.28%), as compared to other mucilage including gum Arabic. On the other hand, mucilage extracted using acidic method were found to be significantly different (p < 0.05) from mucilage extracted using alkaline method and gum Arabic in terms of antioxidant activity measured via TBA and FTC analyses with higher percentages of inhibition (66.4% and 27.36%, respectively). When measured via para-anisidine analysis, there was no significant difference between the antioxidant activities of all mucilage including gum Arabic. ‘Pucuk Paku’ mucilage extracted using alkaline extraction however showed the lowest antioxidant activities amongst all mucilage including gum Arabic in most of the antioxidant analyses.

Conclusion

In general, hot water extraction provided the highest yield of mucilage with good antioxidant properties. This study suggested that hot water extraction is the most suitable method to be applied in food industry since it involved simple steps, cheap, and less chemical and time consuming.
PP-06 Comparative Antioxidant Activity, Proteolysis and In vitro α-amylase and α-glucosidase Inhibition of Allium Sativum-Yogurts made from Cow and Camel Milks

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Introduction
The presence of extract of plant with medicinal properties during milk fermentation could enhance the therapeutical values of yogurt.

Objectives
The study was conducted to investigate the effects of Allium sativum on the changes in post-acidification, total phenolic content (TPC), proteolysis, antioxidant activity and capacity to inhibit in vitro α-amylase and α-glucosidase activities in cow and camel milk yogurt (MY) during 21 day refrigerated storage.

Methods
Garlic water extract, which was obtained from suspended and centrifugated A. sativum powder mixed with water, was added to full cream milk containing starter culture, to prepare yogurt. The mixture was incubated at 41°C until pH was reduced to 4.5 and added to Yogurt-Mix powder (containing Lactobacillus acidophilus, L. bulgaricus, L. casei, Bifidobacterium bifidus and Streptococcus thermophilus) was kept in the refrigerator and used within 7 days. The plain yogurt (control) was prepared by using dH2O in place of garlic water extract. The supernatant was harvested, pH was adjusted to 7.0, residual precipitated proteins and salts was removed, kept refrigerated and used for subsequent analysis within 24 hours.

Results
The presence of A. sativum enhanced more pH reduction for camel-MY than for cow-MY compared to respective controls during storage. The reverse was true for total titratable acid. TPC in camel-MY was higher than that in cow-MY (p<0.05). The presence of A. sativum in cow- and camel-MYS elevated (p<0.05) the TPC, but these effect was changed a little during storage. Antioxidant activities (18-38% DPPH inhibition) were not different in both types of yogurts, either in the absence or in presence of A. sativum. However, camel-MY had an increase in antioxidant activities (49-65%) during 7 to 21 days of storage (p<0.05). OPA values on day 0 was higher for camel-MY (368.2±14.8mg/g) compared to cow-MY (80.1±3.2 mg/g). The presence of A. sativum increased OPA values more for cow-MY than for camel-MY (3.0 and 1.3 folds respectively). As a result of refrigeration greater than 7 days, higher inhibition effect of α-amylase by camel-MY compared to cow-MY (p<0.05). However, α-glucosidase inhibition by cow-MY was reduced (p<0.05). The presence of A. sativum in yogurt enhanced α-amylase and α-glucosidase inhibition by both camel-MY (10% to 80% increase) and cow-MY (25% to 200% increase).

Conclusion
Addition of A. sativum caused more antioxidant activities, proteolysis and enzymes (α-amylase and α-glucosidase) inhibition in camel-MY than in cow-MY.

Keywords: yogurt, Allium sativum, total phenolic content, antioxidant, proteolysis
The Study of the Trend and Factors of Non-Compliance and the Impact of Pharmacist’s Counseling to the Caregiver in the Management of RVD Pediatrics in Hospital Raja Perempuan Zainab II, Kelantan

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Introduction
Human Immunodeficiency Virus (HIV) is a lentivirus that gradually destroy our body immune system cells. Compliance to HAART is important to achieve optimal therapeutic response. It was noted that the survival of children with AIDS has increased considerably with the use of more effective antiretrovirals. However, this benefit was limited by patient’s adherence to their medication. With excellent communication skill, being responsible, loving and caring, pharmacist plays an very important role in helping patients to be complaint to their medications and hence improve their quality of life.

Objectives
To study the trend of compliance to the HAART regime, to determine the factors that leads to the non-compliance and to study the impact of pharmacist’s counseling to the compliance among RVD pediatrics in Hospital Raja Perempuan Zainab II (HRPZ II).

Methods
This study was conducted in Pediatrics Clinic, HRPZ II from February 2010 until June 2010. Fifty-five HIV-infected pediatrics’ caregivers had been recruited into this study and they were interviewed by pharmacist using the prepared questionnaires.

Results
At the end of the study, the number of compliance’s pediatrics were increased from 43 (78%) to 53 (96%) people. In addition, the CD4 count of 39 (71%) patients was increased and the viral load count of 38 (69%) patients remained not detected after counseling was given by the pharmacist. Out of 55 caregivers, 11 of them tend to be forgetful on the dosing time and this appeared to be one of the factors that lead to non-compliance among RVD pediatrics.

Conclusion
There were many factors that caused non-compliance among RVD pediatrics. Cooperation between the caregivers and pharmacists was necessary to provide the pediatrics a healthier life. Furthermore, pharmacist plays an important role in enhancing the patient’s compliance since the compliance to HAART therapy was improved after counseling was given to the caregivers.
PP-08 Dengue Outbreak at Kg. Perupok, Bachok

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Introduction
On 31st May 2010, an outbreak of dengue was identified at Kg Perupok, Bachok, Kelantan. The second and third case was notified on 29th May, 2010 by passive case detection. Outbreak was declared on 1st June, 2010. Kampung Perupok was a traditional and agriculture village located at Mukim Perupok with a population of 1330 peoples and 241 houses. Majority of them involved with agricultural and fishing activities.

Objectives
The aims of the the study were to identify the source of outbreak, the epidemiological link and to implement the control measures.

Methods
The case definition was those who had high grade fever and/or headache, retro-orbital pain, myalgia, arthralgia and rash from 18th May 2010 till 12th June 2010. Case investigation, case findings, laboratory investigation and environmental investigation were conducted.

Results
There were 3 cases, 2 females and a male students aged between 11 to 17 years old. Hundred percent of them had fever and myalgia. Eighty percent of them had headache, arthralgia (66.7%), vomiting (33%) and rash (20%). All cases were notified by health clinics within 3 days. All cases were admitted to ward. Laboratory results showed 1 case was IgM positive. The source of infection was localised due to presence of potential area for breeding places such as abandoned plastic container, in the left boat and broken glasses. The aedes index in these area was 2.6%.

Conclusion
The outbreak was controlled within 14 days. The control and prevention activities were effectively and efficiently done. Ovitrap survey after the control activities done were 0%. Control activities for epidemiological link also done.

Keywords: Dengue fever, outbreak
“Love to Eat Puffer Fish, but do you know about Tetrodotoxin Poisoning?”

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Introduction
Puffer fish poisoning was common, however action to prevent death due to poisoning after ingestion tetrodotoxin found in liver, ovaries, intestines and skin of the fish, was rarely taken. Knowledge and good practice in handling of puffer fish will assist consumers to prevent death.

Objectives
This study was conducted to determine the knowledge regarding morphology and poisonous organ of puffer fish, sign and symptoms of puffer fish poisoning, as well as training and good practice in handling of puffer fish.

Methods
A total of 118 people were recruited in a cross sectional study which was conducted on 18th August 2009, during the puffer fish festival in Kg. Mangut Spoah, Betong, Sarawak. Data on socio-demographic, knowledge regarding morphology, poisonous organ, sign and symptoms of puffer food poisoning as well as training and good practice of handling puffer fish was collected using a structured questionnaire.

Results
Among the respondents, Malay (56.8%) was the major ethnic group and 62% received tertiary education. Only 53% eat puffer fish as a dish. Majority knew that puffer fish is poisonous (66.1%) and can cause death (71.2%). A few knew puffer fish has tetrodotoxin (29.7%) and female fish was more poisonous than male fish (22.0%). Regarding morphology of puffer fish, majority knew that puffer fish has big head (78.8%), spine (93.2%) and inflate fish (65.3%). Many did not knew that puffer fish also present in small size (55.0%) and different colour (63.5%). About 64.4% knew that egg (64.4%) was poisonous organ of puffer fish rather than other organ. None had knowledge regarding the sign and symptoms of puffer fish poisoning. Only 9% had undergone training in handling/preparation of puffer fish. About 77% and 68% knew that washing and properly removed internal organ were a good practice of handling puffer fish, respectively.

Conclusion
The knowledge regarding the puffer fish was very low. Health education material such as pamphlet, video and booklet regarding puffer fish should be prepared to increase knowledge among puffer fish lovers, in order to prevent death due to tetrodotoxin poisoning.

Keywords: Puffer fish, Knowledge, Sign and Symptoms, Good Practice
Food Safety and Health Challenges at Entry Point in Penang Port Health Office

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Introduction
The food Act 1983 and its regulations, especially Food Regulation 1985 are the primary legislative documents on food safety activities in Malaysia. Food safety is becoming an important issue in Malaysia due to several events such as demands from importing countries especially for seafood, increased consumer awareness of food safety issues such as genetically modified and irradiated foods, rejection of imported vegetables and fruits to Malaysia due to pesticide residues, emerging and reemerging disease due to resistant microorganisms etc. Penang Port Health office is responsible for overall technical supervision of food consignment activities using FoSIM which include food sampling activities at entry point (Penang Port).

Objectives
The study was conducted to measure the status of food sampling at entry point in Penang Port Health Office and to suggest recommendations towards an improvement of food safety at the entry point.

Methods
Cross sectional study design was conducted in 2009. About 1821 (38.5%) food consignment sample been taken throughout the year 2010 and were sent for analysis. Review all the analysis results done in February 2011.

Results
A total of 771 food consignment been taken for sampling throughout the year 2010 at Penang Port. Fifty-six (7.2%) of the sample found to be violated and majority of the violated sample was seafood. Most of the result of the analyzed food was back after 2 months, which resulted in the failure to recall the consignment especially at level 3 FoSIM.

Conclusion
The most important to ensure the food safety at entry point is the effectiveness of the system from sampling and result retrieved. Effort should be done for improvement to ensure food safety at all level.
Penilaian Status Pemakanan Pelajar Sekolah di Daerah Bachok pada 2010

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Pengenalan
Pemakanan yang sesuai membolehkan pelajar mencapai pertumbuhan yang optimum. Status pemakanan pelajar dapat dinilai berdasarkan lengkuk pertumbuhan mereka (berat dan tinggi). Penilaian pertumbuhan pelajar sekolah di daerah Bachok adalah penting untuk memberi gambaran status pemakanan pelajar Bachok secara keseluruhan. Penilaian ini dapat juga melihat peluang intervensi sekiranya terdapat isu pemakanan dalam kalangan pelajar sekolah.

Objektif
Untuk menilai status pemakanan pelajar sekolah di daerah Bachok dan membandingkan status pemakanan pelajar Tahun 1, Tahun 6 dan Tingkatan 3.

Metodologi
Kajian deskriptif ke atas 9252 pelajar sekolah yang terdiri daripada pelajar Tahun 1, pelajar Tahun 6 dan pelajar Tingkatan 3. Kaedah pensampelan universal digunakan dimana semua pelajar merupakan pelajar yang telah diperiksa oleh jururawat. Sebanyak 34 buah sekolah rendah dan 19 buah sekolah menengah terlibat dalam kajian ini. Pengukuran anthropometri (berat dan tinggi) dilakukan oleh guru sekolah dan direkod dalam buku Rekod Kesihatan Murid. Penentuan status pelajar sekolah dilakukan oleh anggota kesihatan dari Unit Kesihatan Sekolah menggunakan lengkuk pertumbuhan kanak-kanak berat BMI untuk umur dan tinggi untuk umur (WHO 2007). Berdasarkan lengkuk pertumbuhan tersebut status pemakanan pelajar sekolah ditentukan sama ada normal, susut, lebih berat badan, obes atau bantut.

Keputusan
Hasil analisa data menunjukkan 71.22% pelajar sekolah di Bachok mempunyai berat badan normal. 12.04% pelajar mengalami masalah susut berat badan; 11.33% mengalami berlebihan berat badan manakala 5.43% adalah obes. 11.13% daripada keseluruhan pelajar telah terbantut dari segi pertumbuhan. Bagi sekolah rendah, isu utama pelajar Tahun 1 ialah susut berat badan, 16.88%. Kurang berat badan di kalangan pelajar Tahun 6 (10.05%) lebih rendah jika dibandingkan dengan Tahun 1 tetapi berlebihan berat badan menjadi isu utama (13.0%). Bagi pelajar Tingkatan 3 pula isu utama adalah berlebihan berat badan (14.17%).

Kesimpulan
Status pemakanan pelajar sekolah di daerah Bachok masih belum memuaskan. Susut (wasting) berlaku menunjukkan ramai pelajar mengalami masalah kekurangan zat makanan akut. Masalah kekurangan zat makanan secara kronik menyebabkan masalah pertumbuhan terbantut di kalangan pelajar. Dalam masa yang sama isu berlebihan berat badan dan obesiti juga menunjukkan peratusan yang tinggi dan perlu ditangani dengan segera.
Pre-Assessment of Microbiology Quality and Antibiotic Resistance of *Vibrio Parahaemolyticus* from Cockle (*Anadaragranosa*) in Malaysia

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**Introduction**

*Vibrio* species has shown one of the most important bacterial diseases in marine cultured organisms, affecting a large number of species of fish and shellfish. Among well-known species is *Vibrio parahaemolyticus* which associated with cockle and reported as one of the important foodborne diseases in developing countries.

**Objectives**

The study was conducted to determine the microbiology quality of *Vibrio parahaemolyticus* in cockles (*Anadaragranosa*) in Selangor, Perak, Melaka and Negeri Sembilan.

**Methods**

A total of 12 cockle samples were purchased from wet market throughout 3 weeks in September 2009. Out of the 12 cockle samples, 120 isolates were randomly produced and tested for microbiology quality of *V. parahaemolyticus* by growing onto Thiosulphate Bile-Salt Sucrose (TCBS) agar. Tentative colonies of *V. parahaemolyticus* were then examined for biochemical test and antibiotic resistance patterns towards bacitracin, vancomycin, penicillin, chloramphenicol, amikacin, enrofloxacin and ciprofloxacin.

**Results**

The highest mean colony counting value for *Vibrio* grown onto TCBS agar was from Melaka with 4.19 x 10⁵ cfu per gm, followed by Perak (4.15 x 10⁵ cfu per gm), Negeri Sembilan (3.72 x 10⁵ cfu per gm) and Selangor with 1.58 x 10⁵ cfu per gm. Biochemical tests showed 75 isolates were positive for *V. parahaemolyticus* with 29.3% (22/75) isolates were from Perak, 26.3% (20/75) isolates were from Selangor, 22.6% (17/75) isolates were from Melaka and 21.2% (16/75) isolates were from Negeri Sembilan. As for antibiotic resistance pattern, all *V. parahaemolyticus* isolates were resistant toward one or more antibiotic tested with 100% (75/75) isolates resistant toward bacitracin, 99% (74/75) toward vancomycin and 92% (69/75) toward penicillin. Inspite of this, none of the *V. parahaemolyticus* isolates were resistant toward chloramphenicol, amikacin, enrofloxacin and ciprofloxacin.

**Conclusion**

The presence of *V. parahaemolyticus* in all cockle samples with their antibiotic resistance properties was alarming. More samples should be studied in obtaining an accurate view of microbiology quality and antibiotic resistance of *V. parahaemolyticus* in cockle samples in Malaysia.

**Keywords:** Pre-assessment, microbiology quality, *Vibrio parahaemolyticus*, cockles (*Anadaragranosa*)
Brief Study of Histamine Content in Fish around Johor Bahru

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Introduction
Histamine is a member of a group of compounds known as biogenic amines. Biogenic amines are biologically active compounds normally produced by decarboxylation of free amino acids and are present in a variety of foods e.g; fish and fish products, meat, wine, cheese and fermented foods. The presence of biogenic amines in food is used as an indicator of food spoilage. Histamine is produced in fish tissue by the decarboxylation of free histidine by bacteria containing the enzyme histidine decarboxylase with the optimum temperature for histamine production at 25°C. Ingestion of food containing small amounts of histamine has little effect on humans, but in large amounts histamine can be toxic.

Objectives
The objective of this study was to monitor histamine content in fish around Johor Bahru.

Methods
A total of 23 samples were randomly taken from entry points and other locations such as wet market and supermarket around Johor Bahru. Analyzed samples consist of shrimps and 11 types of fishes. Homogenized solid samples were suspended in water and further purified using perchloric acid, filtrated and diluted with water. The extracts later were analyzed by High Performance Liquid Chromatograph with Fluorescence Detector (HPLC-FLD).

Results
Five samples were detected containing histamine within the range of 30mg/kg to 50mg/kg. According to US Food & Drug Administration (FDA) guideline, the hazard action level for histamine is 50mg/kg and therefore, the levels of histamine detected in these samples were within the limit.

Conclusion
The quality of fish sold in the vicinity of Johor Bahru was satisfactory. Further research should be done by increasing the number of samples and expanding the sampling area to reflect the actual situation of histamine content in fish in Johor.

Keywords: Histamine, Biogenic Amines, Fish, High Performance Liquid Chromatograph
**Status Mikrobiologi Sampel Makanan yang dijual di Bazar Ramadhan di Negeri Johor bagi Tahun 2006 hingga 2010**

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*Seksiyen Makanan, Makmal Kesihatan Awam Johor Bahru,*

**Pengenalan**  
Bazar Ramadhan yang dibuka sepanjang bulan Ramadhan adalah bersifat sementara dan didirikan di bawah penyeliaan Pihak Berkuasa Tempatan. Penyediaan dan penjualan pelbagai makanan yang sedia dimakan dalam keadaan suhu bilik dan tempoh penyimpanan yang panjang menimbulkan pelbagai tanda tanya terhadap status kebersihan dan keselamatan makanan yang dijual.

**Objektif**  
Bagi meninjau status kebersihan dan keselamatan makanan yang dijual di Bazar Ramadhan di Negeri Johor.

**Kaedah**  

**Keputusan**  
Secara keseluruhannya peratusan sampel makanan yang tidak memuaskan sepanjang tahun 2006 hingga 2010 adalah diantara 59.4% hingga 81.3%. Koliform merupakan kumpulan bakteria yang paling dominan dikesan hadir di dalam makanan yang dijual di Bazar Ramadhan dengan jutal antara 59.8% hingga 70.0%. Bakteria patogenik seperti E.coli, ‘Coagulase Positive Staphylococci’ dan *Bacillus cereus* dikesan hadir dalam lingkungan 1.6% hingga 29.7%. Bakteria patogenik *Salmonellae* pula dikesan dalam 11 sampel makanan dan tiada sampel yang dikesan untuk kehadiran bakteria patogenik *Vibrio cholerae*. Minuman ringan merupakan kategori sampel makanan paling banyak tercemar dengan mikroorganisma berbanding kumpulan makanan yang lain.

**Kesimpulan**  
Status kebersihan dan keselamatan makanan yang dijual di Bazar Ramadhan di Negeri Johor sepanjang tahun 2006 hingga 2010 adalah kurang memuaskan.

*Katakunci: Bazar Ramadhan, bakteria patogenik, status kebersihan*
Association of Diet Practice with Glycaemic Control among Type 2 Diabetes Mellitus Patients Receiving Treatment from an Urban Health Clinic in Kuala Lumpur

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Introduction
Diabetes is a global epidemic with increasing trend and causing a very significant health and economic burden especially in the developing countries. It is an important public health problem because of its high prevalence and its detrimental squealer. Malaysia has been classified as the fourth highest ASEAN countries in term of number of cases. It was estimated about 1.5 million people suffered from diabetes mellitus in Malaysia in year 2006. The trend is believed to be contributed by multiple factors such as aging population and urbanization that lead to unhealthy diet and lack of physical activities.

Objectives
This study was conducted to determine the association of dietetic practice with glycaemic control among Type 2 diabetes mellitus patients, who received treatment from an urban Health Clinic, in Kuala Lumpur.

Methods
A total of 307 patients with type 2 diabetes mellitus aged 18 years and above were participated in the study. A pre-tested structured questionnaire with guided interview were applied to collect the data. Good glycaemic control was defined as HbA1c level <6.5%.

Results
The prevalence of good glycaemic control was only 27%. The highest percentage of good glycemic control were among male (29.1%), age 60 and above (33.3%), educational level of primary school (35.4%) and those monthly income group between RM1001 to RM1500 (32.0%). In multiple logistic regression, it shows that diet practice for respondents who never dined out having chance in controlling HbA1c 2.9 time higher compared to those who dine out 4 to 6 times a week including take-away and those who occasionally dined out.

Conclusion
Effective interventional health education strategies need to emphasize on changing of eating behavior especially on food items selection in order to achieve the glycemic control among diabetic patients.
Introduction
Intellectual ability and thinking are among the most important quality of the human brain. Foods naturally affect the ability of the brain. Scientific studies show natural neurochemical contents in food can stimulate the ability of the mind, strengthen the memory, reduce stress, and prevent deterioration of the brain.

Objectives
The purpose of this research is to identify the ‘food for the brain’ according to the food that had been listed in the Qur’an such as bananas, grapes, pomegranates, olives, dates, figs, pumpkin meat, fish, milk and honey and its nutrient contents and related scientific reviews.

Conclusion
The finding is significant to classify the foods listed in the Qur’an as food for the brain (brainfood) scientifically.
The Significance of Nutrition in Sahur (Pre-Dawn Meal) and Iftar (Sunset Meal) according to the Teaching of the Prophet

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Introduction
Iftar (sunset meal) is an obligatory while Sahur (predawn meal) is recommended by the Prophet during fasting. However, some of modern Muslims are neglecting the prophetic way during their fasting. The Prophet has strengthened that sahur is a blessed and it differentiates between fasting of the Muslims and other believers and delaying the sahur is a sunnah and the best form of sahur is dates. Moreover, Muslims are recommended to hasten the iftar as soon as the sun sets as it fit nutritionally.

Objectives
This research is to elaborate the significances of sahur and iftar according to the prophetic ways for the Muslims from the Islamic perspective by means of Sharh Hadith (Elaboration of Hadith) and its scientific evaluation.

Methods
The methodology of this study is content analysis from hadith and scientific reviews.

Conclusion
Hence, this study is important to inspire the Muslims to implement the prophetic ways of sahur and iftar in their fasting routine for the sake of Allah and reap the spiritual and nutritional benefits of it.
Nutritional Status And Food Practices Of Breast Cancer Patients Prior To Chemotherapy.

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Introduction
Breast cancer is the most common cancer among women worldwide accounting for 16% of all female cancers1. In Malaysia, between 2003 to 2005, breast cancer was the top overall cancer (18%), followed by cancers of the large bowel (11.9%), lung (7.4%), cervix uteri (6%) and leukaemia (4.9%). It was the most common cancer in females of all races (31.3%), and also the leading cause of death due to cancer among Malaysian females in Malaysia2.

Objectives
This study aimed to determine the food practices (dietary intake, food consumption pattern and food beliefs) of breast cancer patients in six public hospitals in Malaysia.

Methods
A cross-sectional study was conducted among 113 breast cancer patients at six public hospitals in Malaysia. Sociodemographic data was collected from face-to-face interview, while clinical characteristics were traced from the medical records. Dietary intake was assessed using the 24-hour dietary recall. Food frequency questionnaires (FFQs) comprising 71 food items were used to evaluate food consumption pattern (habitual intake) of the respondents. Food beliefs were collected by using structured questionnaire.

Results
Of the 122 eligible patients approached, 113 (92.6%) were participated. Mean energy and protein intake was 1543.4 ± 474.3 kcal/d and 57.5 ± 19.6 g/d, respectively. Majority (72.6%) of the respondents had food beliefs, and foods frequently avoided from their diets included red meat, seafood, chicken and eggs. The main reasons of avoidance of certain foods were: (1) they would worsen the cancer; (2) foods caused itchiness and (3) foods delayed wound healing. The top five foods consumed daily were rice (91.7%), green leafy vegetables (68.8%), marine fish (56%), fruits (53.2%) and caffeinated drinks (41.3%). The most frequently used cooking methods on daily basis were deep-frying (48.6%), boiling (34.9%) and steaming (15%).

Conclusion
Both positive and negative food practices were found among breast cancer patients. The energy and protein intake of the study population was sub-optimal, while food beliefs were commonly practiced by the breast cancer patients.
BMI Status Of Health Workers in Pejabat Kesihatan Daerah Machang, Kelantan : A Baseline Data

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PKD Machang

Introduction
Body Mass Index (BMI) was calculated using weight and height measurements among eligible health workers aged 22 - 58 years in Pejabat Kesihatan Daerah Machang, Kelantan. BMI is used as a screening tool to identify possible weight problems for adults.

Objectives
The BMI Status of Health Workers In Pejabat Kesihatan Daerah Machang, Kelantan : A Baseline Data screening was conducted in 2008 to develop a database of BMI status among health workers in Pejabat Kesihatan Daerah Machang, Kelantan and also to compare BMI between gender.

Methods
Weight was recorded using digital scale and height was measured using SECA Body meter Model 206. The classification of weight status was using Body Mass Index (BMI) (WHO 1998).

Results
Out of 186 respondents, the proportion having normal BMI (BMI 18.5-24.9kg/m2) was 40%, with 37% in men and 43% in women. The prevalence of underweight or chronic energy deficient (CED), (BMI<18.5kg/m2) was 4%, the level for men 3% and 4% in women. Meanwhile, 41% of the respondents were overweight (BMI 25.0-29.9kg/m2). Overweight prevalence was higher in men 44% compared to women 39%. The study also identified 15% of the respondents as obese (BMI>30.0kg/m2). Men had higher obesity prevalence at 16% than women at 14%.

Conclusion
In conclusion, in order to create a healthy environment and to improve the nutritional status of the health workers, everyone is responsible to change their eating habit and physical activity. The health workers should be the role models to the community in keeping the healthy environment. Interventions need to be carried out before more serious complications of obesity become rooted in this community.
Meningkatkan Tahap Penglihatan di Kalangan Pesakit Ambliopia di Jabatan Oftalmologi, Hospital Kuala Krai

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Pengenalan

Objektif
Kajian irisan lintang telah dilakukan dari Jun 2009 hingga Mei 2010 untuk menilai peningkatan VA pesakit ambliopia yang membuat rawatan pengatupan, mengenalpasti punca-punca tidak komplians dan menilai keberkesanan tindakan penambahbaikan.

Metodologi

Keputusan
Melalui langkah-langkah penambahbaikan yang tersebut, kami telah berjaya meningkatkan peratusan komplians pesakit terhadap rawatan pengatupan dari 7% kepada 62%. Hasilnya peningkatan VA di kalangan pesakit ambliopia telah bertambah baik dari 12% kepada 65%.

Kesimpulan
Keracunan Makanan selepas Hidangan Rancangan Makanan Tambahan di Sekolah Kebangsaan Legeh, Jeli, Kelantan pada 28 September 2010

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Pejabat Kesihatan Jeli

Pengenalan

Objektif
Kajian ini diadakan untuk menentukan masa, tempat dan sifat karakteristik pesakit yang terlibat, menentukan punca kejadian wabak dan menjalankan tindakan kawalan serta pencegahan.

Metodologi

Keputusan
Seramai 296 murid-murid yang layak menerima bantuan Rancangan Makanan Tambahan (RMT), tetapi hanya 94 orang murid saja yang telah makan makanan tersebut pada pagi pukul 7.15 pagi 28/09/2010. Seramai 21 pelajar telah sakit (kadar serangan, 22.3%) di mana sembilan orang (43%) dari yang sakit telah mendapatkan rawatan dan dirawat sebagai pesakit luar di Klinik Kesihatan Ayer Lanas. Semua kes adalah berbangsa melayu yang berumur diantara tujuh hingga 12 tahun dengan median (IQR) adalah sembilan (tiga) tahun. 19 orang daripadanya ada pelajar perempuan (90.5%). Kesemua gejala yang dialami adalah ringan iaitu bilangan yang mengalami sakit perut; 20 (95.24%), loya; enam (28.57%), muntah; lima (23.81%), cirit birit; lima (23.81%) dan pening; empat (19.05%). Jangkamasa inkubasi min, median dan maksima adalah singkat iaitu 45 minit, 1 jam dan 2 jam 45 minit. Markah pemeriksaan kebersihan premis adalah 72.8%.

Kesimpulan
Usage of Cashew Leaf Extract (*Anacardium Occidentale*) as Antifungal Agent to Cure Fungal Diseases

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Introduction
*A. occidentale* is one of the common species that grow and distribute in Malaysia, usually in sandy area near beach. Cashew nut shell liquid that derived from *A. occidentale* has several uses such as the control of mosquitoe larvae and schistosomiasis vectors, and as an antimicrobial agent. For the antifungal activity, no research yet has been carried out on the antifungal effect of all parts of this plant.

Objectives
A prospective study to test the hypothesis that the antifungal activity of cashew leaf extract (CLE) was effective among highest concentration of CLE, followed by moderate concentration of CLE onto the growth of fungi tested.

Methods
Mould fungus such *Curvularia* sp., *Microsporum nanum*, *Fusarium subglutinans*, *F. proliferatum* and *Sporothrix* sp. were inoculated onto two types of CLE concentration; 20 ml of Sobauraud Dextrose Agar (SDA) added with 2.5 ml CLE, 20 ml of SDA added with 5.0 ml CLE, and 20 ml of SDA (for control). A total of three replicates for each fungi and each CLE concentration were observed for analysis after seven days incubation.

Results
Both highest (5.0 ml CLE) and moderate (2.5 ml CLE) concentrations of CLE give retardation to the growth of *M. nanum* and *Sporothrix* sp. There was significant effect of mean differences of *M. nanum* on moderate concentration (by 1.880 cm of control); and highest concentration (by 1.880 cm of control) at 0.05 level of significant. There was also significant effect of mean differences of *Sporothrix* sp. on moderate concentration (by 3.030 cm of control); and highest concentration (by 3.030 cm of control) at 0.05 level of significant. While there were no significant effect of mean differences of both concentrations onto *Curvularia* sp., *F. subglutinans* and *F. proliferatum* at 0.05 level of significant. In highest concentration, the percentage of mycelia inhibition for *Curvularia* sp. was 42.0%, *F. subglutinans* (21.9%) and *F. proliferatum* (28.5%). In moderate concentration, the percentage of mycelia inhibition for for *Curvularia* sp. was 29%, *F. subglutinans* (8.8%) and *F. proliferatum* (13.9%). CLE is effective against *M. nanum* and *Sporothrix*.

Conclusion
Future study is needed to further evaluate the usefulness of this substance as potential antifungal agents.
Pandemic Influenza A H1N1 2009: The Experience Of Rural State, Kelantan

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Introduction
Influenza A H1N1 2009 virus was first identified in the US on April 17 2009. On June 11, the WHO raised the level of influenza pandemic alert phase 6, reflecting widespread transmission in general population globally. On 10th August 2010, WHO has declared the pandemic was over.

Objectives
The aim of this study was to review the epidemiological characteristic of Pandemic Influenza A (H1N1) 2009 in Kelantan.

Methods
All cases of Influenza A (H1N1) during pandemic 2009 captured in the Surveillance System data based were enrolled in this study. A case was defined as those with laboratory confirmed Influenza A (H1N1) virus infection by real-time RT-PCR. A cluster of cases was defined as more than one cases of Influenza A (H1N1) with an epidemiological link within one incubation period. A line listing was established and data was analyzed using SPSS version 16.

Results
Of 695 cases notified, majority was from the capital state of Kota Bharu and 540 (76.92%) needed hospitalization. There was no preponderance for any gender. More than 70% of cases were less than 24 years old. Fever was the most common presenting symptom (88.05%). The mean duration taken from onset of symptoms to seeking treatment was 1.78 ± 2.31days. Ninety clusters were notified, in which 33.33% were in Kota Bharu district. The total number of cases from the cluster was 1,958. Out of this number, 225 throat swabs were sent to the laboratory and 67.56% was positive. All the clusters were controlled within 14 days.

Conclusion
Even though majority of cases seek early treatment, however 76.92% of them met the admission criteria. The disease affected mainly the younger age group with fever as the main presenting symptom. All the clusters were controlled within 14 days.

Keywords: Pandemic Influenza A (H1N1), epidemiology, cluster, Kelantan
Distribution of Diarrheagenic Escherichia Coli from Food Samples in Malaysia

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Introduction
Escherichia coli can be subdivided into pathological groups according to the main features of the induced disease. One of these pathogroups, commonly referred to as Diarrheagenic E. coli (DEC) includes E. coli strains which cause gastroenteritis in humans and animals. DEC pathotypes, in particular some strains of Verocytotoxic E. coli (VTEC) are pathogens of significant public health concern and have been the subject of epidemiological studies for some time. While there is significant data available on the VTEC pathotype such as Enterohaemorrhagic E. coli (EHEC), there remains a gap in knowledge surrounding the remaining pathotypes; such as Enteropathogenic E. coli (EPEC), Enterotoxinogenic E. coli (ETEC), Enteroinvasive E. coli (EIEC), Enteroaggregative E. coli (EAggEC) and Diffusely adherent E. coli (DAEC).

Objectives
To determine the distribution of public health importance diarrheagenic Escherichia coli (E. coli) strains which includes enterotoxinogenic E. coli (ETEC), enteropathogenic E. coli (EPEC), enterohemorrhagic (EHEC) and enteroinvasive E. coli (EIEC) from food samples including foodstuffs associated with E. Coli outbreaks, from January 2005 through December 2010.

Methods
A total of 4,343 E. coli isolates were received from Makmal Kualiti dan Keselamatan Makanan (MKKM) throughout Malaysia from year 2005 to December 2010. All E. coli isolates were serotyped according to the modified Kauffman serotyping scheme. Serotyping were carried out at Ipoh Public Health Laboratory (IPHL), as part of National Lab-Based Surveillance System for Infectious Diseases, Ministry of Health Malaysia.

Results
A total of 252 (5.8%) diarrheagenic E. coli strains were successfully identified among the 4,343 E. coli isolates from food samples at IPHL, while non diarrheagenic E. coli and contaminated isolates were 3,740 (86.1%) and 351 (8.1%), respectively. Among the diarrheagenic E. coli strains, enterotoxinogenic E. coli (ETEC) was identified as the most common diarrheagenic strain (71.83%), followed by EPEC (13.5%), EHEC (11.9%) and EIEC (2.8%).

Conclusion
Enterotoxinogenic E. coli (ETEC) was the most common diarrheagenic E. coli strains isolated from food samples received. Water related food samples were identified as the main source of diarrheagenic E. coli strains infection in Malaysia. Distribution of diarrheagenic E. coli strains in food samples in Malaysia differs markedly from those reported in other countries and seems to be related to different types of food products and reservoirs.
Pencapaian Perlaksanaan Kursus Latihan Pengendali Makanan (LPM) oleh Sekolah Latihan Pengendali Makanan (SLPM) di Negeri Kedah 2009-2010

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Bahagian Keselamatan dan Kualiti Makanan Jabatan Kesihatan Negeri Kedah

Pengenalan

Objektif
Kajian ini bertujuan untuk menunjukkan bilangan pengendali makanan yang telah dilatih di negeri Kedah sepanjang tahun 2009 sehingga 2010, bilangan pengendali makanan yang telah dilatih mengikut Sekolah Latihan Pengendali Makanan (SLPM) di negeri Kedah dan bilangan pengendali makanan yang telah dilatih mengikut kategori premis makanan di negeri Kedah

Metodologi
Jabatan Kesihatan Negeri Kedah bertanggungjawab memantau perlaksanaan kursus latihan pengendali makanan yang dikendalikan oleh SLPM di seluruh negeri Kedah melalui lawatan pemantauan serta laporan audit harian dan bulanan yang dihantar oleh SLPM yang menjalankan kursus latihan pengendali makanan di negeri Kedah.

Keputusan

Kesimpulan
Bagi memenuhi hasrat kementerian untuk memastikan 100% pengendali makanan terlatih di seluruh Malaysia pada tahun 2012, ternyata masih banyak usaha perlu dilakukan oleh semua pihak terutama promosi kepada semua pengendali makanan di seluruh Malaysia serta penambahbaikan ke atas modul yang sedia ada dari masa ke masa.
Meningkatkan pengesanan kes Impaired Glucose Tolerance (IGT) dan Diabetes Mellitus (DM) di Kalangan Ibu dengan GDM di Klinik Kesihatan Labok.

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Klinik Kesihatan Labok

Pengenalan
Gestational Diabetes (GDM) adalah merupakan salah satu faktor penyumbang kepada peningkatan kes Diabetes di Malaysia. Dianggarkan terdapat 7-8% daripada kes antenatal mengalami GDM. Pesakit GDM berisiko untuk mendapat Diabetes sebanyak 20-50% dalam tempoh 5-10 tahun.

Objektif
Kajian dijalankan untuk Meningkatkan pengesanan kes IGT dan DM melalui ujian Modified Glucose Tolerance Test (MOGTT) postnatal 6 minggu.

Metodologi

Keputusan
Hasil kajian mendapati, seramai 23 kes GDM postnatal 6 minggu pada tahun 2008 dan 22 kes pada tahun 2010. Pada tahun 2008, hanya 2 (8.7%) yang menjalani ujian MOGTT manakala pada tahun 2010, 17 (77.3%). Pada tahun 2008, kesemua keputusan MOGTT adalah normal. Manakala pada tahun 2010, 5 (29.4%) adalah IGT dan 1 (5.9%) adalah DM.

Kesimpulan
Kajian yang dijalankan telah berjaya membawa kepada peningkatan pengesanan kes IGT dan DM melalui peningkatan bilangan ibu GDM menjalani ujian MOGTT postnatal 6 minggu.
Return of Unwanted Medicines in OPD Pharmacy, HRPZ II

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Introduction
There are many unwanted medications but only a fraction of them are returned to the hospital.

Objectives
Therefore a research on the return of unwanted medications was carried out in the OPD Pharmacy HRPZ II to determine the reasons and types of medications that are returned to hospital. Secondly, the research intends to improve the awareness of the community on consequences of unwanted medications stored at home and to increase their return to the hospital.

Methods
Data was collected by collecting data regarding returned of the unwanted medications’ returned to the OPD pharmacy HRPZ II and structured questionnaires. Total participants in the survey is 86.

Results
The total saved cost from the return of unwanted medications in this research was RM21703.83. 76% of the participants did not know about this service. Majority of those who knew about this service learned about it from pharmacists. Most of the patients return unwanted medications due to changes in the treatment. Medicines were kept for future used and live far from hospital were two most common reasons given by patients who did not return the unwanted medications to the hospital.

Conclusion
The return of unwanted medications service can help save cost. However, 76% of the participants are unaware of such service at the time of study. Therefore, further promotion on the availability and importance of this service should be done to increase awareness.
Status of Residual Level for Triphenylmethane Dyes in Fish and Fish Products in Malaysia

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Introduction
Triphenylmethane dyes namely Malachite Green (MG), Leucomalachite Green (LMG), Crystal violet (CV) and Leucocrystal Violet (LCV) are found to be illegally used as fungicides and ectoparasiticides in fish farming in many countries. The MG and its leuco form are potentially carcinogenic and the usage was prohibited in many countries including. Food and Drug Administration (FDA) and the European Commission (EC) requires that methods should be able to determine the sum of parent drugs (MG, CV) and their leuco forms(LMG, LCV) at the minimum required performance limit of 1μg/kg and 2 μg/kg respectively.

Objectives
This study was conducted as a continuous monitoring for the misused of triphenylmethane dyes in fish and fish products in Malaysia.

Methods
A total of 232 samples were taken from every state in Malaysia from year 2008 until 2011, which included aquaculture products from fish farms, imported fish products from entry point and local products from local food stores. The samples were analyzed using liquid chromatography tandem mass spectrometry for quantitation and confirmation of the triphenylmethane dyes. Samples were extracted with McIlvain buffer pH 3, acetonitrile and N,N,N",N"-tetramethyl-p-phenylenediamine dihydrochloride in acidic condition with p-toluenesulfonic acid monohydrate. Samples were cleaned with strong cation exchange solid phase extraction cartridge and analyzed by injected into liquid chromatography tandem mass spectrometry with positive ion applied multiple reaction monitoring. Deuterated malachite green-d5 and leucomalachite green-d5 were used as internal standard.

Results
The limit of quantitation (LOQ) for each triphenylmethane dyes was 0.5 μg/kg. The calibration curves were linear in the range of 0.5 - 10μg/kg for MG, LMG and LCV and 0.5 - 7 μg/kg for CV respectively. The average of 10 recoveries of four compounds for fortified samples at 0.5, 2 and 5 μg/kg was more than 85% with relative standard deviation below 30%. Violative residues of MG, CV, LMG and LCV were found in 16 samples (6.90%), 13 samples (5.60%), two samples (0.86%) and three samples (1.29%) respectively.

Conclusion
Continuous monitoring of triphenylmethane dyes by all related government agencies in the future is very important to protect the people from the violated fish and fish products.

Keywords: triphenylmethane dyes; fish; liquid chromatography tandem mass spectrometry
Kajian Kepatuhan Penulisan Preskripsi oleh Preskriber di Klinik Kesihatan Daerah Gua Musang

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3 Pegawai Kesihatan Daerah Gua Musang

Pengenalan
Kesilapan menulis preskripsi dan mendispen ubat adalah antara kesilapan yang kerap dilakukan ketika mendispen. Kesilapan menulis preskripsi termasuklah penggunaan singkatan yang pelbagai, kekurangan maklumat penting seperti identiti pesakit, tarikh preskripsi, diagnosis, cara pengambilan dan jangka masa ubat perlu diambil.

Objektif
Kajian ini bertujuan untuk menganalisa kepatuhan dalam menulis preskripsi di klinik-klinik di bawah PKD Gua Musang. Kajian ini tidak menganalisa ketepatan dalam menulis preskripsi tetapi menganalisa kesempurnaan dalam melengkapkan preskripsi sebagai faktor risiko yang menyumbang ke arah kesilapan preskripsi.

Metodologi

Keputusan
Kajian mendapati nombor kad pengenalan merupakan perkara yang sering tidak ditulis di dalam preskripsi. Ini diikuti dengan perihal diagnosis penyakit. Dan hasil kajian ini adalah sama bagi kedua-dua buah klinik. Daripada kajian ini, secara tidak langsung dapat diketahui bahawa 78.5% ketidakpatuhan menulis preskripsi dilakukan oleh penolong pegawai perubatan/jururawat kesihatan/jururawat masyarakat, 15.5% oleh pegawai kesihatan dan perubatan, manakala bakinya oleh pakar perubatan keluarga. Secara purata, 3 jenis ubat telah ditulis di dalam preskripsi yang tidak ditulis diagnosis penyakit, dengan bilangan paling minimum sebanyak 1 jenis ubat dan 7 jenis ubat bagi bilangan maksimum.

Kesimpulan
Kegagalan menulis perihal-perihal di dalam preskripsi boleh menyumbang kepada kesilapan memberi penerangan kepada pesakit ketika mendispen ubat. Bilangan pesakit yang ramai menjadi antara faktor penyumbang kepada ketidakpatuhan ketika menulis preskripsi. Selain daripada itu, tahun pengalaman berkhidmat juga mempengaruhi keputusan terutama ketika menulis diagnosis penyakit.
Qualitative Study to Determine the Barriers and Enabling Factors for Good Nutrition among Post Graduates International Students at The University of Southampton

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Introduction
Developing or maintaining a healthy lifestyle among young adults is important. This can be a challenge for international students as many take on sole responsibility for their own food and lifestyle decisions for the first time on arrival in Southampton. They may lack experience around food, particularly meal preparation and food shopping.

Objectives
This study aimed to determine the barriers and enabling factors that affect dietary intake and physical activity among post graduate international students at the University of Southampton.

Methods
Qualitative research methods were used. Data were obtained from 24 respondents from 11 countries through 7 topic-led focus group discussions during June and July 2010.

Results
Lack of both time and cooking skills as well as poor access to familiar foods were barriers to preparing healthy food. Irregular meal patterns led to meal skipping, more snacking and fewer main meals per day. The lack of time to prepare and cook food resulted in greater use of convenience foods, either fast food or frozen food. In contrast, the abundance of fresh fruit and vegetables enabled good dietary practices. Time constraints and low self efficacy discouraged students from being actively involved in physical activity and sports on a regular basis. However, the favourable summer weather did encourage some students to pursue physical activities.

Conclusion
The barriers to pursuing a healthy lifestyle for international students outweigh the enabling factors. By detecting the constraints and enabling factors, several approaches were identified to help international students adjust to a new life in Southampton. These included developing a map showing the grocery stores and recreational facilities in the areas where students live; introducing the options for online food shopping; and creating a recipe book for international students showing what fruits and vegetables can be used as substitutes for foods that would be used at ‘home’. Other options to promote healthier lifestyles include collaborating with the university cafeteria to provide a healthy food environment and free trial classes at the sport’s centre.
Research Highlight: An Experience Through ‘Patient Safety Research- Dental Safety’

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Introduction
Patient Safety Research was a WHO initiated project under the Evidence - Informed Policy Network (EVIPNET). Research Highlight is a short document that presents the findings and recommendations of a research project to a non-specialized audience. It is a medium for exploring an issue and distilling lessons learned from the research. It acts as a vehicle for providing policy advice. However, it focused on a single topic (out of the few/many other objectives of the study).

Objectives
This paper shall illustrate the components/steps involved in constructing a Research Highlight.

Methods
This is a summary of descriptive steps at the end of a research project; which the author experience as a member of the Research Group; which was coordinated by the Institute for Health System Research, Ministry of Health, Malaysia. Selected members of the groups went to a workshop in Melaka from 30 Nov - 4 Dec 2009, and at the end of workshop each groups presented their research highlights to the panel.

Results
Final Research Highlight of the Dental Group shall be shown as an example.

Conclusion
The experience was a very precious and may come only once in a lifetime. However, the sharing of knowledge to fellow researchers and colleague by the presenter is inevitable.

Keywords: Research Highlight, Institute for Health System Research
PP-32  Wabak Tifoid di Taman Muhibbah Beaufort - Kitaran Ghani- 2010

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Pengenalan

Objektif
Aktiviti siasata dan kawalan penyakit dibuat di rumah indeks kes untuk mengenalpasti punca jangkitan.

Metodologi
Bilik gerakan dibuka pada 1 Oktober 2010 selepas menerima notifikasi 2 kes demam tifoid dari Sabah Medical Centre dan kes berasal dari Taman Muhibbah Beaufort. 4 pasukan siasatan dan kawalan ditubuhkan untuk membuat siasatan dan kawalan. Jumlah keseluruhan kes demam tifoid adalah 9 kes yang melibatkan 6 lokaliti, hanya 3 kes sahaja yang disahkan (confirm) melalui ujian ‘Blood C&S’ positif manakala 8 kes lagi adalah kes berkemungkinan (probable) yang disahkan melalui ujian serologi positif dan najis negatif. Wabak diisytiharkan bebas pada 29 November 2010.

Keputusan

Kesimpulan
Pelbagai cadangan telah dikemukakan untuk mengatasi masalah demam tifoid dan antaranya ialah mengenai suntikan Typhim yang mana ditetapkan syarat wajib bagi semua pengendali makanan dan tiada pengecualian samada kawasan tersebut endemik atau pandemik.
Kejadian Keracunan Makanan Ciguatera di Jalan Tenom, Keningau.

Mohd Shymer AH; Marsudi M
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Pengenalan

Objektif
Untuk mengenal pasti sejauh mana keracunan makanan yang berlaku di Kampung Batu 27 Jalan Tenom, Keningau pada 20 april 2010 adalah disebabkan toksin *ciguatera*.

Metodologi

Keputusan

Kesimpulan
Kes keracunan cigua-toxin pada makanan hasil laut sering berlaku namun ianya kerap dimisdiagnosa akibat kekurangan pengetahuan tentang toksin ini seperti sumber toksin, kesan pada tubuh pesakit dan sebagainya. Adalah diharapkan artikel ini dapat membantu anggota kesihatan untuk mengetahui serba sedikit tentang kejadian keracunan cigua-toxin.
Wabak Keracunan Makanan di Sekolah Menengah Kebangsaan Agama Melor, Mukim Peringat, Kota Bharu, Kelantan 30 September, 2010

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Pengenalan
Satu episod keracunan makanan telah berlaku di kalangan pelajar yang tinggal di Asrama Sekolah Menengah Kebangsaan Agama Melor, Kota Bharu Kelantan pada 30 September 2010.

Objektif
Kajian kes-kontrol telah dilakukan untuk menentukan punca penyebab keracunan makanan, kaedah penyebaran, faktor risiko yang menyumbang kepada kejadian keracunan makanan serta menyarankan tindakan pencegahan dan kawalan yang bersesuaian.

Metodologi
Kajian melibatkan seramai 310 orang pelajar SMK(A) Melor dengan menggunakan borang soal selidik yang telah disediakan. Penyiasatan persekitaran dan ujian-ujian makmal dijalankan untuk menentukan penyebab keracunan makanan.

Keputusan
Hasilnya seramai 190 orang pelajar didapati sakit dengan kadar simptom, sakit perut 70.5%, cirit birit 53.7%, pening 35.8%, loya 43.7% dan muntah 20.5%. Keluk epidemik menunjukkan satu punca jangkitan dan ianya berkemungkinan besar adalah dari makanan yang dihidang semasa makan malam yang bermula jam 6 petang 29 September, 2010. Makanan yang disyakki adalah ayam goreng berempah berdasarkan kepada simptom, masa inkubasi dan analisis statistik (OR:1.39;0.75-2.59). Analisia HACCP mendapati kontaminasi berlaku semasa penyediaan ayam goreng. Tempoh masa (holding time) melebihi 4 jam, pengendali yang tidak higenik dan pencemaran malar merupakan faktor penyumbang kepada kejadian ini. Agen etiologi yang disyakki ialah *Staphylococcus aureus* memandangkan waktu pengeraman yang singkat. Pemeriksaan dapur asrama mendapati kadar kebersihan adalah 79.9% pada hari kejadian berbanding 86.8 % pada pemeriksaan pertama yang dijalankan pada 11 Mac 2010.

Kesimpulan
Beberapa tindakan telah dilakukan termasuk penutupan premis, rawatan keatas kes, pemeriksaan semula pengendali serta taklimat semula pengendali makanan yang akan meneruskan pengendalian makanan di premis ini.
Tifoid Marry in Kg Nara, Pasir Puteh

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Introduction
On 3.30pm, 25 December, 2010, Pasir Puteh District Health Office received a notification of second confirmed typhoid case involving a family in Kg Nara, Pasir Puteh, Kelantan.

Objectives
An investigation was undertaken to determine source of outbreak and recommend control measures.

Methods
Cases were those with prolong fever more than 7 days AND one or more symptoms of headache, malaise, loss of appetite, diarrhoea/constipation or hepatosplenomegaly AND had history of having meals related to the food taken of index case from 10/11/2010 till 14/02/2011 AND positive for Salmonella typhi either blood or stool culture. Active case detection was carried out to determine more cases. Environmental investigations were carried out which include sampling and testing the water supply and food for salmonella typhi.

Results
It was a mixed type outbreak; propagated followed by common source outbreak with an attack rate of 75% involving 6 out of 8 family members. All of 6 cases were confirmed by positive blood culture and discharge well without complications. The source of infection was either contaminated food sold by hawker (evidenced by positive food testing for salmonella spp) or from a carrier in the family who prepared the food for family. Environmental investigation revealed source for drinking water was unsanitary. The well was closed under CDC act 1988 and safe water supply was supplied.

Conclusion
Presence of typhoid carrier among family member lead to the outbreak of typhoid involving 6 cases within a family and contributed by contamination of salmonella typhi of drinking water supply by sewage.
Comparison of Bacterial Contamination in Beef Samples Obtained from Government Abattoirs and Backyard Slaughter in Kelantan (2009-10)

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Introduction
There have not been many documented comparisons made in Malaysia between bacterial contamination in beef samples obtained from cattle slaughtered from government abattoirs and backyard slaughterhouses.

Objectives
To compare bacterial contamination in beef samples from government abattoirs and backyard slaughterhouses.

Methods
Data were taken from the Regional Veterinary Laboratory, Kota Bharu for the period of 2009 to 2010. This investigation compares 72 beef samples obtained from two government abattoirs, Kota Bharu Government Abattoir (n=24), Pasir Mas Government Abattoir (n=24) and from various backyard slaughterhouses in Kelantan (n=24).

Results
The Total Plate Count (TPC) and coliform count conducted on the samples were found to be significantly different (p>0.05) between the samples in the 3 different locations. The samples from backyard slaughterhouses had the highest TPC and coliform count consistently for both the years. None of the beef samples were above the maximum limits of TPC (<1.0 x 10^6 cfu/g) as required by Malaysian regulatory standards under the Food Act (1985) but they exceeded the acceptable limits for coliform count (1000 mpn/g). There were no isolate of pathogenic bacteria (S. aureus, Salmonella sp. and Listeria sp.) obtained from the beef samples. Eight E. Coli strains were isolated from backyard slaughterhouses, four strains from Pasir Mas Abattoir and only one strain from Kota Bharu Abattoir.

Conclusion
The study demonstrates that beef from backyard slaughterhouses is significantly poorer in meat hygiene standards as compared to beef from cattle slaughtered in government abattoirs and this may be of public health importance.
Random Amplified Polymorphic DNA-PCR Typing of *Vibrio Parahaemolyticus* Isolated from Smoked Asian Clam (*Corbicula fluminea*)

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Introduction
*Corbicula fluminea* known as “Etak” is a filter feeder and one of the most popular foods for Kelantanese. Bivalves were regarded as potentially hazardous foods because of their inherent tendency to bioaccumulate pathogenic bacteria through filter feeding. The ingestion of bivalves has been frequently associated with food related infectious diseases. *Vibrio parahaemolyticus* is a Gram-negative bacteria and a well known causative agent of gastroenteritis disease and diarrhea in humans after consumption of contaminated raw or partially cooked fish or shellfish, particularly oyster. To date, no database information on genomic properties of *V. parahaemolyticus* strains isolated from Asian clam or Etak in Malaysia.

Objectives
This study was carried out to examine the genetic relatedness of the *Vibrio parahaemolyticus* strains.

Methods
Fifteen strains of *V. parahaemolyticus* were isolated from smoked Asian clam (*C. fluminea*) purchased from a night market in Tumpat, Kelantan. Boiling technique was used to extract the DNA of *V. parahaemolyticus* strains. The strains were typed by randomly amplified polymorphic DNA (RAPD-PCR), using random primers (OPA-11, 785, 786 and 795) to determine the genetic differences. A dendrogram was constructed by the unweighted paired group method of arithmetic average (UPGMA) using NTSYSpc version 2.1 software based on genotypic characteristics of the present isolates.

Results
The dendrogram obtained from the RAPD-PCR results discriminated the isolates into 15 single isolates and 2 clusters at the level of 72% similarity. The RAPD profiles revealed a high level of DNA sequence diversity within the *V. parahaemolyticus* strains tested.

Conclusion
The smoked Asian clams (*Corbicula fluminea*) in the study area are populated by genetically polymorphic strains of *V. parahaemolyticus*. In addition, RAPD-PCR is a simple, robust and sensitive typing methods to differentiate the *V. parahaemolyticus* strains.
Introduction
Dengue virus infection is a public health threat to hundreds of millions of individuals in the tropical regions of the globe. In year 2010, Kelantan had experienced the rapid surge of the cases especially during the epid week 29 - 36.

Objectives
To determine the epidemiological characteristics of the cases and to identify shortfalls in dengue control interventions in 2010.

Methods
A cross sectional study on reported dengue cases in the year 2010, obtained from Dengue Surveillance Data Base (VEKPRO) and analysed using SPSS version 16.

Results
A total of 3578 dengue cases with 11 deaths were reported in the year 2010. The majority of cases were adults, males and in rural areas. There were 228 dengue outbreaks reported, of which 9% were uncontrolled. Fifty percent of the outbreak occurred during epid week 29 - 36 and Kota Bharu reported the highest episodes. The entomological indices were higher compared to 2009. All the Key Performance Indicators failed to achieve the targets. Early diagnosis, properly planned control activities and continuous supervision from the superior and technical officer were important to ensure effective and efficient dengue control activities. As dengue problems were linked to the environmental and public factors, it is vital to have interagency participation and media role for comprehensive dengue control.

Conclusion
A greater understanding on dengue and application of fundamental disease control activities still uphold in addressing dengue problems in Kelantan.
Kajian Perbandingan Tahap Pengetahuan, Sikap dan Amalan Pengendali Makanan Industri Keropok di Kuala Terengganu

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Pengenalan

Objektif
Kajian ini bertujuan untuk menilai dan membuat perbandingan tahap pengetahuan, sikap dan amalan pengendali makanan industri keropok lekor di Kuala Terengganu.

Metodologi

Keputusan
Hasil kajian menunjukkan pengendali makanan kurang berpengetahuan dan sikap yang tidak serius semasa penyediaan keropok.

Kesimpulan
Imej industri keropok boleh dipertingkatkan jika kesemua faktor pengetahuan, sikap, dan amalan digabung pada masa yang betul dan situasi yang tepat. Oleh itu, amalan merupakan aspek penting yang sentiasa perlu dipertingkatkan agar industri keropok terus maju ke hadapan dan boleh melangkau batas jaminan keselamatan makanan dengan piawaian Good Manufacturing Practice (GMP) atau Hazard Analysis Critical Control Point (HACCP).

Katakunci: Keropok, amalan, kebersihan
Knowledge, Attitude and Behaviour Study of Smoking among Dental Personnel

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Introduction
Tobacco cessation programme has been introduced for years including among dental staff. Each year Bahagian Kesihatan Pergigian JKNK conducts “Seminar Berhenti Merokok” for the staff in an attempt to increase awareness on smoking cessation.

Objectives
The objective of this study was to assess the Knowledge, Attitude and Behaviour of smoking among dental staff who attended “Seminar Berhenti Merokok” in 2010.

Methods
This was a cross-sectional study involving 30 male dental staff from all districts in Kelantan who are smokers. A self-administered questionnaire consisted of knowledge, attitude and behaviour was administered and filled-up prior to the seminar session. There were four questions assessing smoking behaviour, nine questions on knowledge and six questions on attitude.

Results
It was found that majority of respondents were cigarette smokers with mean age of start smoking was 20.3 (SD 4.33) years. The mean of total knowledge score was 14.2 (SD 2.13) which the score ranged from 0-18. It was found that most of the respondents knew the bad effect of smoking to general and oral health. The mean of total attitude score was 8.5 (SD 2.67) where the total score ranged from 0-15. Almost all the respondents stated that they wanted to stop smoking because of the bad health and economic effects.

Conclusion
Assessment on their status will be done after six months. More efforts need to be taken to help them to quit so they can help themselves and the community in tobacco cessation programme.
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