



جامعة القدس  
Al-Quds University



al-Quds Bard College  
for Arts & Sciences

**Bard**  
A PLACE TO THINK



1<sup>st</sup>

UNDERGRADUATE  
**RESEARCH**  
CONFERENCE IN  
PALESTINE

APRIL 21  
2 0 1 8

CONFERENCE BOOK

**SURGICAL SITE INFECTIONS IN ONE PALESTINIAN GOVERNMENTAL HOSPITAL IN SOUTHERN WEST BANK: PATHOGEN IDENTIFICATION AND ANTIBIOTIC SENSITIVITY TESTING**

Marwa Al-Sarasra  
Al-Quds University

Surgical site infections (SSIs) are considered a major cause of morbidity and mortality even in hospitals with most modern facilities. SSIs are responsible for longer hospital stay, readmission, outpatient and emergency visits, further surgery, and prolonged antibiotic treatment, which increase the cost. The purpose of this study is to identify bacterial pathogens that cause postsurgical wound infections, from samples collected from patients with post-surgical wound infections attending one Palestinian Governmental Hospital in Southern West Bank and to evaluate their antibiotic susceptibility pattern. Experimental study was conducted during July and August of 2017. Thirty wound swabs were collected from patients who were clinically diagnosed to have postoperative wound infections. Bacterial isolates were identified according to standard microbiological methods. Antibiotic susceptibility testing was applied for all isolated bacterial species according to the Clinical Laboratory Standards Institute (CLSI). Total of 185 patients had undergone different types of general and orthopedic surgery. A follow up procedure of these patients' post-operative surgery was undergone and total of 30 wound were diagnosed clinically to have SSI with percentage of 10.8%. E.coli, MRSA, Enterococcus spp. Were the most serious infection with multiple drug resistance. Wound infections can be avoided by adherence to strict infection control measures, maintenance of proper hand hygiene and optimal preoperative, intraoperative and postoperative patient care. Furthermore, use of newer antibiotics should be used cautiously to treat wound infections and should be used only, after a culture report confirms the pathogen sensitivity. All of this will surely reduce the incidence of SSIs.



# **THE ASSOCIATION BETWEEN STRESS AND THE GENE EXPRESSION OF RELN GENE IN LIVER CANCER CELLS**

Jenan Khalil

Al-Quds Bard College

My presentation will explain my senior project that I have been working on during my last year in college. It will specifically state the effect of cortisone on the expression of reln gene in liver cancer cells. The aim of this study is we will investigate the gene expression of reln gene in liver cancer cells once they have been treated with cortisol. The methodology applied for this project are, cell culture, treatment of cells using cortisone, RNA extraction, designing primers and real time PCR. We have hypothesized that as cortisone level increases reln gene expression in liver cancer cells decreases. Overall, my presentation will include an introduction, methods, objective, significance, results and a conclusion of the work I have been doing.

# **PREVALENCE OF EARLY CHILDHOOD CARIES AMONG 4 YEAR OLD PRESCHOOL CHILDREN IN GAZA CITY: A CROSS SECTIONAL STUDY**

Shaima Naim

University of Palestine (Gaza)

Early childhood caries (ECC) is defined as the presence of one or more decayed, missing, or filled surfaces (DMFt) in any primary tooth in children younger than 6 years of age. The rates of dental caries will be determined with prevalence, and incidence density for risk of caries of a person (ID p ) and of a tooth surface (ID s ). The aim of this study is to determine the prevalence and the most risk factors associated with of dental caries in primary teeth among 4 years old preschool children in Gaza city. A descriptive cross-sectional study will be conducted among preschool children in Gaza city. The study will be done in February and May 2018 in a span of three months. This survey consists of a random sample of 400 preschool children from 14 kindergartens from a total of (285) kindergarten in Gaza city. The age group selected for this study are 4-year-old preschool children. The study design will be a multistage (two-stage cluster) cluster sample in both choosing the kindergarten and classes within it. The sampling be a multistage (two-stage cluster) cluster sample in both choosing the kindergarten and classes within it. After taking ethical approval (official written consent) to carry out the oral health survey and collection of the questionnaire. Each child will be examined in their respective kindergarten by using mouth mirror, explorer, and adequate natural light illumination under sterile conditions. Dentition status will be assessed using the decayed missing filled teeth (dmft) indices (dmft, Greubbell, 1944) along with demographic details. The questionnaire will be distributed along with the concept forms 3 days before the dental examination in order to be filled by the parents. Appropriate and reasonable questions about socio-demographic information, health status and practices of child will be included in the questionnaire to make it more comprehensible for the parents. The data obtained will be statistically analyzed using SPSS version 22. Descriptive and inferential statistics will be presented in the results by presenting frequencies and percentages of



some characteristics of children and determining the association between dependent variable (Dental caries) with other independent variables (Socio-demographic, Health status, and practices) and by using significant tests such as t- test, ANOVA, and Chi- square test.

# COMPLICATIONS OF IRON OVERLOAD AND AUTOANTIBODIES IN B THALASSEMIA PATIENTS IN PALESTINE

Lana Najjar<sup>1</sup>, Oroob Shweiki<sup>1</sup>, Rufayda Sayarah<sup>1</sup>, Manar Abu Farah<sup>1</sup>, Ansam Iyad<sup>1</sup>, Mohammad Asees<sup>2</sup>, Bashar Karmi<sup>3</sup>, Walaa Shamasna<sup>4</sup>, Osama Najjar<sup>5</sup>, Rania Abu Seir<sup>1</sup>

1 Department of Medical Laboratory Sciences, Al-Quds University, Abu Dis, Palestine

2 Palestine Medical Complex, Ramallah Palestine

3 MediCare Laboratories, Ramallah, Palestine

4 Thalassemia Patients Friends' Society, Ramallah, Palestine

5 Palestinian Ministry of Health, Ramallah, Palestine

**Introduction:**  $\beta$ -Thalassemia is an autosomal recessive disorder that results in hypochromic hemolytic anemia. Affected patients are treated by blood transfusion and iron chelation drugs which might lead to immunological abnormalities such as production of autoantibodies. In addition, effective management of iron overload in thalassemia patients is crucial to prevent the bad complications of its excess. Thus, this study aims to assess the efficiency of iron chelating therapy in thalassemia patients by measuring serum ferritin level and the major complications of iron overload. In addition, it aims to investigate the role of iron chelation drugs and blood transfusion in stimulating autoantibodies production.

**Methods:** A total of 79  $\beta$ -Thalassemia patients who were transfusion dependent and/or on iron chelation therapy were recruited. The study was conducted during January and February of 2018. Participants were asked to fill in a questionnaire covering demographic information, frequency of blood transfusion, iron chelation therapy and iron over load-related diseases. Plain Blood samples were also collected from the participants for the measurement of various autoantibodies including ANA, AMA, ANCA, ALKM and CCP in addition to serum ferritin.

**Results:** The male-to-female ratio was almost 1:1 with a median age of 21 years. One fourth of the subjects were from Tulkarem and 13% from Ramallah. Monthly blood transfusion was recorded the highest among

the study population (51.3%). Furthermore, osteopenia and short stature disorders had the highest frequency of this group. Patients utilization of deferasirox were nearly four times higher than defroxamine and there was no significant difference between two drugs in controlling iron overload as reflected by ferritin levels. Most of the patients suffered from iron overload with a median level of ferritin 2129. The major reported iron overload complications were splenectomy (44.4%), followed by osteopenia (27.8%) Antinuclear antibody were found in 3% of multi-transfused patients and who were on iron chelation therapy, however Anti-cyclic citrullinated peptide was detected in 2% of the patients.

**Conclusions:** Palestinian thalassemia patients suffer from several complications which might be due to treatment or to improper management of serum iron.

# EFFICIENCY OF THE DIFFERENT ADSORBENTS (MICELLE CLAY COMPLEX, CLAY, AND ACTIVATED CARBON) FOR PHARMACEUTICAL COMPOUND REMOVAL

Raghad Natsheh  
Al-Quds University

During the last centuries, a lot of pharmaceutical companies were establishments causing water pollution with their chemical toxic wastes, that would eventually contaminate the water resources (Zhou et.al, 2009). These toxic compounds were detected in several studies showing bad effects and high concentrations on the environment such as Caffeine (median–maximum, nanograms per liter: 24.4–564) ( Ho Wing Leung et.al, 2013) The aim of this research is to investigate the efficiency of three different adsorbents (micelle- clay complex, clay and activated carbon(jones, 2005)) to reduce the organic contents of industrial wastewater generated from polluted water. Two experiments were done to determine the efficacy of the previously mentioned adsorbents. The first experiment done was the Batch Experiment, 1000 ppm standard stock solution was prepared from (Aspirin, Paracetamol, and Caffeine). Then, fixed adsorbents weights and various concentrations were prepared at the first stage. At the second stage, various weights and fixed concentrations were also prepared and the influence of contact time for kinetic study was done. Regarding the second experiment, it was a columns experiment with continuous flow. All the final samples were filtered using 0.45  $\mu\text{m}$  milli pore before injection to HPLC instrument with UV detector to separate the three different components. Our results show variation in the removal efficiency of different adsorbents. For instance, clay had the lowest removal percentage and clay complex had moderate removal percentage. Further, granular activated carbon has the highest removal percentage (100% removal) than other adsorbents. In conclusion, performing the adsorption technique had successfully achieved purifying water containing pharmaceutical compounds.



# KNOWLEDGE AND ATTITUDE TO CONTRACEPTIVES AMONG PALESTINIAN WOMAN: A CROSS-SECTIONAL STUDY

Beesan Warasna<sup>1</sup>, Anas Najjar<sup>2</sup>, Sojod Daraghmeh<sup>2</sup>, Anwar Ma'ali<sup>2</sup>, Naeema Rajabi<sup>2</sup>, Maryam Sawalha<sup>2</sup>, Balqees Mustafa<sup>1</sup>, Abrar Ali<sup>2</sup>, Aya Ateeq<sup>1</sup>, Bara'a Ghannam<sup>2</sup>, Belal Ashhab<sup>2</sup>, Georgette Kharoufeh<sup>2</sup>, Mu-hannad Qiq<sup>2</sup>, Salam Abu Sharar<sup>2</sup>, Samaa Al-atrash<sup>2</sup>, and Ahmad Amro<sup>2,3</sup>

1 Faculty of Medicine, Al-Quds University, Jerusalem, Palestine

2 Faculty of Pharmacy, Al-Quds University, Jerusalem, Palestine

3 Project supervisor: Assistant professor of molecular microbiology

**Introduction:** Contraceptives are currently worldwide used, as declared by the World Health Organization, they are provided as one of women rights to ease in family planning decisions. Although, contraceptives have a documented efficiency, it highly depends upon women knowledge and adherence towards the available methods. In this study, we investigate attitudes and knowledge of married Palestinian women towards contraceptives, their knowledge to the available methods and to their side effects. **Methods:** A cross sectional study of 546 Wes-Bank married women of childbearing age between 18 and 50 years old was conducted from January 2017 to January 2018, selected as stratified random sample based on each governorate population. Data collection was conducted using an interview-assisted questioner, that investigates demographical information, unplanned pregnancies, family planning methods, the use instructions and their expected side effects among others. **Results:** Results showed that 86.5% of women reported the use of previous or current means of contraception. Through their marriage life, 39% reported at least one unplanned pregnancy. Within different available methods, Intra-Uterine Device (IUD) was the mostly used with 49.5%. While oral contraceptives (OCPs) represents 31.9%, sterilization 2.4% of married women. Investigation of reasoning behind contraception use showed that organization of pregnancies was the most common reason with 77.5%,

18.8% for having too many children, and 12.2% for economical causes. The study revealed poor knowledge scores on contraceptives use when asked 15 questions about correct use and possible side effects of contraceptives.

# BODY MASS INDEX AND LIFESTYLE HABITS AS PREDICTORS OF HEALTH IN PALESTINIAN ADULTS: A CROSS-SECTIONAL STUDY

Beesan Warasna<sup>1</sup>, Anas Najjar<sup>2</sup>, Sojod Daraghme<sup>2</sup>, Anwar Ma'ali<sup>2</sup>, Naeema Rajabi<sup>2</sup>, Maryam Sawalha<sup>2</sup>, Balqees Mustafa<sup>1</sup>, Abrar Ali<sup>2</sup>, Aya Ateeq<sup>1</sup>, Bara'a Ghannam<sup>2</sup>, Belal Ashhab<sup>2</sup>, Georgette Kharoufeh<sup>2</sup>, Muhannad Qiq<sup>2</sup>, Salam Abu Sharar<sup>2</sup>, Samaa Al-atrash<sup>2</sup>, and Ahmad Amro<sup>2,3</sup>

1 Faculty of Medicine, Al-Quds University, Jerusalem, Palestine

2 Faculty of Pharmacy, Al-Quds University, Jerusalem, Palestine

3 Project supervisor: Assistant professor of molecular microbiology

**Introduction:** Increasing prevalence of obesity has led to rising numbers of hypertension, dyslipidaemia, cardiovascular disease, diabetes mellitus, and other leading conditions. Poor lifestyle, in the form of poor diet and lack of proper sleep and exercise can be attributed to comorbidity and decrease in overall health. Little is known about eating habits, sleeping habits, and the prevalence of obesity in Palestinian adults.

**Methods:** A team of trained medical-students conducted a cross-sectional study of Palestinian adults aged between 18 and 60 years old. Stratified random sample of 2500 adults is selected based on governorates, and an interview-aided questionnaire is used for data collection in addition to measures of weight, height, and waist circumference.

**Results:** 2106 Palestinian adults have been selected with a participation rate of 83%. Preliminary results show that the sample is 43.6% male, 56.4% female with a mean age of 33.2 years (SD=12.8). Mean calculated BMI of the sample was 26.5 (SD=5.6) with a mean height of 1.67m (SD=0.09). Participant distribution according to living area was 39% urban, 53.7% rural, and 7.3% living in refugee camps. The majority of the sample was married (55.3%) or single (42.2%) with the rest being either divorced, widowed. 901 (42.8%) participants had at least 1 child with a mean of 4.56 (SD=2.58) children per participant. 52.3% of the sample

had poor sleeping habits, 74.3% had poor eating habits, and 32.5% of the overall sample were smokers. Hypertension, diabetes, and dyslipidaemia were the most common illnesses reported with rates of 7.5%, 5.1%, and 3.4% respectively.

**CRAWLING MOBILE ROBOT USING REINFORCEMENT LEARNING**

Buthaina Amr & Ruba Sider  
Palestine Polytechnic University

Reinforcement Learning (RL) has created a well-defined niche for its application in robotics, in addition it provides a framework that can help robots autonomously develop control laws and policies to achieve optimization goals of complicated tasks in difficult environments. By allowing the robot to explore the environment and perceived rewards, learning agents discover policies and controllers, often through a trial-and-error methodology. In this project, we will build a crawling Robot that learns to move forward using Reinforcement Learning Algorithm without any previous knowledge of how it will learn. Our robot is mainly made from two servo motors connected to an arm that holds two junctions handling the positioning of the arm along the x and y axis, the x-axis controls the left and right moves and the y-axis control the up and down ones. In addition, an infrared range sensor is needed for measuring the distance that indicated the robot progress in moving. The learning process is done using Q-learning algorithm. It is expected that after the learning process is completed, that the robot will be able to move forward by itself. It will be an Honor for us to participate in the conference to have the ability to learn—to obtain knowledge and improve our thinking skills in building Robots.

# EXPERIMENTAL STUDIES OF MODEL PILED RAFT FOUNDATIONS ON SANDY SOIL

Hamza Elkhazondar  
University of Palestine (Gaza)

In the piled-raft foundation systems the load is assumed to be shared between the piles and raft. Therefore, this improves the ultimate load capacity and reduces settlements in a very economic way as compared with the traditional foundation concepts. The current study presents an experimental investigation on the behavior of piled raft system in sandy soil. A small-scale “prototype” model was tested in a sand box with load applied to the foundation through a hydraulic jack and measured by means of a load cell. The model test tank with the dimensions having length 1000mm, width 1000mm, and depth 1000mm was designed and fabricated to perform the tests. The load versus settlement is observed for different configuration of piled raft system by means of a settlement gauge. Experimental investigations were conducted on six model pile groups of configurations unpiled raft, raft with 1,2, 3, 4, 5 piles for embedded length- to-diameter ratio  $l/d = 32$  into dense sand and space-to- diameter  $s/d = 2.5$ , in parallel and series arrangement. The tests were performed in dry sand obtained from Gaza city, Palestine. The raining technique was used to place the sandy soil. The improvement in bearing capacity for one and two piles only were 15%, and 45% respectively. The result of the other configurations is expected as the number of piles underneath the raft increases, load improvement ratio and settlement reduction ratio increase and percentage of load carried by the raft decreases.

# EXPERIMENTAL INVESTIGATION ON PERFORMANCE OF COLD MIX ASPHALT CONTAINING CEMENT AND RC2 TREATED FILLER

Abdallah Nasr

University of Palestine (Gaza)

Previous studies have revealed the beneficial effects of adding Ordinary Portland Cement (OPC) to Bitumen Emulsion Mixtures (BEMs). These effects were confirmed for some dense graded mixtures based on recipes currently used for hot asphalt concrete mix and being considered for usage in BEMs. On the other hand, Hot Rolled Asphalt (HRA) which is a gap graded mixture is extensively used for surfacing major roads because it provides a dense, impervious layer, resulting in a weather resistance durable surface able to endure the demands of modern traffic loads and providing good resistance to fatigue cracking. This laboratory study describes the development of Cold Mix Asphalt (CMA) by using OPC and rapid-curing asphalt (RC2) instead of conventional mineral filler. CMA can be produced at room temperature by mixing the aggregates with OPC and RC2. The samples were compacted by 75\*2 blows and cured at room temperature for 24 and 48 hours. Stiffness modulus tests were used to assess the mechanical properties while stiffness modulus ratio was determined to assess the water sensitivity of the produced mixtures. The study concluded that there is a considerable enhancement in the mechanical properties of CMA containing OPC and RC2. A 93% aggregate with 1% cement and 6% RC2 mix gives average marshal stiffness of 3.5 KN after 24 hours and 4.5 KN after 48 hours. More interestingly, the new cement treated CRA is found to be comparable with the mechanical properties of the conventional HRA after less than 24 hours.

# **GAS SOURCE LOCALIZATION WITH MOBILE ROBOT**

Jana Rasras & Karmel Shehadeh  
Palestine Polytechnic University

Increasing threats of the leaks of different gasses highlight the need for an efficient detection of hazardous emission sources. New gas source detection systems are developed to detect emissions released by different sources such as fire and toxic gasses in order to prevent different life threatening accidents. The aim of the project is to construct an intelligent system on a mobile robot. This system will enable the robot to locate harmful gas sources in real environments. We will address the gas source localization problem with a mobile robot that is equipped with a laser scanner and a gas sensor. By collecting information from the laser scanner and the gas sensors, and applying data fusion between them, will enable the robot to determine where the gas source is. The software will be deployed on a Raspberry PI microcomputer hosting Robot Operating System (ROS).





# THE SKY GATE SERIOUS GAME

Jumana Sad, Tasneem Jamjoum & Duaa Assaf  
Birzeit University

From our duty to Jerusalem, our motivation and challenge are to create a serious tourism video game which may become a reason to change minds and bring the true picture about Jerusalem as it's an Arab capital city of Palestine into the scene through a different and a new way that will help people to see Jerusalem and walk through it's old city's road like they are actually in it. By simulate the old city of Jerusalem's environment in 3D, and create a story with a new style heroes living inside it and interact with its events and environment in order to achieve the main goals of the game which the most important one of them is letting the player feel like it is actually inside Jerusalem walking between its roads and alleys and see its traditions, customs and to get familiar with some of famous alleys, markets, foods, clothes, people's habits and some historical events and characters about Jerusalem. In this game, the player has to find a box which is hidden somewhere in the old city, he has to follow a map which is divided into pieces that he can collect them whenever he open a door from 8 doors of Al-Aqsa Mosque, so he has to find the keys of the doors first to open them and complete the map, and each door represent a stage and a story, that every story is connected to a certain goal from what we mentioned above to achieve. To end with, this project will target everyone who wants to visit Jerusalem or just seeing it through a new and different perspective.

## SOCIAL SCIENCES

### **THE GEOPOLITICS OF PIXELS; HOW U.S SATELLITES PERFORM THE THEORY OF RESOLUTION AND PIXEL PER MILE POLICY DIFFERENTLY BASED ON U.S. FEDERAL LAWS FOR PROHIBITING FORENSIC INVESTIGATIONS**

Mahmoud Adas  
Al-Quds Bard College

In modern technology, videos and images become to play an essential role in what can be said to be true/certain and what can be described as less visionary and resolved (low-resolution). Resolution standards and Pixel per Mile policy involve around politics, economics, technologies, ideological and cultural values entail a space of determination between the different factor of Material, objects, and protocols. Resolution theory- Rosa Menkman (134- 135). In the study of Resolution, Media landscape becomes more and more critical and controversial as media becomes heterogeneous and never function on its own. Therefore, the study of Resolution in its criterion (frames, number of pixels...etc.) Becomes morally permissible especially when media plays an ethical rule in exclude or include in what can/not be seen and what should/not be seen by users and Audiences. The question is, whether U.S federal government has/had implemented its federal laws, the theory of resolution and pixel per mile policy for Geopolitical Military purposes toward prohibiting forensic investigation for crimes in the areas of wars and conflicts. This research shall benefit the discussion of space and law and how space is being perceived, conceived and then lived based on different political and federal ideologies. In return, the audience should think critically about space and how space is not a space in itself (natural space) but a made space shaped by variety of perspectives and ideologies.

# THE UTILIZATION OF URBAN PLANNING IN ENHANCING DISCRIMINATION

Raghad Adwan  
Al-Quds Bard College

The history of urban planning is linked to the history of the city, the history of the city is known for excluding different groups of people. This presentation is trying to comprehend the paradigm shift that is happening regarding the concept of discrimination and discriminatory methods. The tracking of the paradigm shift is going to happen through arguing that even though urban planning claims to provide equal space to all, it actually enhances class, gender and racial discrimination. From class divisions to gender and race discrimination, urban planning seems to help in embodying and escalating it. Urban planning as an ideal or theoretically is helpful in developing the community, but de facto, it's being utilized to further not so innocent goals. To argue that urban planning is helping everyone, everyone must first participate in the process of planning and decision making.

# HOW PALESTINIANS RUN AWAY FROM POVERTY: PALESTINIAN LABOR IN ISRAELI SETTLEMENTS

Suhaila Owiwe  
Hebron University

In Palestine, Justice is so hard to find unlike other countries. People are poor because they were left behind stateless. There was no state that can guarantee them and their Human Rights. Running away from Poverty can be challenging, especially in Palestine. Options are limited and Safety is not granted, not having a supportive government can cause a lot of difficulties in front of very talented, educated and smart people with potentials. Many of Palestinians try and achieve the highest education levels they can, but when it comes to job opportunities, doors are closed. Therefore, Palestinians fall in the hall of unemployment, which in this case lead to Dirty Poverty. So what can they do? The only way was working in Israeli settlements. Unlike other employees, those Palestinian workers are exposed. They are not protected by any laws or regulations, because of that, both sides- the Israeli and Palestinian-have to work on the law and regulations matter. Israel's ministry of Finance has the obligation of respecting international rules and treaty conditions, and the Palestinian Authority has the obligation of protecting people from poverty by working on its legislative branch and internal issues concerning poverty in the country. Today more than 128.400 worker works in Israel and Israel settlements, therefore, I think we need to discuss this subject to find the suitable solutions.