Under the Patronage of
Prof. Hussain Ahmed Al-Ansari
President of Kuwait University

12th Student Research Day
May 15, 2019

Faculty of Allied Health Sciences

Abstracts
His Highness
Sheikh Sabah Al- Ahmad Al-Jaber Al-Sabah
The Amir of the State of Kuwait

His Highness
Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah
The Crown Prince of the State of Kuwait

His Highness
Sheikh Jaber Mubarak Al-Hamad Al-Sabah
The Prime Minister of the State of Kuwait
Professor Hussein Ahmed Al-Ansari
President, Kuwait University
## CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Message : Dean (Faculty of Allied Health Sciences)</td>
</tr>
<tr>
<td>8</td>
<td>Message : Vice-Dean (Academic Affairs &amp; Post-Graduate Studies)</td>
</tr>
<tr>
<td>9</td>
<td>Message : Vice-Dean (Research, Training &amp; Consultation ; Chairman of Organizing Committee)</td>
</tr>
<tr>
<td>10</td>
<td>Program</td>
</tr>
<tr>
<td>11</td>
<td>Key-Note Speaker</td>
</tr>
<tr>
<td>13</td>
<td>Members of Organizing Committee</td>
</tr>
<tr>
<td>15</td>
<td>Abstracts – Graduate Students’</td>
</tr>
<tr>
<td>23</td>
<td>Abstracts – Health Information Administration</td>
</tr>
<tr>
<td>39</td>
<td>Abstracts – Medical Laboratory Sciences</td>
</tr>
<tr>
<td>75</td>
<td>Abstracts – Occupational Therapy</td>
</tr>
<tr>
<td>87</td>
<td>Abstracts – Physical Therapy</td>
</tr>
<tr>
<td>101</td>
<td>Abstracts – Radiologic Sciences</td>
</tr>
</tbody>
</table>

11th Student Research Day  Faculty of Allied Health Sciences
MESSAGE: DEAN

Dear Students, Staff Members and Colleagues,

It is an honor and privilege to celebrate with you the 12th Annual Student Research Day of the Faculty of Allied Health Sciences. Research is a key component of the academic program at any academic institution. I am pleased to announce that Faculty of Allied Health Sciences has experienced great growth in research activity over the past several years. Student Research Day, gives our students an opportunity to display their research skills. Also, it provides an opportunity to share their research experience with the students of other faculties, teachers and the health care professionals in Kuwait. Furthermore, Student Research Day leads to future multidisciplinary collaborative partnerships.

This event which began about 11 years ago has become an important tradition of our Faculty. Needless to say that the success of this annual event reflects the teamwork of the students along with their teaching staff without whose guidance, advice and support this event would not have been possible.

As the Dean of the Faculty, I take this opportunity to thank Professor Hussain Ahmed Al-Ansari, President of Kuwait University, all the members of the Organizing Committee for their sincere efforts, administrative staff and all the staff and students of the Faculty of Allied Health Sciences for their sincere contribution for the success of the Faculty of Allied Health Sciences Student Research Day.

I wish all our students great success in their academic and professional life.

Best regards,

Prof. Suad M. AlFadhli
Dean | Faculty of Allied Health Sciences
Health Sciences Centre | Kuwait University
# 12th Student Research Day

**MAY 15, 2019**

**Venue:** Health Sciences Center Auditorium | Jabriya | Kuwait University

## Program

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 AM</td>
<td>Opening Ceremony</td>
</tr>
<tr>
<td></td>
<td>National Anthem</td>
</tr>
<tr>
<td></td>
<td>Recitation from the Holy Quran</td>
</tr>
<tr>
<td></td>
<td>Welcome Speech: PROF. SUAD ALFADHLE, Dean</td>
</tr>
<tr>
<td></td>
<td>Research Day Reflections</td>
</tr>
<tr>
<td></td>
<td>Honoring the President of Kuwait University</td>
</tr>
<tr>
<td></td>
<td>Keynote Address: PROF. MOHAMED MABRUK, Sultan Qaboos University</td>
</tr>
<tr>
<td></td>
<td>Honoring the Keynote Speaker</td>
</tr>
<tr>
<td>1:00 PM</td>
<td>Opening of the 12th Student Research Poster Day and Poster Viewing</td>
</tr>
<tr>
<td></td>
<td><strong>BEST POSTER AWARDS CEREMONY</strong></td>
</tr>
<tr>
<td></td>
<td>Awards will be given for</td>
</tr>
<tr>
<td></td>
<td>- the Best Posters from each Department in the Faculty of Allied</td>
</tr>
<tr>
<td></td>
<td>Health Sciences</td>
</tr>
<tr>
<td></td>
<td>- the Best Poster from the Graduates of the Faculties of Health</td>
</tr>
<tr>
<td></td>
<td>Sciences Center</td>
</tr>
</tbody>
</table>

:: Presenting authors are requested to stay by their posters ::

Faculty of Allied Health Sciences – KUWAIT UNIVERSITY  
Telephone: 24633541 Email: fahs-srd@hsc.edu.kw Website: www.hsc.edu.kw/SRD2019
Worldwide cancer is the second leading cause of mortality after cardiovascular diseases. In 2015, about 90.5 million people had cancer. About 14.1 million new cases occur a year. Cancers are a family of diseases that involve abnormal cell growth and proliferation. There are more than 100 types of cancer. Cancer results from genomic instability (e.g. mutation) to genes that control cell growth and differentiation. Genetic changes that promote cancer can either be inherited or acquired during a lifetime. Inherited cancer is caused by mutations in certain genes that are passed from parents to children, while acquired genetic instability is the result of errors that occur in cells due to exposure to carcinogens that cause DNA damage, such as tobacco, ultraviolet irradiation, infection with oncogenic viruses and chemicals. Understanding the role played by altered gene expression on cancer development will lead to the identification of molecular biomarkers for human cancer, allow for risk reduction and ultimately increase survival. This presentation will focus on the role played by altered gene expression in cancer development, with special reference to skin and oral cancer.
# Organizing Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Suad M. AlFadhli</td>
<td>Dean</td>
</tr>
<tr>
<td>Prof. Chacko Mathew</td>
<td>Chairman</td>
</tr>
<tr>
<td>Mr. Abdulla Al-Mutairi</td>
<td>Administration Director</td>
</tr>
<tr>
<td>Mr. Fahad Al Bader</td>
<td>Controller &amp; Head, Finance Department</td>
</tr>
<tr>
<td>Mr. Yahya Dashti</td>
<td>Public Relations</td>
</tr>
<tr>
<td>Mr. Farooq Al Hajji</td>
<td>Head, Services &amp; Follow Up</td>
</tr>
<tr>
<td>Mr. Stanley Glebocki</td>
<td>Faculty Secretary</td>
</tr>
<tr>
<td>Dr. Abdul Majeed Hashem</td>
<td>HIIM</td>
</tr>
<tr>
<td>Dr. Mehdi Rassafiani</td>
<td>OT</td>
</tr>
<tr>
<td>Dr. Sameera AlJadi</td>
<td>PT</td>
</tr>
</tbody>
</table>
ABSTRACTS
Other Faculties
<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Department</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A. A. Akl, I. Mohiyaldeen, R. Alshatti, O. Alenezi, R. Dougherty, A. Alraihan, S. Alotaibi, N. Tadros, J. Longenecker</td>
<td>FOM-MEDICINE</td>
<td>Burn</td>
</tr>
<tr>
<td>2</td>
<td>Rashed Adnan Alshatti</td>
<td>FOM-MEDICINE</td>
<td>A Follow-up Study on Faculty of Medicine, Kuwait University Graduates</td>
</tr>
<tr>
<td>3</td>
<td>Hasan Ashkanani, Idrees Mohiyaldeen</td>
<td>FOM-CARDIOLOGY</td>
<td>The Prevalence of Adult Congenital Heart disease among the general population in Kuwait</td>
</tr>
<tr>
<td>4</td>
<td>Taiba AlArbeed</td>
<td>FOM-ANATOMY</td>
<td>Anti-apoptotic and Neuroregenerative Effects of Soluble Protein Fraction of the Epidermal Secretion from the Arabian Gulf Catfish following Sciatic Nerve Crush Injury in Rats</td>
</tr>
<tr>
<td>5</td>
<td>Rawan Kittaneh</td>
<td>FOM-ANATOMY</td>
<td>Effects of Resveratrol on diabetes-induced up-regulation of apoptosis and MAPK signaling in retinal pigment epithelium of dark Agouti rats</td>
</tr>
<tr>
<td>6</td>
<td>Noura Alfarhan</td>
<td>FOM-ANATOMY</td>
<td>Dibutyryl cAMP Enhances Cognitive Functions in Diabetic Rats by Increasing the Hippocampal Neurogenesis</td>
</tr>
<tr>
<td>7</td>
<td>Muneera Alfarhan</td>
<td>FOM-ANATOMY</td>
<td>Role of peroxisome proliferator-activated receptor - gamma (PPAR-γ) in type 2 diabetes-induced testicular DNA damage and repair in leptin receptor deficient obese mice</td>
</tr>
<tr>
<td>8</td>
<td>Farah Al-Saleh</td>
<td>FOM - BIOCHEMISTRY</td>
<td>Oxidative Stress-induced Germ Cell Apoptosis: The NOX-ER Connection</td>
</tr>
<tr>
<td>9</td>
<td>Fatemah Mohammad, Al-Maghrebi M, Pattillath S</td>
<td>FOM - BIOCHEMISTRY</td>
<td>Mitochondrial Dysfunction Contributes to Germ Cell Apoptosis via the JNK/Survivin/p53 Pathway</td>
</tr>
<tr>
<td>10</td>
<td>Farah Khashab, Shabeeba Pattillath, May Al-Maghrebi</td>
<td>FOM - BIOCHEMISTRY</td>
<td>Deciding on the life and Death of Germ Cells by the DNA Damage Response Signaling Pathways.</td>
</tr>
<tr>
<td>12</td>
<td>Fatma Kareem, Fawaz Alzoubi, Naser Al-Tannak</td>
<td>FACULTY OF PHARMACY</td>
<td>A Rapid UHPLC Method to Measure Bisphenol A From A Flowable Dental Composite Materials</td>
</tr>
</tbody>
</table>
1. Burn

Department of Medicine, Faculty of Medicine
A. Akl, I. Mohiyaldeen, R. Alshatti, O. Alenezi, R. Dougherty, A. Alraihan,
S. Alotaibi, N. Tadros, J. Longenecker

Physician burnout is important not only because of its personal implications, but also because it can interfere with patient care by impairing clinical judgement. This study assessed the prevalence of burnout and associated factors among surgeons in Kuwait.

A self-administered questionnaire was completed by 445 surgeons (181 general surgeons and 165 subspecialists of all ranks from 11 subspecialties) from all secondary and tertiary Ministry of Health hospitals in Kuwait. Burnout was assessed using the Maslach Burnout Inventory, which has 3 subscales: emotional exhaustion (EE; score range, 0-54), depersonalization of others (DP; score range, 0-30), and low personal accomplishment (PA; score range, 0-48). Burnout is defined as an EE score ≥27, a DP score ≥10, or a PA score ≤33. A defining score in all 3 subscales was considered “severe burnout.” Associations of burnout or severe burnout with participant characteristics were assessed using multivariate logistic regression. Of the participants, 87.2% were male and 47.6% were Kuwaiti.

The prevalence of burnout and severe burnout were 76.9% and 13.9% respectively. The prevalence of high EE, high DP, and low PA scores was 44.7%, 43.1%, and 47.2%, respectively. The prevalence of burnout was highest among neurosurgeons (100%) and lowest among ENT surgeons (66%). After adjustment, burnout was associated with younger age (<33 vs >40 yrs; OR=2.23; p=0.007); lower income (<2000KD vs >3000KD; OR, 1.88; p=0.042); and more on-calls/month (>8 vs <5 calls; OR=2.6; p=0.01).

Analysis of potential sources of stress also found a significant effect of work-life imbalance (p=0.002) and case overload (p=0.005) on burnout. The most common source of stress among surgeons was less time to spend with family (68.7%). The prevalence of burnout among surgeons in Kuwait MOH hospitals is high. Occupational Health programs should use these findings to design interventions to reduce burnout in this population.
No previous studies were done to show the descriptive information and distribution of Faculty of Medicine, Kuwait University graduates. Our study aims to investigate the career progress of those graduates in terms of specialization, pursuing high level education like board completion, fellowships, masters, PhD programs, number of research publications, current career position, places of work, and estimated monthly income; defining their career success. Furthermore, we plan to track any association between university performance and career progress and gender preferences in specialization, which helps predict the future figure of our medical community in Kuwait.

Students who graduated from the Faculty of Medicine of Kuwait University since its establishment up to 2017 were approached for filling an electronic questionnaire designed to evaluate their extra academic and post-graduate qualifications and progress. A total of 533 students who graduated from 1983 to 2017 took part in this study. The mean age was 33 (8.6). Descriptive information about the distribution of their age, graduation GPA, marital status and parenthood, hospital of current work, current career status, monthly income, and specialization is presented in the table. Also, whether they have taken international license examinations, fellowships, masters or PhDs., or have practiced internationally or published academically is also shown. Finally, their reported subjective satisfaction with their progress in the medical field and general satisfaction with life is also reported.

This study presents the descriptive information of Kuwait University Medical school graduates. Further studies on the association of medical school performance with future progress is to be conducted.
INTRODUCTION
Adult congenital heart disease (ACHD) is a highly underrepresented entity in medical literature, especially in the middle-eastern region. This study assessed the prevalence of adult congenital heart disease among the population of Kuwait. After a retrospective review of patients being followed up in the chest diseases hospital, Kuwait, was conducted to assess the prevalence of adult congenital heart disease, patients who fit the inclusion criteria were enrolled in the study.

METHOD
Using the American College of Cardiology Task Force 1 of the 32nd Bethesda conference classification of the severity of ACHD, the patients were classified into simple, moderate, and complex. Associations were assessed using STATA 15. A total of 611 patients were evaluated over a period of 18 months. The age distribution was similar in all classifications with no statistical difference and there was no statistically significant gender differences in all groups.

RESULTS
During the assessment of those who underwent surgical and/or interventional repair, it was found that patients with a moderate classification tend to have more complete repair than those in the complex group. (p<0.001). Almost 70% of patients with complex cardiac anomalies have undergone either partial or complete repair. The frequency of cardiac defects was also noted. The most prevalent cardiac defect was atrial septal defects (ASD).

DISCUSSION & CONCLUSION
In the simple group, ventricular septal defects (VSD) and ASD were the most prevalent. VSD was still the most prevalent defect in the moderate group when associated with other cardiac lesions. The most prevalent anomaly in the complex group was double outlet right ventricle. Adult Congenital heart disease is a largely growing entity of heart disease due to advanced repair techniques. The most prevalent heart defect was ASD with all its subtypes. VSD was the most prevalent defect in the moderate group; and DORV was the most prevalent in the complex group.
3. Anti-apoptotic and Neuroregenerative Effects of Soluble Protein Fraction of the Epidermal Secretion from the Arabian Gulf Catfish following Sciatic Nerve Crush Injury in Rats

Department of Anatomy, Faculty of Medicine
Taiba AlArbeed

INTRODUCTION
Crush injuries occur from a traumatic compression of the nerve resulting in different degrees of neural damage. Significant cell death and axon degeneration occur as a result of this damage, leading to permanent functional deficits. Previous clinical trials showed that catfish skin preparations (CSP) have potent effects on chronic back pain and other neurological disorders. This study was designed to investigate the anti-apoptotic and neuroprotective effects of soluble protein fraction (SPF)-Fraction C (FC) derived from CSP on the sciatic nerve crush injury.

METHODS
Adult male Wistar rats were randomly assigned into five groups (n=8/group): SHAM, CRUSH, CRUSH+1.5mg/kg SPF-FC, CRUSH+3mg/kg SPF-FC, and CRUSH+4.5mg/kg SPF-FC. Rats underwent sciatic nerve crush surgery, followed by treatment with SPF-FC administered intraperitoneal (IP) for two weeks, and sacrificed at the end of the fourth week. All animals were assessed for sensory and motor neurobehavioral tests throughout the four weeks. Peripheral axonal regeneration was assessed through whole mount staining of sciatic nerve using axonal markers. The neuroprotective properties of the treatment on the spinal cord neurons were assessed using Cresyl violet staining, while the apoptotic pathway was assessed using Western blot, immunohistochemistry, and TUNEL techniques.

RESULTS
The results of this study showed that IP administration of different SPF doses significantly (p<0.05-0.001) improved the neurobehavioral functional recovery of the nerve-injured groups. Visualization of sciatic nerve through whole mount staining revealed an increase in the axonal regeneration recovery with SPF-FC treatments. Moreover, SPF-FC treatments have neuroprotective effects on spinal cord neurons.

DISCUSSION & CONCLUSION
Our results for the apoptotic pathway revealed that SPF-FC treatments reduce neuronal cell death resulting from sciatic nerve crush injury. The data suggest that SPF-FC reduces sensory and motor neurobehavioral deficits and enhances axonal regeneration.
INTRODUCTION
Although diabetic retinopathy (DRT) is a treacherous outcome of uncontrolled hyperglycemia, the mechanisms which initiate the onset of DRT are not yet clear. The current study investigated modulatory effects of Resveratrol on type 1 diabetes-induced changes in apoptosis and mitogen-activated protein kinase (MAPK) signaling in retinal pigmented epithelium (RPE) of dark Agouti rats.

METHODS
Adult male rats (12-14 weeks, n=15) were segregated in duplicates into normal control, Resveratrol-treated, streptozotocin-induced diabetic, and Resveratrol-treated (5mg/kg/d, from the day of confirmation of diabetes to the sample collection day) diabetic groups. The RPE was collected on days 30 and 90. For the latter sampling time, another Resveratrol-treated (from 45d after the confirmation of diabetes to sampling day 90) diabetic group was included to investigate the effects of different treating protocol of Resveratrol.

RESULTS
Resveratrol when administered to normal rats, increased gene expressions (RT-PCR analysis) of caspases-3, 8 and 9, Bax, Bcl2, p38MAPK, JNK, and p53 on 30d. On the other hand, diabetes decreased gene expressions of caspase-3 and 8, Erk, p38MAPK, and JNK. Resveratrol reversed the inhibited gene expressions of caspase-8, Erk, JNK and p38MAPK to normal control levels in diabetic rats. Resveratrol normalized diabetes-induced upregulation of proteins (Western blotting analysis) caspase-3 and 9, cytochrome-c, Bcl2 and ERK on 30d. On 90d, Resveratrol recovered diabetes-induced decreases in caspases-3 and 8, cytochrome-c, and Bcl2 proteins to the control level. Similar effects of Resveratrol were observed when given to diabetic rats only for 45d instead of 90d.

DISCUSSION & CONCLUSION
In conclusion, Resveratrol when given to normal rats upregulates transcription of apoptosis and MAPK genes, however, their protein levels do not increase suggesting the lack of induction of apoptosis and MAPK-mediated cell signaling. Resveratrol imparts its protective effects by normalizing apoptosis and MAPK signaling. These results are suggestive of beneficial effects of Resveratrol on the RPE in diabetic rats.
6. Dibutyryl cAMP Enhances Cognitive Functions in Diabetic Rats by Increasing the Hippocampal Neurogenesis

Department of Anatomy, Faculty of Medicine
Noura Alfarhan

INTRODUCTION

Dibutyryl cyclic adenosine monophosphate (dBcAMP) is a cell-permeable synthetic analog of cyclic adenosine monophosphate (cAMP) known to acts as an intracellular second messenger for neurotransmitters and hormones. dBcAMP enhances differentiation and survival of neurons from neuronal stem cells and differentiation of mesenchymal stromal cell into neurons. Diabetes, a chronic metabolic disease has adverse effects on adult hippocampal neurogenesis and cognitive function. Present experiment was aimed to study the effects of dBcAMP on learning and memory and adult neurogenesis, in streptozocin model of diabetic rats.

METHODS

Diabetes was induced in male Wistar rats (3 months old) by injecting streptozotocin (50mg/kg) intraperitoneally. After that, they were grouped into diabetic (DI) and diabetic+dBcAMP (DI+dBcAMP) groups. Age matched normal rats served as control group (C). DI+dBcAMP group were treated with dBcAMP (ip,10mg/kg) intraperitoneally for 10 days and C and DI groups were treated with PBS for the same duration. After treatment, animals in all groups were subjected to Morris water maze from day21 to day27 to assess the cognitive function. Then rats were sacrificed on day 30. Fresh hippocampal tissues were collected for BDNF ELISA and Western blot for DCX analysis. Rats were perfused with 4% paraformaldehyde and hippocampi were collected for immunostaining (DCX). Number of DCX positive neurons were quantified in the hippocampal dentate gyrus.

RESULTS

Results showed a significant memory deficit in DI group, and memory was significantly increased in DI+ dBcAMP group. Number of DCX positive neurons in the dentate gyrus showed a significant decrease in DI group and it was significantly increased in DI+dBcAMP. Western blot analysis for DCX showed significant increase in DI+ dBcAMP group. Analysis of BDNF levels in the hippocampus of the DI+dBcAMP was found to be significantly increased.

DISCUSSION & CONCLUSION

We conclude that dBcAMP enhances cognitive functions in diabetic rats by increasing the Hippocampal BDNF levels and hence enhanced neurogenesis.
INTRODUCTION
Diabetes Mellitus is a metabolic disease and a public health issue that leads to considerable morbidity and mortality. Diabetes affects many bodily functions and causes both macro- and microvascular diseases. Diabetes induces DNA damage in varieties of tissues. However, DNA damage repair under diabetic conditions has been a subject of intense research for many years. In this study, we will investigate the role of peroxisome proliferator-activated receptor PPARγ in diabetes-induced testicular DNA damage repair.

METHODS
For this purpose, leptin receptor deficient db-/db- male mice (7 weeks old), which is a widely-accepted type 2 diabetes model, will be treated with both pioglitazone (a PPARγ agonist), and with 2-Chloro-5-nitro-N-phenylbenzamide (a PPAR-γ antagonist) to modulate the protein activities. Standard procedures were done for histopathological analysis of the testis (PAS staining) and to evaluate the oxidative stress (western blotting for 4-HNE), DNA damage (8-oxo-dG dot blotting and TUNEL assay), and DNA base excision repair pathway (western blotting).

RESULTS
The PAS staining indicated that the disrupted seminiferous tubules were more in diabetes. The result of 4-HNE western blotting indicated that the oxidative stress was increased in diabetes, whereas both stimulation and inhibition of PPARγ decreased the oxidative stress. Also, the result of dot blotting of 8-oxo-dg expression was increased with diabetes, however stimulation of PPARγ showed no effect on the DNA damage but inhibition of PPARγ decreased the damage. Further, the TUNEL showed that the testicular cells of the diabetic group underwent apoptosis higher than the control group.

DISCUSSION & CONCLUSION
The western blotting of base excision repair proteins demonstrated that the proteins expression was increased in diabetes, whereas their expression was decreased in case of stimulation or inhibition of PPARγ. In this study, PPARγ has a role in relieving testicular DNA damage, and this in turn will pave the way for new therapeutic strategies for diabetes-induced DNA damage.
INTRODUCTION
Testicular torsion and detorsion (DTT) can seriously damage the testes and cause infertility if left untreated. In animal models, it is represented as an ischemia reperfusion injury (tIRI) to the testis. During tIRI, excessive generation of oxygen reactive species (ROS) induces DNA damage leading to germ cell apoptosis (GCA). The aim is to study the role of NADPH oxidase (NOX), a source of cellular ROS, in inducing GCA and DNA damage during tIRI and its association with endoplasmic reticulum (ER) stress.

METHODS
Male Sprague-Dawley rats (n=36) were divided into three groups: sham, tIRI only and tIRI + apocynin (50 mg/kg), a NOX inhibitor. The tIRI rats underwent ischemia for 1 hour followed by 4 hours of reperfusion prior to rat sacrifice. The drug was administered 30 minutes’ post ischemia. Harvested testes were evaluated for spermatogenic damage by histological analysis, while biochemical and molecular alterations were assessed using real time PCR, biochemical assays, Western blot, ELISA and immunofluorescence staining.

RESULTS
Spermatogenic arrest was associated with increased lipid and protein peroxidation and decreased superoxide dismutase activity as a result of tIRI. The tIRI-induced DNA damage was indicated by a significant increase in DNA strand breaks, 8-OHdG formation, ph-H2AX and ph-ATM. The ASK1/survivin/JNK apoptosis pathway was significantly activated in response to tIRI. Finally, a significant increase in the immunoexpression of the unfolded protein response pathway components like CHOP, GRP78, caspase 12 and ph-eIF2-alpha1 supported the occurrence of ER stress during tIRI. NOX inhibition protected against GCA and ER stress.

DISCUSSIONS & CONCLUSION
Our results indicate that NOX-mediated ROS generation contributes to the tIRI-induced GCA and DNA damage. In addition, inhibition of NOX suggested the influence of NOX on inducing ER stress during tIRI.
9. **Mitochondrial Dysfunction Contributes to Germ Cell Apoptosis via the JNK/Survivin/p53 Pathway**

Fatemah Mohammad, Al-Maghrebi M, Pattillath S

1MSc. Molecular Biology – Joint Degree Program, 2Department of Biochemistry; Faculty of Medicine, Kuwait University, Kuwait

**INTRODUCTION**

Testicular ischemia reperfusion injury (tIRI) is the underlying mechanism of testicular torsion and detorsion characterized by testicular oxidative stress (OS) and germ cell apoptosis (GCA). The c-Jun N-terminal kinases (JNK) pathway is activated in response to cell stress and DNA damage. Thus, we aim to study whether JNK signaling and mitochondrial dysfunction contribute to the pathophysiology of tIRI-induced GCA and oxidative DNA damage using the JNK inhibitor SP600125.

**METHODS**

Male Sprague-Dawley rats (n=36) were divided into sham, tIRI and tIRI + SP600125 (15 mg/kg). Histological analyses were performed to assess spermatogenesis and oxidative DNA damage. The expression of oxidative stress induced-GCA genes and proteins were evaluated by real-time PCR and immunofluorescence (IF). Mitochondrial stress was examined by western blot and colorimetric assays.

**RESULTS**

Severe morphological damage to spermatogenesis was observed as judged by Johnsen’s scoring in tIRI-subjected rats. Testicular OS was demonstrated by a 2-fold increase in both protein and lipid peroxidation products. Oxidative DNA damage was augmented by 24.3-fold in the number of TUNEL stained nuclei and a 1.5-fold increase in 8-ohdG. Induction of GCA was validated by elevated Bax:Bcl-2 ratio accompanied by activation of the initiator caspase 9 and the executioner caspase 3 by 1.3-fold and 2.3-folds, respectively. Furthermore, heightened IF expression of JNK and p53 was specifically detected in secondary spermatocytes and spermatozoa accompanied with survivin down-regulation. During tIRI, mitochondrial dysfunction was reflected by ATP and NADH depletion, overexpression of UCP2 and cytochrome c. These tIRI-induced damages were all attenuated by SP600125 treatment.

**DISCUSSION AND CONCLUSIONS**

The study outcomes implicate the contribution of mitochondrial dysfunction in germ cell apoptosis via the JNK/survivin/p53 signaling pathway during testicular ischemia reperfusion injury.
10. Deciding on the life and Death of Germ Cells by the DNA Damage Response Signaling Pathways.

*Farah Khashab¹, Shabeeba Pattillath¹, May Al-Maghrebi¹

¹Department of Biochemistry; Faculty of Medicine, Kuwait University, Kuwait

INTRODUCTION
Testicular torsion and detorsion is a urological emergency caused by the obstruction and re-flow of blood due to the twisting and untwisting of the spermatic cord explained as a testicular ischemia reperfusion injury (tIRI). Such pathological event causes oxidative stress-induced DNA damage leading to germ cell apoptosis (GCA). The aim is to investigate the internal mechanism linking the JAK/STAT signaling pathway with the DNA damage response (DDR) signaling pathways and their effect on tIRI-induced oxidative DNA damages.

METHODS
Male Sprague-Dawley rats (n=36) were divided into 3 groups: sham, unilateral tIRI and tIRI+AG490 (40 mg/kg), a JAK inhibitor. The tIRI was induced by the obstruction of the spermatic cord using a surgical clamp. Spermatogenesis was evaluated using histological analysis. Apurinic/apyrimidinic sites (AP) and 8-OHdG formation were estimated using DNA damage quantification kits. Expression of the JAK/STAT pathway was assessed using immunohistochemistry and the activation of the DDR signaling pathways was detected by Western blot.

RESULTS
Spermatogenesis arrest was indicated by the presence of spermatocytes but few early spermatids were clear during tIRI. There was also a significant increase in the tIRI-induced oxidative DNA damage in the form of DNA strand breaks, formation of AP sites and 8-OHdG formation. Moreover, tIRI-induced DNA damage caused significant rise in the phosphorylation levels of the JAK2/STAT1/STAT3 proteins. Both DDR signalling pathways: ATM/CHEK2 and ATR/CHEK1 were activated as judged by the significant overexpression of their phosphorylated forms. The tIRI-induced GCA and DNA damage was blocked by inhibition of JAK activity.

DISCUSSION & CONCLUSION
Our findings suggest that tIRI-induced GCA and DNA damage was prompted by activation of the JAK/STAT signaling pathway, which directed the apoptosis decision by the activation of the ATM/CHEK2 and ATR/CHEK1 DDR signaling pathways.

Al-Kandari N1, Pattilath S2, Al-Maghrebi M2

1Molecular Biology – Joint MSc. Degree Program, Kuwait University, Kuwait; 2Department of Biochemistry, Faculty of Medicine, Kuwait University, Kuwait.

INTRODUCTION
Testicular ischemia reperfusion injury (tIRI) is suggested as the underlying mechanism for testicular torsion and detorsion due to the overproduction of reactive oxygen species (ROS) leading to germ cell apoptosis (GCA). The aim is to explore the mechanism of the apoptosis signal-regulating kinase 1 (ASK1) signaling pathway and the role of the thioredoxin (Trx) antioxidant system during tIRI by using ASK1 specific inhibitor, NQDI-1.

METHODS
Male Sprague-Dawley rats (n=36) were divided into 3 groups: sham, tIRI and tIRI + NQDI-1 (10 mg/kg). Ischemia was induced for 1 hour followed by 4 hours’ reperfusion before animal sacrifice. The NQDI1 was injected i.p. 30 minutes post ischemia. Histological analyses were used to evaluate spermatogenesis. Gene expression, protein immunoexpression and enzyme activities were assessed by real-time PCR, ELISA, IHC and colorimetric assays.

RESULTS
An arrest in spermatogenesis was represented by a significant decrease in the Johnsen score, which was associated with GCA. Real-time PCR confirmed the upregulation of the pro-apoptosis genes BAD and BAX and the downregulation of anti-apoptosis genes Bcl2 and survivin, which were accompanied by activation of the executioner caspase-3 and oxidative DNA damage in the tIRI group. The levels of the antioxidants GSH, SOD, Trx and Trx reductase enzyme were also significantly reduced in tIRI-subjected testes. Immunoexpression of ph-ASK1, ph-p38 and ph-JNK were increased significantly after tIRI confirming the activation of ASK1 signaling pathway. The damaging consequences of tIRI were attenuated after NQDI1 treatment obtaining normalized values similar to sham.

DISCUSSION & CONCLUSION
Our findings suggest that the redox status of the cell is regulated by the Trx system via the ASK1/Trx/TXNIP /JNK to maintain cellular homeostasis during testicular oxidative stress. This interplay between the Trx system and ASK1 suggests their potential role in the pathogenesis of tIRI and induction of GCA.
12. A Rapid UHPLC Method to Measure Bisphenol A From A Flowable Dental Composite Materials

Fatma Kareem, Fawaz Alzoubi, Naser Al-Tannak

FACULTY OF PHARMACY
Health Informatics & Information Management
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sara Al-Amhouj, Noof Al-Daihani</td>
<td>The Utilization of Internet of Medical Things (IoMT) Technology in Smart Management of Diabetes Mellitus</td>
</tr>
<tr>
<td>2</td>
<td>Amthal Esmaeil, Asmaa Abdullah, Sarah Al-Mutairi, Shoug Al-Enezi</td>
<td>Mobile Technology in Healthcare &amp; Self-Management of Chronic Diseases</td>
</tr>
<tr>
<td>3</td>
<td>Abeer Al Mutairi, Fatma Al Refai, Fatma Al Bloushi, Muneera Al Kandari</td>
<td>Hospital Health Services Accreditation Standards: A Comparative Study between USA, Canada &amp; Kuwait</td>
</tr>
<tr>
<td>4</td>
<td>Ebtesam Salem, Esteqlal Naser, Dana Saleh, Mashael Alsaedi</td>
<td>Electronic Health Records in GCC Countries: Where we stand?</td>
</tr>
<tr>
<td>5</td>
<td>Alanoud Alhubaidah, Ahlaam Alazmi</td>
<td>Challenges of Implementing Telemedicine In Developing Countries</td>
</tr>
<tr>
<td>6</td>
<td>Nawar Yousef, Fatima Al Failkawi, Sara Al Rashedi</td>
<td>HIM Career Map: Future Vision of Kuwait</td>
</tr>
<tr>
<td>7</td>
<td>Shareefa Al-Rifaei, Athraa Al-Mosawi, Dunya Al-Shatti</td>
<td>Breaches of Patients Information Confidentiality in Electronic &amp; Manual Information Systems</td>
</tr>
<tr>
<td>8</td>
<td>Shuaa Al-Anazi, Hour Al-Fadhli</td>
<td>Patient Privacy and Social Media: a pilot Study</td>
</tr>
<tr>
<td>9</td>
<td>Fouz AlYaqout, Reem AlAwadhi, Abdullah Khalefah</td>
<td>Successful Electronic Health Record System used by Hospitals: A systematic Review</td>
</tr>
</tbody>
</table>
Poster Abstracts

1. The Utilization of Internet of Medical Things (IoMT) Technology in Smart Management of Diabetes Mellitus
   Sara Al-Amhouj, Noof Al-Daihani

INTRODUCTION
35 million adults (18-99) are living with diabetes in the MENA Region (1 in 11 adults). For the Diabetes Mellitus (DM) patients, the most effective aspect of treatment is the constant monitoring. The process of monitoring has improved a lot by virtue of Internet of Medical Things (IoMT) by allowing uninterrupted transmission of signals. This systematic review summarizes how IoMT technology impacts outcomes for patients living with DM.

METHODS
A systematic review of high quality research studies focused on IoMT and diabetes self-management using databases; PubMed, Google Scholar, Science direct and Websites, was conducted. Articles were included that were published between years 2016 – 2018, full text, and in English language.

RESULTS
Eighteen studies were included for analysis with majority discussed benefits of IoMT for DM including: better monitoring and gaining instant guidance. The challenges faced by using IoMT was lack of security standards related to patient data.

DISCUSSION & CONCLUSION
The increased use of mobile technologies and smart devices in MENA countries, has caused great impact to evolve IoTs in medical devices. Studies showed the impact of IoMT in a real-time analysis of patient data and involved the patient at the center of decisions. With the live access to patient databases, caregivers can easily monitor their patient and availability of dataset become accessible at a single click. The reviewed studies concluded that IoMT reduced the associated complications of DM. However, the distribution of IoMT across MENA region was not uniform and concentrated only in highly developed places. Moreover, using latest technologies in IoMT will improve the quality of services through providing more accurate and precise data. Decision makers should incorporate technologies that focus on self-management of chronic diseases. Finally, utilizing technology-enabled diabetes self-management education and support solutions significantly impacts health outcomes.
2. Mobile Technology in Healthcare & Self-Management of Chronic Diseases
Abeer Al Mutairi, Fatma Al Refai, Fatma Al Bloushi, Muneera Al Kandari

INTRODUCTION
Accreditation means systematic assessment of hospitals against accepted standards that aimed to encourage continues quality improvement. This study objective was to evaluate health services accreditation standards for hospitals in the USA (JCAHO), Canada and Kuwait. Recommendations for improvements were presented to enhance the performance of Kuwait Hospitals.

METHODS
A systematic analysis of published work related to accreditation was performed using Google Scholar & PubMed. After excluding non-related, duplicated and non-English studies, 516 published work were listed, from which seventeen studies were considered for this study. The official websites for JACHO, CCHSA, NAP and two books were included, ending up by 22 reviewed sources.

RESULTS
The review findings identified 17 standards. The most common standards among the three countries were Information Management, Leadership Management, Medication Management, and Infection Prevention and Control Standards. The total number of standards Canadian (CCHSA) program met 95.2%, American (JCAHO) met 65%, and Kuwait (NAP) met only 35% of the standards under comparison.

DISCUSSION & CONCLUSION
JACHO, CCHSA and NAP developed similar standards in many areas. CCHSA considered the best since they met all 17 standards followed by American. Despite adopting the Canadian accreditation, Kuwait met only five standards from a total of 17. Kuwait covered 50% of standards related to supporting Evidence-based decision making standards, 33% of standards related to being a learning organization, 0% related to achieving positive outcomes and 17% of education development standards. Kuwait had no standards related to medication management which is responsible for adding and removing medications, which medication can be used by the hospitals and high-alert medications. Finally, ongoing evaluation and standardized programs by comparing the JACHO & CCHSA to the NAP of Kuwait, should be considered especially standards that are not yet considered by the Kuwait Accreditation system such as medication management standards.
3. **Hospital Health Services Accreditation Standards: A Comparative Study between USA, Canada & Kuwait**

Abeer Al Mutairi, Fatma Al Refai, Fatma Al Bloushi, Muneera Al Kandari

**INTRODUCTION**

Accreditation means systematic assessment of hospitals against accepted standards that aimed to encourage continues quality improvement. This study objective was to evaluate health services accreditation standards for hospitals in the USA (JCAHO), Canada and Kuwait. Recommendations for improvements were presented to enhance the performance of Kuwait Hospitals.

**METHODS**

A systematic analysis of published work related to accreditation was performed using Google Scholar & PubMed. After excluding non-related, duplicated and non-English studies, 516 published work were listed, from which seventeen studies were considered for this study. The official websites for JACHO, CCHSA, NAP and two books were included, ending up by 22 reviewed sources.

**RESULTS**

The review findings identified 17 standards. The most common standards among the three countries were Information Management, Leadership Management, Medication Management, and Infection Prevention and Control Standards. The total number of standards Canadian (CCHSA) program met 95.2%, American (JCAHO) met 65%, and Kuwait (NAP) met only 35% of the standards under comparison.

**DISCUSSION & CONCLUSION**

JACHO, CCHSA and NAP developed similar standards in many areas. CCHSA considered the best since they met all 17 standards followed by American. Despite adopting the Canadian accreditation, Kuwait met only five standards from a total of 17. Kuwait covered 50% of standards related to supporting Evidence-based decision making standards, 33% of standards related to being a learning organization, 0% related to achieving positive outcomes and 17% of education development standards. Kuwait had no standards related to medication management which is responsible for adding and removing medications, which medication can be used by the hospitals and high-alert medications. Finally, ongoing evaluation and standardized programs by comparing the JACHO & CCHSA to the NAP of Kuwait, should be considered especially standards that are not yet considered by the Kuwait Accreditation system such as medication management standards.
4. **Challenges of Implementing Telemedicine in Developing Countries**  
   Alanoud Alhubaidah, Ahlaam Alazmi

**INTRODUCTION**
Telemedicine is defined by WHO as the use of electronic information and communication technologies to provide and support healthcare when distance separates the participants. Developing countries are still in the early stages of telemedicine implementation. The aim of this review is to identify challenges to adopt telemedicine in developing countries through qualitative analysis of published research work.

**METHOD**
This review was conducted for published work between 2015 to 2018. Due to time limitation, only sixteen related studies were considered using PubMed and Google Scholar databases. Studies related to developing countries in full text and English language were included. Keywords used included; telemedicine, telemedicine challenges, and developing countries.

**RESULTS**
All sixteen studies discussed challenges of telemedicine implementation. The qualitative analysis revealed multiple challenges included: lack of medical facilities, low doctor to patient ratios, insufficient funds, unavailability of infrastructure, lack of policies, procedures and protocols. Studies related to different developing countries were reviewed such as: Nigeria, India, Iraq, and Malaysia.

**DISCUSSION & CONCLUSION**
Developing countries are far behind in adopting technology to reduce the cost and improve the quality of healthcare. The telemedicine technology was adopted for two decades now without proper strategic planning. There are many barriers like geographical access, availability, affordability, and acceptability to access the healthcare in these countries. Major implementation challenges included: 1) physician competency level and resistance to change, 2) technological barriers, 3) poor facilities and ICT infrastructure, 4) ratios between healthcare practitioner and patients, 5) low Internet connectivity. Telemedicine must be adopted to overcome distance barriers and to improve access to medical services that would often not be consistently available in distant rural communities. Governments in developing countries should make efforts in developing the telemedicine network across their geographical boundaries. Finally, now is the time to consider telemedicine as an integral part of healthcare delivery system in developing countries.
INTRODUCTION
Traditionally, Health Information Management professionals job roles make them the experts in managing data and processes in an information system. After digitalization of information systems in healthcare, the roles of HIM professionals have expanded into information technology (IT) and user support, which usually are the functions of IT supporting services. The study objective is to explore the new HIM Model that included suggested new Roles by the American Health Information Management Association (AHIMA) and identified what is needed to be adopted in Kuwait.

METHODS
A systematic literature search was used on papers published related to the new HIM Roles Model by AHIMA. The search sources included PubMed (Medline via PubMed) and Google Scholar. 22 research studies were considered.

RESULTS
AHIMA’s Roles included: Terminology Asset Manager, PHR Guest Relations Liaisons and Consultants, Physician Group Consultant, Privacy Officer, Health Record Reviewer, HIM Director/Chief Health Information Management and Exchange Officer, Health Informaticist / project Manager of Clinical Informatics, Enterprise Content and Information Manager, Vice President or Director of Revenue cycle, Health Data Analyst, Chief Information Officer.

DISCUSSION & CONCLUSION
HIM Professionals’ training and experience equip them with the ability to maintaining the integrity and accessibility of health information but not to support technical operations of a HIS. From AHIMA model, Kuwait HCDS may adopt the following roles: Privacy officer, Health Record reviewer, Vice president or Director of Revenue cycle, project Manager of Clinical Informatics, Enterprise Content and Information Manager. For reaching the advanced and updated changes on HIM roles, the enforcement of adapting new career includes learning new skills and qualifications in which the tools of health informatics and HIM are continually improving to bring greater efficiency to information management in the health care sector.

Shareefa Al-Rifaei, Athraa Al-Mosawi, Dunya Al-Shatti

INTRODUCTION

The breach of patient confidentiality remains one of the major problems encountered in daily clinical practice. The Confidentiality should be a fundamental right of patients in a health care setting. The study objectives were to identify types of patients' information confidentiality breaches in electronic and manual health information system and provide best practices of managing risk of confidentiality breaches of patient information.

METHODS

Qualitative approach by assessment of published studies and websites was used for the purpose of this study. Google Scholar, PubMed databases were used included English Full text, between 2000-2018 and related websites. No ethical approval was needed.

RESULTS

Total studies reviewed were 21studies. Different breach types of patient's confidentiality were identified including: 1. Those related to custody of clinical histories and records, 2. related to consultation/disclosure of clinical/personal data, 3. Infrastructure breaches. Different guidelines to maintain confidentiality were included such as implementing best practice IT security for Electronic system and develop comprehensive confidentiality policy.

DISCUSSION & CONCLUSION

The breach of patient confidentiality remains one of the major problems encountered in daily clinical practice. The most frequent type of breach was disclosure of clinical or personal data to non-medical staff or their parties. This included exam, treatment and operating rooms where a large amount of data is handled. In addition, a large number of breaches related to custody of clinical histories were noted. This includes medical records left open or unguarded on carts in public areas, or electronic clinical records left open screens. In addition to aspects related to hospital organization or infrastructure, studies discussed that all healthcare personnel are involved in confidentiality breaches, especially physicians. While most are committed unintentionally, a non-negligible number are severe. Finally, best practices for confidentiality included implementing best IT security practice, comprehensive policy and regularly communicate policies to users and patients.
8. Patient Privacy and Social Media: a pilot Study
   Shuaa Al-Anazi, Hour Al-Fadhli

INTRODUCTION
Healthcare providers using social media must remain mindful of professional boundaries and patients' privacy rights. This pilot study aimed at exploring the use of social media apps (Instagram) by physician influencers and its effect on patients' privacy.

METHODS
A mixed design including quantitative and qualitative approaches were used. The quantitative part included creation of a simple survey composed of eight questions created to investigate behaviour of selected physicians’ influencers on Instagram app in relation to patients’ privacy. The qualitative part was observing the content of the posts. Ten influencers selected and agreed to participate by sending direct messages through Instagram app.

RESULTS
Overall response rate was 50%; three surgeons, one physical therapists (PT) and one dentist. 80% of participants took patients’ consent when taking screen shot of parts of their bodies or their pictures and if they agree to post it on Instagram. The PT used a human model for displaying exercises and did not need to get consent. 48% of the participants agreed that the main reasons they posted patients pictures was as a part of educating followers, attention-grabbing new followers, to promote about the procedure and advertising for your profession or practice.

DISCUSSION & CONCLUSION
All participants except the PT, granted patients’ consents in an attempt to protect the patient privacy. This comes from their educational background about legal issues related to patients privacy. None of participants got in trouble with privacy related issues with patients, which indicated that influencers were careful not to reveal patients’ identity. 80% of participants agreed that attention-grabbing new followers and advertising for their profession/practice were the main reasons for posting patient related pictures. This is part of the social media apps benefits; communicating and sharing information. Finally, most of participants’ posts were educational and promotions about new procedures and techniques.
INTRODUCTION
While the benefits of a functional EHR system are clear, implementing an EHR system can be challenging. As EHRs adoption and implementation continue, EHRs vendors are experiencing difficulties in meeting client requirements. Various factors appear to be associated with EHRs use. This study aimed at identifying main characteristics of successful EHR systems to be selected for implementation at Kuwait Hospitals.

METHODS
Published studies in peer-reviewed journals, proceedings and related websites were reviewed using MEDLINE and Google Scholar databases. Search keywords used include: EHR implementation, systematic analysis, EHRs characteristics, EMR, and information systems. Only English full-text papers were selected for review.

RESULTS
Fifteen studies published in a peer-reviewed journals were selected for this study. 80% of studies discussed the different functionalities that an EHR system should include, and 20% discussed different challenges and barriers. All studies discussed the impact of EHRs on quality improvement.

DISCUSSION & CONCLUSION
Prior to investing in EHR, a practice should understand how this technology can be leveraged to achieve a practice’s strategic goals. The studies included the Institute of Medicine (IOM) eight core functions of EHR systems: health information and data, result management, order management, decision support, electronic communication and connectivity, patient support, administrative processes and reporting, and reporting and population health. Advanced features for specialty EHRs will take into account the unique nature of specialty practices, e.g. physical therapy EHRs and Oncology EHRs. For Kuwait to adopt a system, using EHR selection criteria can help your evaluation of which EHRs system to use depending on the size and specialty of your healthcare organization. Finally, when selecting an EHRs vendor, research must be done on the system thoroughly including your priorities, selection criteria, maintenance, cost, ease of use, successful implementation and training, integration, and customer service.
Medical Laboratory Sciences
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Latifa Althallab</td>
<td>Effects Of Calcium On Total Cholesterol Levels In Healthy Post-menopausal Women</td>
</tr>
<tr>
<td>2</td>
<td>Hanan Zadeh, Mariam Albahouri</td>
<td>Effect Of Cigarette Smoking On Liver Serum Enzymes Level</td>
</tr>
<tr>
<td>3</td>
<td>Fatma Shmiki</td>
<td>Estimation Of Microbial Contamination Of Water Filters In Kuwait</td>
</tr>
<tr>
<td>4</td>
<td>Sarah Al-hathal</td>
<td>The Effect Of Dried Pomegranate Peel On Wound Healing</td>
</tr>
<tr>
<td>5</td>
<td>Hajar Al-ahammeri And Sawsan Ramadan</td>
<td>Nephelium Lappaceum In Hyperglycemia Management</td>
</tr>
<tr>
<td>6</td>
<td>Esraa Khil Ahmed</td>
<td>DNA Extraction Yield Using A Commercial Kit Versus Manual Method</td>
</tr>
<tr>
<td>7</td>
<td>Alyah Meshaan Al-otaibi</td>
<td>The Effect Of Hydroxyurea On Ferritin Levels And Other Hematological Parameters In Sickle Cell Anemic Patients</td>
</tr>
<tr>
<td>8</td>
<td>Ashwaq Alanazi</td>
<td>The Types Of Antibodies In Hemolytic Disease Of The Newborn In Blood Bank</td>
</tr>
<tr>
<td>9</td>
<td>Alaa Saad</td>
<td>Identification Of Bacterial Flora Present On The Fingerprinting Devices In HSC</td>
</tr>
<tr>
<td>10</td>
<td>Shaikha Alturki</td>
<td>Microbial Contamination Of Domestic Refrigerators In Kuwait</td>
</tr>
<tr>
<td>11</td>
<td>Alaa Haidar</td>
<td>Evaluation Of The Inflammatory Markers Neutrophil To Lymphocyte Ratio And Platelet To Lymphocyte Ratio In Arab Sickle Cell Disease Patients In Kuwait</td>
</tr>
<tr>
<td>12</td>
<td>Amthal Thamer Aldhaferi</td>
<td>The Role Of Hemeoxygenase-1 In Suppression Of Inflammation In Acute Low Back Pain Following Treatment With Sour Cherry Topical Analgesia</td>
</tr>
<tr>
<td>13</td>
<td>Rasha Shmehet</td>
<td>Bone Histology After Variable Degrees Of Bone Decalcification Using Routine Methods With A Strong Acid And Weak Acid Decalcifying Agents</td>
</tr>
<tr>
<td>14</td>
<td>Anfal Nasserallah Alshammar</td>
<td>Purification Of Urinary Exosomes And Further Characterization Using Western Blotting</td>
</tr>
<tr>
<td>15</td>
<td>Noof Al-otaibi</td>
<td>How To Confirm Automation Kits Into Manual For Teaching Purpose</td>
</tr>
<tr>
<td>16</td>
<td>Heba Dahab</td>
<td>Airborne Bacterial And Fungal Investigation Associated With The Use Of Automobiles Air Conditioners And Cabin Air Filters</td>
</tr>
<tr>
<td>17</td>
<td>Nourah Yaqoub Al-yousefi</td>
<td>Effect Of Lyrica Pills Intake Alone Or With Vitamin C On Kidney And Liver Tissues.</td>
</tr>
<tr>
<td>18</td>
<td>Huda Alotaibi, Anwar Albanaw</td>
<td>Detection Of Alpha Synuclein Protein And Its Aggregates In The Appendix Of Kuwaiti Patients</td>
</tr>
<tr>
<td>19</td>
<td>Noof Ghaze Al-rashidi</td>
<td>Anti-oxidative Stress Effects Of Vitamins C, E, And B12, And Their Combination Can Protect The Liver Against Paracetamol-induced Hepatotoxicity In Rats.</td>
</tr>
<tr>
<td>20</td>
<td>Sarah Mahmoud Johar</td>
<td>Identification Of Germs Contaminants In Toothbrushes</td>
</tr>
<tr>
<td>21</td>
<td>Hawraa Ahmad Alsairafi</td>
<td>Has Varicella Zoster Vaccine Reduced The Incident Of Chickenpox In Kuwait?Is It More Severe In Adults?</td>
</tr>
<tr>
<td>22</td>
<td>Hamida Sayed Hashem</td>
<td>Screening For Tgab In Healthy Individuals</td>
</tr>
<tr>
<td>23</td>
<td>Sara Borham</td>
<td>Prevalence Of Prothrombin G20210A Mutation Among Egyptian Population Living In Kuwait</td>
</tr>
<tr>
<td>24</td>
<td>Abdollah Abdolreza Peyrovin</td>
<td>Are Our Gyms Microbial Free Environments</td>
</tr>
<tr>
<td>25</td>
<td>Sarah Jassim Aboudahham</td>
<td>Erythrocyte Sedimentation Rate In Diabetic Patients Living In Kuwait</td>
</tr>
<tr>
<td>26</td>
<td>Sara Mohammed Al-ostad</td>
<td>The Effect Of Celery Juice On Blood Components And Comprehensive Metabolic Panel (Full Profile)</td>
</tr>
<tr>
<td>27</td>
<td>Sherifa Khalid Abalkhail</td>
<td>What Is The Effect Of Cupping Therapy On CBC And ESR?</td>
</tr>
<tr>
<td>ID</td>
<td>Name</td>
<td>Abstract Title</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>28</td>
<td>Reem Mohammad Awadh</td>
<td>Investigation Of Environmental And Pathologic-resistant Bacteria Polluting Kuwaiti Dust</td>
</tr>
<tr>
<td>29</td>
<td>Shahad Altatatabai</td>
<td>Vending Machines: A Source Of Infection And Spread Of High-risk Contaminants</td>
</tr>
<tr>
<td>30</td>
<td>Fatma Hatem Attia Awad</td>
<td>Are Baby Pacifier Safe To Use After They Have Fallen To The Ground?</td>
</tr>
<tr>
<td>31</td>
<td>Nourah Alzoubi</td>
<td>Investigation The Type Of Bacteria In House Door Handle</td>
</tr>
<tr>
<td>32</td>
<td>Alaa Alrumh</td>
<td>The Relationship Between Vitamin D Deficiency And Calcitonin</td>
</tr>
<tr>
<td>33</td>
<td>Amna Farhan</td>
<td>Effect Of Cigarette Smoking On Cardiac Enzymes Level</td>
</tr>
<tr>
<td>34</td>
<td>Khawlah Alhajri</td>
<td>Investigation Of Antimicrobial Activity Of Honey And Garlic Against Multidrug Resistance Bacteria</td>
</tr>
<tr>
<td>35</td>
<td>Zahra Abdulhadi Abbas</td>
<td>Effect Of Saxenda Injections With And Without Vitamin C On Liver And Kidneys Tissues Of Rats</td>
</tr>
<tr>
<td>36</td>
<td>Rawaa Kittaneh</td>
<td>In Vitro Effect Of Curcumin On Expression Of CD3+ Tnf-α+ And CD3+IL-8+ Subpopulations In Peripheral Blood Mononuclear Cells From Type 2 Diabetes Patients</td>
</tr>
<tr>
<td>37</td>
<td>Jomanah Hasan</td>
<td>The Effect Of Acai Berry Consumption On Glycaemia And Pro-inflammatory Cytokines In Individuals With Type 2 Diabetes</td>
</tr>
<tr>
<td>38</td>
<td>Anwar Salem</td>
<td>Comparative Study Of The Effect Of Glucophage And Novel Diabetic Support Formula In Blood Glucose Regulation And On Hepatic And Renal Dysfunction In Control And Diabetic Mice</td>
</tr>
<tr>
<td>39</td>
<td>Maryam Raed Abdullah Abdulwahab Alhomod</td>
<td>Association Between Serum Creatinine And BUN With Kidney</td>
</tr>
<tr>
<td>40</td>
<td>Nora Nawaf Alshammeri</td>
<td>The Effect Of Roaccutane Drug On Liver, Kidney And Intestine</td>
</tr>
<tr>
<td>41</td>
<td>Aisha Dawood Al Nami</td>
<td>The Effect Of Nigella Sativa And Extra Virgin Olive Oil Against Ccl4 Induced Liver Cirrhosis</td>
</tr>
<tr>
<td>42</td>
<td>Manal Aladwani</td>
<td>Bacteria In Different Probiotics And Yoghurt Drinks.</td>
</tr>
<tr>
<td>43</td>
<td>Fatma Sayer</td>
<td>Purification And Characterization Of Secreted Exosomes From A Culture Of Wharton’s Jelly Mesenchymal Stem Cell.</td>
</tr>
<tr>
<td>44</td>
<td>Wafaa Almutairi</td>
<td>Antibiotic Resistance Of Historic Isolates Of Enterobacteriaceae</td>
</tr>
<tr>
<td>45</td>
<td>Abeer Alenzi</td>
<td>Investigation Of An Unidentified Globular Structures In Tubulointerstitial Nephritis</td>
</tr>
<tr>
<td>46</td>
<td>Maha Al-khalidi, Prof. Suad Alfadhli</td>
<td>Apolipoprotein1 Risk Gene Variants And Nephropathy In Systemic Lupus Erythematosus Patients</td>
</tr>
<tr>
<td>47</td>
<td>Alaa Benkherouf</td>
<td>Is Our Hospital Environment Germ Free?</td>
</tr>
<tr>
<td>48</td>
<td>Shireen Saeidi</td>
<td>Purification And Characterization Of Exosomes From Serum Samples</td>
</tr>
<tr>
<td>49</td>
<td>Bashayer</td>
<td>Expression Of Placental Metastasis Tumor Antigen 2 In Dexamethasone-induced Intrauterine Growth Restriction And The Possible Role Of Melatonin</td>
</tr>
<tr>
<td>50</td>
<td>Hessa Alanjery</td>
<td>Reversal Of Lead Induced Liver Damage Using Turmeric</td>
</tr>
<tr>
<td>51</td>
<td>Amal Hussain Alajmi</td>
<td>The Impact Of Age On The Level Of Several Hemolytic Markers In Sickle Cell Anemia Patients</td>
</tr>
<tr>
<td>52</td>
<td>Manar Aldhaferi</td>
<td>The Effect Of Menopause On Serum Thyroid Stimulating Hormone Levels</td>
</tr>
<tr>
<td>53</td>
<td>Hanadi Karkari</td>
<td>DNA Extraction From Decalcified Bone Vs. Non Decalcified Bone</td>
</tr>
<tr>
<td>54</td>
<td>Dalal Almutairi</td>
<td>The Effect Of H2S On Diabetic Rats</td>
</tr>
<tr>
<td>55</td>
<td>Zahraa Alashwak</td>
<td>The Association Between Serum Triglycerids And Calcium Level In Serum Of Healthy And Unhealthy Postmenopausal Women</td>
</tr>
</tbody>
</table>
1. Effects of Calcium on Total Cholesterol Levels in Healthy Post-Menopausal Women
   Latifa Althallab

**INTRODUCTION**
Calcium is the most profuse nutrient in the human body and it is associated with metabolism and formation of bone. Calcium supplements intake has been increasing, researchers believe this might be harmful while others believe it lowers the risk of cardiovascular disease. It was also found that calcium supplements interfere with parathyroid hormone and 1,25-dihydroxy vitamin D, which are involved in controlling adipocytes. Menopausal women have an increased risk of cardiovascular disease and the main cause being age and decreased estrogen. Calcium intake and its relation to cholesterol (cardiovascular disease) had variable results in previous studies. Therefore, this study will investigate the effect of calcium supplements (calcium levels) on cholesterol levels in healthy post-menopausal women and its association to cardiovascular diseases.

**METHODS**
Left over serum samples from 58 healthy post-menopausal women were tested for Calcium and lipid profile (Cholesterol) using DxC 600i chemistry analyzer at the Amiri hospital.

**RESULTS**
The mean age of the study group is 62.38 ± 11.881 years, mean calcium result is 2.7919 ± 0.819, and mean cholesterol is 4.7347 ± 1.050. The p-value of calcium and total cholesterol (p= 0.000), which is statistically significant and the Pearson’s correlation of calcium and total cholesterol is (0.743), this result is statistically significant.
2. Effect of cigarette smoking on liver serum enzymes level
   Hanan Zadeh, Mariam Albahrani

INTRODUCTION
Smoking-related adverse effects on different organs such as liver have been reported. These adverse results in toxic effects, immunological effects and carcinogenic effects on the liver. Cigarette smoking increases the risk of liver cancer and the progression of chronic liver disease. Strong association between smoking and high levels of the liver enzymes gamma-glutamyl transferase (GGT) and alkaline phosphatase (ALP) was reported possibly due to smoking-induced liver inflammation.

METHOD
34 participants were tested, 17 smokers and the other 17 were non-smokers (control). The smokers were classified into 3 groups based on their smoking status: heavy smoker, medium smoker, and light smoker.

RESULT
Our results showed no significant association between cigarette smoking and changes in the level of liver enzymes.

DISCUSSION AND CONCLUSION
In this study we found no significant association between cigarette smoking and abnormal level of the liver enzymes. Yet, further investigation might be beneficial on a larger sample size to confirm or deny the effect of the cigarette on the liver enzyme. Keywords: Smoking, ALT, AST, GGT, ALP.
3. Estimation of Microbial Contamination of Water Filters in Kuwait

Fatma Shmiki

INTRODUCTION
Many devices have been used in order to improve tap water. Water filters have been found in public and private places to obtain pure water. Unfortunately, water filters can be a source of microbial pathogens when used for a long time without renewal. This study aims to assess the degree of microbial contamination of some water filters in Kuwait.

METHODS
Two types of sampling methods were used. Water and swap samples were collected from 20 points of water filters distributed in college, houses, and swimming pools. Swap samples were obtained through swap, then dipped into nutrient bottles for enhancement purpose. Water samples were obtained through faucet and from water filters. Four different agar media were used in this study for culturing microorganisms.

RESULTS
The most frequent microorganisms in this study were Klebsiella oxytoca (20%) and Staphylococcus (17%) in the water filter of swimming pools, but there are other types, such as Stenotrophomonas maltophilia, Staphylococcus saprophyticus, Staphylococcus epidermidis, Pseudomonas aeruginosa, Bacillus, Streptococci, Enterobacter cloacae, and Pseudomonas spp.

DISCUSSION & CONCLUSION
This study was done in order to explore the nature and extent of information on health issues associated with filter water in Kuwait. Pure water is one of the most basic human rights. Water filters have the ability to improve water and make it valid for human use. Pay attention to renew water filters in order to reduce the spread of microbial diseases.
INTRODUCTION
Pomegranate peel (PP) was underestimated as an agricultural waste, but researches showed that this inedible part of the fruit has wound healing activity attributed to its rich source of polyphenols.

METHODS
Nine adult female Sprague Dawley rats weighted between 270-290g and were divided to three groups, consisting of 3 in each group. Animals in group I were treated with topical dried pomegranate powder (PP), Group II tested with aqueous solution of 5% PP powder and group III used as control. All animals were anesthetized, shaved and a circular wound was created. In order to determine the process of wound healing, photographic pictures were taken, also one rat from each group was randomly chosen on the 5, 12, and 20 days, euthanized and scar tissue was taken for histopathological findings.

RESULTS
Photographic findings showed that in day 5, scab tissue started to remove in group I and in day 10, it removed completely and wound area size decreased to 50% compared to group II and group III that show no significant change. In day 20, all groups almost healed at the same time. Histological findings of group I in proliferative phase showed severely cellular proliferation, collagen accumulation, re-epithelialization and beginning of angiogenesis compared to other groups that showed less histological parameters in this phase.

DISCUSSION & CONCLUSION
PP powder may have beneficial effect on wound healing activity by stopping excessive blood loss and accelerating proliferative phase steps, PP powder might be suggested to diabetic patients with long open wounds and patients with low immune responses but not as a general treatment.
5. Nephelium Lappaceum in Hyperglycemia Management
   Hajar Al-ahammeri, Sawsan Ramadan

INTRODUCTION
Rambutan (Nephelium lappaceum L.) is a tropical fruit belonging to the sapindaceae family. Many studies showed that rambutan fruit have anti-diabetic and anti-obesity effect due to its peel content of flavonoids, tannins and saponins. This study is done to identify the effect of rambutan fruit on body weight and on hepatocyte glycogen.

METHODS
In this study, two groups of adult male rats were fed a high fat and sugar diet for five weeks to increase their weight and glycogen content in the liver. After five weeks, one group was given rambutan fruit and juice for seven days with measuring their weight.

RESULTS
After examining the results, there was no increase in body weight however, there was an increase in their appetite, which may eventually lead to obesity. Furthermore, the control group showed high glycogen content in hepatocyte using PAS stain while the rambutan fed group showed hypertrophic hepatocytes due to the increase in nuclear and cytoplasmic size and clear tissue architecture. Moreover, glycogen content was depleted and some cells show reactivity due to the presence of nucleoli. When alcian blue stain was used, both group sections showed no reaction or stained carbohydrate, which confirms that what is present in the PAS stain is glycogen not other type of carbohydrates.

DISCUSSION & CONCLUSION
These findings confirmed that rambutan fruit have anti-diabetic effect due to its role in the reduction of hepatocyte glycogen.
6. DNA Extraction Yield Using a Commercial Kit Versus Manual Method
Esraa Khil Ahmed

INTRODUCTION
Many studies compared between different methods of DNA extraction using a commercial kit and traditional method, which was phenol chloroform. Previous studies found that extracting DNA using phenol chloroform had some advantages like getting high quality pure DNA. However, there were many disadvantages such as length of the protocols used. In addition, the phenol chloroform method contained a number of toxic reagents. The aim of the study was to make a comparative analysis and evaluation of these two methods to identify the one that gives a superior quality and quantity of genomic DNA.

METHODS
In this study the manual DNA extraction was done using phenol chloroform isoamylalcohol and The commercial kit used was Wizard® Genomic DNA Purification Kit, the DNA yield obtained from both protocols were then compared using spectrophotometric quantification and Agaros gel electrophoresis.

RESULTS
This study is compatible with the studies written before.

DISCUSSION & CONCLUSION
The commercial kit is more effective and better than manual. It is fast and the procedure can be done with an hour unlike the manual that take a lot of time and need a lot of reagents.
INTRODUCTION
Sickle cell disease (SCD) is a multisystem disease associated with acute illness and organ damage. This disease affects a person when they inherit two abnormal copies of Hemoglobin S from both parents. The major characteristic of sickle cell disease is vaso-occlusion, in which the sickle cells circulating around the body adhere to the vascular endothelium and aggregate leading to disturbance of blood flow especially in small vessels. Hydroxyurea (HU) is a chemotherapeutic drug that was found to delay the polymerization of hemoglobin S, and hence decrease the sickling of the red blood cells to the endothelium. One of the benefits of HU is its ability to decrease ferritin levels. Ferritin is considered the main intracellular iron storage protein, and is usually high in SCD patients.

METHOD
Blood samples were collected from 20 patients on HU (15mg/Kg/day) and 19 samples patients not on HU. One EDTA tube was used to collect samples for complete blood count and one plain tube was used for Ferritin analysis.

RESULTS
Mean corpuscular volume and mean corpuscular hemoglobin were both higher in HU treated patients (p = 0.001 and p = 0.002 respectively), while HbA2 was lower in treated patients (p = 0.002). There was no difference in ferritin levels between HU treated and untreated patients (p = 0.501).

DISCUSSION & CONCLUSION
The beneficial effects of HU were mainly found in MCV and MCH levels of our patients, which indicate larger cells with higher amounts of hemoglobin. The lack of effect on ferritin levels may be due to small number of population. Future work will be focused on including greater number of subjects.
8. The Types Of Antibodies in Hemolytic Disease of The Newborn in Blood Bank
   Ashwaq Alanazi, Dr. Nouf Alajmi

INTRODUCTION
Hemolytic disease of the newborn (HDN) occurs when there is no blood group compatibility between mother and fetus. This incompatibility can be due to naturally occurring maternal antibodies, such as anti-A and anti-B, or produced by stimulating mother’s immune system, such as Rh, KIDD, Duffy or MNS antibodies. AIM the aim of this study is to analyze the frequency and types of antibodies occurring during pregnancy in HDN in the Central Blood Bank in Kuwait.

METHODS
Data between the year 2017, 2018, and 2019 were collected retrospectively from Kuwait Central Blood Bank. The total samples collected were 50 females with ages between 19 and 49.

RESULTS
Twenty six cases (52%) of hemolytic disease of the newborn were due to ABO antibodies. Whereas 20 cases were due to Rh antibodies representing 40% of total samples. Other cases included anti-K (kell) and anti-jra which was 8% of all cases.

DISCUSSION & CONCLUSION
HDN is a preventable disease as a result of the advances of the prenatal care, early diagnosis and monitoring the pregnant women. Our findings are similar to other published data worldwide. However, further studies with large number of HDN cases are required in Kuwait to address the exact frequency of this study.
9. Identification of bacterial flora present on the fingerprinting devices in HSC
   Alaa Saad

INTRODUCTION
Fingerprinting devices are used everywhere in almost all working places, public or private, to register the attendance of the employees. Since the fingers are in contact with the machine it is safe to assume that these machines may become contaminated and spread the contamination onto the hands of the other users. Bacteria are ubiquitous in nature and are able to grow in most environments, although in general majority of the bacteria are harmless but there are some which are pathogenic to humans especially in immunocompromised patients. Objective: The aim of this study is to isolate smears taken from fingerprinting machines in order to check for any resistance bacteria of clinical importance.

METHODS
A total of 15 swabs were taken from different fingerprinting machines at different intervals. Isolation and different identification methods were performed biochemically and antibiotic sensitivity testing was carried out by disk diffusion method.

RESULTS
The results of the morning sampling suggested that 20% of samples cultured on agar plates containing antibiotics had growth. For afternoon samples, results suggest that 80% of samples that were cultured on agar plates containing antibiotics had growth. Xanthomaltophilia (Stenotrophomonas), Micrococcus spp., Staphylococcus capitis, Staphylococcus hominis, and Staphylococcus cohnii were obtained.

DISCUSSION & CONCLUSION
The biometric machines are double-edged swords, they make the process of taking attendance of the employees easier and quicker but at the same time they may act as vectors and spread microorganisms from person to person. In order to minimize any contamination, we propose installation of sanitizer containers next to the fingerprinting devices, so the employees can use sanitizers before and after fingerprinting.
10. Microbial Contamination of Domestic Refrigerators in Kuwait
Shaikha alturki

INTRODUCTION
Contamination of fridges depends on the microbial quality of the stored food, inappropriate storage, inadequate cooking, and malpractice of hygiene processes (Evans, 2004) (Kennedy, 2005). Objective: To investigate the microbiological load and domestic fridges as a potential risk of food borne illness.

METHODS
A total of 50 swabs were collected from fridges of 50 different homes in Kuwait. The samples were collected using a sterile swab by swabbing the interior surfaces of fridges shelves, doors and drawers. After that, the swabs were dipped and rotated into 5 mL tubes of nutrient broth. Then, the samples were transported to the university’s microbiology laboratory, the samples dipped in broth were placed in a shaker incubator at 37°C for 24 hours to amplify the number of microorganisms.

RESULTS
Different microorganisms were identified; Candida albicans 50 (100%), Staphylococcus aureus 20 (40%), Pseudomonas aeruginosa 15 (30%), Staphylococcus epidermidis 11 (22%), Escherichia coli 5 (10%), and Enterobacter faecalis 2 (4%).

DISCUSSION AND CONCLUSION
In this study, the most prevalent microorganism isolated from 50 different domestic fridges is Candida albicans. The levels of contamination of the fridges is variable, and generally dependent on the cleanliness, already contaminated raw food, packaging of the stored food, leakage of the stored food, temperature and humidity of the fridge (Out-Bassey, 2017). Microorganisms may have gained entry be means of unwashed food items, unclean hands, opened doors of refrigerators leading to warm temperatures and entry of food-spoiling microbes (Kumar, 2012). Refrigerators can be an indoor source of food-illness that might result in gastroenteritis. Food pathogens surviving domestic refrigerator surfaces due to different factors, some of which are related to temperatures, others are related to poor hygiene of stored food items.
INTRODUCTION
Sickle cell disease is an inherited disorder caused by defective haemoglobin, where red blood cells can take the shape of crescent or sickle leading to many complications such as chronic haemolysis, vaso-oclusion and inflammation. Neutrophil to lymphocyte ratio and platelets to lymphocyte ratio are new inflammatory markers, which can be used to monitor systemic inflammation as they are not expensive, readily available and could be calculated easily.

METHODS
This project included 82 subjects of which 36 were sickle cell disease patients (aged 19-65 years) and 46 were normal subjects (age 18-72 years). One blood sample was collected in EDTA tube from each participant to analyse complete blood count test.

RESULTS
Red blood cell count, haemoglobin and haematocrit levels were significantly lower in patients (p<0.001), while white blood cell count and platelet count were higher in patients (p=0.010 and p=0.038 respectively). There was no difference in neutrophil to lymphocyte ratio and platelet to lymphocyte ratio between patients and control (p>0.05).

DISCUSSION & CONCLUSION
The lack of significant difference in neutrophil to lymphocyte ratio and platelet to lymphocyte ratio between sickle cell disease patients and controls suggests absence of clear signs of inflammation in sickle cell disease patients in our studied population. More studies are recommended to be done on a greater number of cases with correlation to the clinical data of the patients in order to get more significant conclusions.
12. The Role Of Hemeoxygenase-1 In Suppression Of Inflammation In Acute Low Back Pain Following Treatment With Sour Cherry Topical Analgesia

Amthal Thamer Aldhaferi

INTRODUCTION
Low back pain (LBP) due to disc prolapse or herniated disk tissue is associated with the release of inflammatory mediators. We hypothesize that the cytoprotective heat shock protein hemeoxygenase-1 (HO-1) plays a role as an anti-inflammatory mediator in LBP.

METHODS
Twenty patients with LBP were randomly assigned into 2 groups: 1) Topical analgesic biflavones extracted from seeds of sour cherry (SCE) and 2) A placebo group. A control group included 10 healthy subjects. Patients were evaluated for pain score and lymphocyte expression of intracellular pro-inflammatory cytokines and HO-1 in phorbol 12-myristate 13-acetate (PMA) and ionomycin (IOM)-stimulated peripheral blood mononuclear cells (PBL).

RESULTS
After intervention, the pain score was reduced significantly in the SCE group but not in the placebo group. Relative to baseline, a significant decrease in CD4+T cell expression of TNF-α and IL-8 (p<0.05), and a significant increase in IL-10 (p<0.01) and HO-1 (p<0.05) expression was shown in the SCE group, but not in the placebo group.

DISCUSSION & CONCLUSION
These findings show that SCE induces expression of HO-1 which increase production of the anti-inflammatory cytokine IL-10 in CD4+ T cells and promote the suppression of inflammatory responses in LBP, suggesting the use SCE as a complementary therapeutic agent in this disorder.
INTRODUCTION
Decalcification is a paramount technique in histopathology laboratory used to facilitate screening and diagnosing bone specimens to evaluate pathological and developmental changes caused by certain diseases and conditions. Many methods and decalcifying agents have been used for this goal based on the amount of mineralized tissue present in the specimen and the urgency of the specimen. The purpose of the study is to compare between strong and weak acid decalcification solutions and their effects on the rate of decalcification process, tissue sectioning and staining characteristics.

METHODS
Two acids were involved in the study to remove mineral components from sheep bone including strong 8% HCl acid and weak 8% formic acid at room temperature. Specimens were fixed in 10% buffered neutral formalin then incubated in the decalcifying agents. The end point of decalcification was determined using chemical test and followed by routine processing, embedding in paraffin wax and sectioning with rotary microtome. Morphology preservation and quality of staining were evaluated under the microscope by using routine protocol of haematoxylin and eosin staining method.

RESULTS
8% formic acid was the slowest in removal calcium deposits from the specimens with good preservation of tissue components and better clarity under the microscope. In contrast, 8% HCl acid was the fastest but with difficulties in tissue sectioning and less morphology preservation in addition to indistinct staining pattern.

DISCUSSION & CONCLUSION
We conclude that as decalcifying agent used for decalcification is slow in the action and takes more time such as formic acid, we get better results in respect to morphology preservation and ease of sectioning. On the other hand, for the urgent samples strong acid decalcifying agent might be used.
14. Purification Of Urinary Exosomes And Further Characterization Using Western Blotting

Anfal Nasserallah AlShammari

INTRODUCTION
Exosomes are extracellular vesicle (EVs) and they are the smallest extracellular vesicles, which have a diameter ranging from 30 to 100 nm. They can be found in varies body fluids including urine. Exosomes has been proposed for potential clinical application. It is very tiny particles contains miRNAs, proteins, RNAs, and DNA, which means there are genetic information in this vesicles. Exosomes used as a biomarker for some diseases and carry the all signals that necessary to go and change the behavior of the enabling cells. The aim is to isolate, purify, identify and characterize exosomes from urine sample.

METHOD
Urine sample (50 ml) was taken for exosome isolation and Ultracentrifuge at approximately 100,000xg for 1-2 h. Then, used Scanning Electron Microscopy to produce high-resolution and three-dimensional image of urine exosomes. Finally, Weston blotting was performed by using primary and secondary antibodies.

RESULTS
The results for purifying exosomes shows positive signal for CD63 and TSG101 protein markers and negative for GRP94 protein marker.

DISCUSSION & CONCLUSION
Basically, telling as that we have exosomes. In future study, I will do to another type of samples to determine the use of urine exosomes in other diseases.
INTRODUCTION
Biochemical investigations are most vital for assessment of clinical condition of patients. The principle of those investigations are taught during the under graduate study for Medical laboratory BSC programme. Medical laboratory education systems in Faculty of Allied Health/Kuwait University is based on laboratory based practical experimentation. However, manual analysis is of importance in training scientists and students the principle of biochemical analysis and techniques. This enable the students to understand the basis of different biochemical analysis. Sometimes MLS departments endure shortage of reagent kits used for teaching practicals. The Ministry of Health (MOF) medical laboratories on the other hand, normally discard some of extra/about to expire kits. Therefore, it is being thought to benefit of this situation and utilize these kits for teaching purposes. Aims to investigate the ability to switch the usage of those kits from automated into manual analysis.

METHOD
Left over serum samples were collected from Maternity Hospital. Triglycerides, Transferrin and Bilirubin were analyzed using siemens dimension autoanalyzer (AU 5800) at Maternity Hospital. Analytical result were obtained for comparison purposes. Then, Triglycerides, Transferrin and Bilirubin were manually analyzed using coulometric method.

RESULT
Statistically no significant difference in mean values was found between manual method when compared with automated method for all tests. However, Pearson’s correlation revealed significant correlation; R²=0.91, p >0.01 and R² =0.812, p > 0.01 between the two methods for both triglyceride and bilirubin respectively. No such significant correlation was observed for transferrin test.

DISCUSSION & CONCLUSION
From this study, we found that we can benefit from using kits about to expire and some of extra kits normally discard from hospitals for training students and scientists to learn about the principle of biochemical analysis as well as we can used to reduce the cost laboratory teaching.
INTRODUCTION
Using automobile and its air conditioning (A/C) systems is becoming essential part in our modern life. Therefore, investigating the bio aerosol present in the A/C air as well as cabin air filter to determine the air quality has great concern today. II. This study was conducted to determine the air quality inside the vehicle cabin.

METHODS
It was divided into two sections. First section was concerned with the investigation of bacterial and fungal presence in the A/C system. The second section aimed to identify the bacteria trapped in the cabin filter. This was performed by collecting 30 air-samples from 30 automobiles by two different methods, one method is by using an air-sampling device “QuikTake30” and the second method is by exposing an agar media for 15 minutes directly to the A/C air. In addition, this study investigated 17 cabin filters swab samples from the same automobiles. The identification was performed using Vitek2, API, biochemical tests, and macroscopic appearance.

RESULTS
Different microorganisms were identified including 45% of gram-positive bacilli, 32% gram-negative bacilli, 10.5% gram positive cocci, 7.8% gram-negative cocci, and 10% yeast. In addition, Aspergillus, Penicillin, Bopolaris and Cladosporium species, as well as, non-spore-lating molds were detected.

DISCUSSION & CONCLUSION
Although this study has some limitations such as being unable to identify some microorganisms to the genus level, but it gave general idea about the of air quality being breathed inside automobiles.
17. Effect of Lyrica Pills intake alone or with Vitamin C on Kidney and Liver Tissues.
Nourah Yaqoub Al-Yousefi

INTRODUCTION
Pregablin (PGB), known as Lyrica pills, is an anticonvulsant and a neuropathic pain agent used to control pain and seizures. This study was carried out on Sprague Dawley (SD) rats, investigating the histopathological effect of PGB overdose on liver and kidney tissues when it’s taken alone or with Vitamin C.

METHODS
Three SD rats were used, divided into control and experimental groups. Control group rat was given normal food and water. Experimental group rats were given PGB pills 75 mg/day up to 450 mg/day. Experimental Rat 1 was given the pills with food. Experimental rat 2 was given PGB pills and water mixed with 500mg of vitamin C. Liver and kidney organs were taken, processed, and stained. Liver sections were stained with Mayer's Hematoxylin and eosin (H&E), Periodic acid Schiff's (PAS), and Gordon and Sweet stains, kidney sections were stained by H&E and PAS methods. Tissues were examined under light microscope.

RESULTS
Liver tissue of the rat treated with PGB showed congestion of sinusoids with red blood cells (RBCs), sever decrease in levels of glycogen and Vacuolation in hepatocytes, and increased levels of reticulin fibers. Liver tissue of the rat treated with PGB and vitamin C showed less congestion of RBCs in sinusoids, hepatocytes showed higher levels of glycogen when compared to the rat treated with PGB only. The amount of reticulin was recovering to normal. Kidney section of the rat treated with PGB showed increased mesangial cells and the thickness of basement membrane was increased. The rat treated with PGB and vitamin C showed less proliferation of mesangial cells and the thickness of the basement membrane was recovering to normal. Behavioral changes were seen.

DISCUSSION & CONCLUSION
High doses of PGB affected liver and kidney tissues negatively. However, when it’s given with vitamin C the negative effect was less and vitamin C helped tissues recover to normal.
18. Detection of Alpha Synuclein Protein and its Aggregates in the Appendix of Kuwaiti Patients

Huda AlOtaibi, Dr. Anwar AlBanaw

INTRODUCTION
Parkinson disease is a neurodegenerative disorder characterized by disordered dopaminergic neurons. In PD α-syn aggregates have a form called Lewy bodies and Lewy neurites that affect the survival of neurons. Recently these aggregates were found to be higher in the appendices of PD patients than in non-PD individuals. Therefore, we are studying the presence of alpha synuclein aggregates in the non-Parkinson disease individuals in Kuwait according to the aggregation location, age of subjects, and gender difference.

METHODS
Immunohistochemistry was performed on 45 appendix samples using Anti-Alpha-synuclein antibody [MJFR1]. And evaluating the expression in the mucosa, submucosa, and muscularis.

RESULTS
α-syn aggregates were high in the muscularis region in 82.2% of the samples. Subjects in the age of 30 and below showed an average expression score of 5.6 out of 8. Subjects in the age of 31 to 49 had a score of 4.9, and subjects in the age of 50 and above had a score of 5.2. Male subjects showed an average expression of 5.4, while female subjects showed an average expression of 5.3.

DISCUSSION & CONCLUSION
The muscularis was the location highest in α-syn aggregates, staining the ganglionic cells in 82.2% of the subjects, 53% of the subjects are showing high expression of α-syn, moderate expression in 42%, and weak to no expression of the α-syn aggregates in only 4% of the subjects. Our results according to age are showing a decrease by 8.75% in the score expressed by the group with the age of 31-49 compared to the group with the age of 30 and below. Comparison between the average expression in males and female show no difference in α-syn between genders.
19. **Anti-oxidative Stress Effects Of Vitamins C, E, And B12, And Their Combination Can Protect The Liver Against Paracetamol-induced Hepatotoxicity In Rats**  
Nouf Ghaze Al-rashidi

**INTRODUCTION**
Paracetamol is the most widely used drug of the in medical use, causing hundreds of deaths in all industrialized countries due to acute liver failure (ALF). This study was carried out to investigate the effect of anti-oxidative stress effects of vitamins C, E, and B12 and their combination to protect the liver against paracetamol induced hepatotoxicity using a SD rat.

**METHODS**
Six female white Sprange Dawly (SD) rats were divided equally into three group: control group, experimental group 1: given over dose of paracetamol, and experimental group 2: given overdose of paracetamol mixed with dose of VC, VE, and VB12. For three-weeks period. The rats were given overdose of paracetamol mixed with dose of VC, VE, VB 12. for ten days’ period. At the end liver sections and adipose tissues from the kidney were obtain, processed, sections, and stained with H&E and PAS stain. Tissues were examined under microscope.

**RESULTS**
Under microscope the liver tissues from rat treated with paracetamol only(RA) showed sever decreases in the level of glycogen of hepatocyte and the basement membrane in the kidney tissues showed less in the thickness compared with normal histology of kidney. This changes were correlated with the increase in the dose of paracetamol. Whereas, Sections treated with paracetamol and vitamins (C, E, B12) (RB) showed that the hepatocyte in the liver and basement membrane of kidney recovered to normal compared with rat treated with (RA). These changes were due to good effect of Vitamins (C, E, B12).

**DISCUSSION & CONCLUSION**
People who are addicted to paracetamol should think of taking vitamins supplement to reduce the cytotoxic effect of paracetamol.
20. Identification of Germs Contaminants in Toothbrushes
Sarah Mahmoud Johar

INTRODUCTION
Toothbrushes are a source for infections. They are sterile when it manufactured by the company. Once they’re opened they become contaminated by hands, environments, aerosol, and oral cavity. Aim: To detect microbial contaminants on toothbrushes.

METHODS
45 toothbrushes samples were collected randomly from community. The swabs were used depth it in broth then get samples from the heads of the brushes and used for microbiological subculture for identification of bacteria.

RESULTS
The most bacterial species identified were Klebsiella spp, including Klebsiella Oxytoca, Klebsiella Pneum. Pneumoniaea, and Klebsiella Pneumoniae (8 samples). The second most gram negative bacteria found was pseudomonas spp., including pseudomonas aeruginosa, pseudomonas capacia, pseudomonas putida, and other pseudomonas spp., and these (8 samples). The third most common bacteria were Enterobacter spp., including Enterobacter cloacae and Enterobacter sakazakii (6 samples). Fourth most common spp was Acromobacter spp (4 samples). Serratia Liquefaciens (3 samples). Aeromonas Sedmonicida, Erwinia nigrifluens, Moraxella lacunata, and Shigella spp were each found in one sample (separately). Sensitivity was done for all gram negative spp. Randomly 7 samples were chosen to detect the gram positive bacteria from the vitek machine in the hospital, the results were showed Aerococcus viridans (2 samples), Dermacoccus nishinomiyaensis (2 samples), Allolococcus otitis (1 sample) and Staphylococcus vitulinus

DISCUSSION & CONCLUSION
Many bacteria were found on tooth brushes, some of them were pathogenic, and others are opportunistic, which can affect immune-deficient people such as elderly, child, and immunocompromised patients. In addition, many of these bacteria were resistant to many antibiotics and this makes them more dangerous. To avoid contamination of tooth brushes with these bacteria they should be kept outside bathrooms that contain toilets. Before flushing the toilet, it should be closed to avoid the spread of air born bacteria and avoid the contamination of tooth brushes. Tooth brushes should be replaced every 3 months.
21. Has Varicella zoster vaccine reduced the incident of chickenpox in Kuwait? Is it more severe in adults?

Hawraa Ahmad Alsairafi

INTRODUCTION
Chickenpox is a self-limiting disease, caused by varicella-zoster virus affecting all age groups associated with skin rash and fever. It can cause life-threatening complications in elderly, immunocompromised patients, smokers, or pregnant women. Varicella displays a marked seasonality (peaking in late winter or spring) in temperate climates, and does not occur in tropical countries. The introduction and inclusion of varicella vaccine in the national vaccination program were reported in Kuwait in 2012. Objectives: to demonstrate the reduction of VZV infection and to describe the clinical complication of adults in Kuwait.

METHODS
The study was done retrospectively in Infectious Disease Hospital. A total of 7194 cases were investigated from 2010 until 2018; 940 patient’s cases in 2010; 1705 cases in 2011; 792 cases in 2012; 1302 cases in 2013; 922 cases in 2014; 385 cases in 2015; 340 cases in 2016, 485 cases in 2017; and 323 files in 2018 focused on demographical data, the clinical observation, and laboratory results.

RESULTS
Due to comparison between 2010 and 2018 through 12 months, in 2010, patients on June 110, July 108, and December 127 were the highest values while, in 2018, most patients were on January 39, March and April were 34 patients each, and May 36 patients. Therefore, this virus was increased in late winter or spring season. Also, adults were more than children (234,72%), (89,28%), respectively. And Non-Kuwaiti patients were in the highest number with VZV (246,76%). Additionally, 24% of the patients with chickenpox developed varicella pneumonia, bronchial asthma (13%) and thrombocytopenia (44%) in 2018. Furthermore, the values were increased in 2011, Kuwaiti were (521,31%) and Non-Kuwaiti (1184,69%). Children (553,32%) and adults (1152,68%) and 2013, Kuwaiti were (400,31%) and Non-Kuwaiti (902,69%). Adults (835,64%) while children (467,36%).

DISCUSSION & CONCLUSION
VZV vaccination in Kuwait at childhood reduced the incident of Chickenpox in Kuwaitis compared to non-Kuwaitis.
22. Screening for TGAb in Healthy Individuals
   Hamida Sayed Hashem

INTRODUCTION
Thyroid hormones, are vital hormones necessary for function of virtually all body organs since embryogenesis. Thyroid diseases occur due to disturbances in thyroid hormone (TH) levels, and are divided into hyperthyroidism in which TH level is above the normal range, and hypothyroidism, which is characterized by low TH levels. The major cause of hypothyroidism is autoimmune thyroid diseases. These diseases are related to the presence of autoantibodies against Thyroid peroxidase enzyme and Thyroglobulin; however their role in the pathogenesis of the disease is yet to be further investigated. Aim: This study was aimed to investigate whether TGAbs are present in the serum of healthy individuals, and its’ diagnostic value in autoimmune thyroiditis.

METHODS
Left-over serum samples were collected from 18 subject diagnosed with hypothyroidism and 62 healthy individuals at Mubarak Hospital. Thyroid function, including human thyroid stimulating hormone (hTSH), free thyroxine (FT4), thyroid peroxidase antibodies (TPOAb) and thyroglobulin antibodies (TGAb) were analyzed by immunoassay methods.

RESULTS
Results obtained for hTSH showed an increase (P < 0.05) in mean values of hypothyroid group compared control group, while no such findings were observed for FT4 results. Moreover, TPOAb screening showed a significant difference elevation (P = 0.03) among hypothyroid patients compared to control group. In contrast, TGAb analysis indicated no significant difference between the two groups. A significant positive correlation (R² = 0.192, P = 0.01) between TSH and TPOAb was observed in hypothyroid group. Thus, no such correlation was noticed for the control group.

DISCUSSION & CONCLUSION
Thyroglobulin antibodies are present in sera of both healthy and hypothyroid subjects, while functioning TPOAbs are only found in hypothyroid subjects. It can be concluded that screening for TPOAbs is a more reliable test for autoimmune thyroiditis (AITD) diagnosis unlike TGAb testing.
INTRODUCTION
Venous thromboembolic disorders (VTE) are serious disorders with high morbidity and mortality rates. There are many risk factors for VTE, some are genetic while others are acquired. Prothrombin G20210A mutation is the second most common genetic risk factor for VTE after Factor V Leiden mutation. Prothrombin G20210A is a variant in human clotting factor II, a G to A transition at nucleotide position 20210. It causes an increase in blood clotting, a condition known as hypercoagulability, which is manifested clinically as VTE. Prothrombin G20210 was found mostly in Caucasians but was almost absent in non-Caucasians. Aim: This project was done to determine the prevalence of prothrombin G20210A mutation in Egyptians living in Kuwait.

METHODS
52 apparently healthy Egyptian volunteers were randomly selected from the general Egyptian population living in Kuwait, of whom 23 were females and 29 were males with an age ranging from 21-60 years old. A blood sample was collected from each volunteer to do DNA extraction followed by real-time PCR to detect the presence of prothrombin G20210A.

RESULTS
Prothrombin G20210A mutation was detected in 1 out of 52 participants (1.92%), who was heterozygous. The allelic frequency was 0.0096. No homozygous cases were detected.

DISCUSSION & CONCLUSION
The prevalence of prothrombin G20210A mutation in Egyptians living in Kuwait is comparable with healthy Caucasians. Further expansion of the study is recommended on more cases in order to get more accurate results, which may be used for better therapeutic approach and for adequate prevention of drastic outcomes of VTE.
24. Are Our Gyms Microbial Free Environments  
Abdollah Abdolreza Peyrovian

INTRODUCTION
Many people participate in bodybuilding gyms, which become part of their habit and lifestyle. Because those gyms are closed environment, bacteria can habitat on the gyms equipment. However, one of those bacteria are Staphylococcus aureus, which is a common bacterium found in the nose and throat of healthy individuals, and it can case risk factors for infection and death. We investigated environmental contamination of bodybuilding gyms with S. aureus in order to determine antibiotic susceptibility profiles of contaminants that may be transmitted to facility patrons also other bacteria will be maintained to compare the percentage of each one.

METHODS
Environmental swabs (n = 36) were obtained from 3 bodybuilding gyms. Samples were taken from 12 different surfaces at each facility and were processed within 24 h using typical bacteriological methods. Positive Staphylococcus aureus isolates were subjected to antibiotic susceptibility testing to determine whether the Staphylococcus aureus is Methicillin-Resistant Staphylococcus aureus or Methicillin-Sensitive Staphylococcus aureus.

RESULTS
In this study, 51 bacteria were isolated from 36 samples. The overall prevalence bacteria on environmental surfaces in bodybuilding gyms was Staphylococcus aureus as 25.5% (13/51), Staphylococcus epidermidis as 25.5% (13/51), gram positive bacilli as 23.5% (12/51), gram negative bacilli as 19.6% (10/51), and Staphylococcus saprophyticus as 5.8% (3/51). Cardiovascular machines such as elliptical, bike, and treadmill machine were the most commonly colonized surfaces. Also, 23.1% (3/13) of positive samples for Staphylococcus aureus were oxacillin resistance as they are a Methicillin-resistant Staphylococcus aureus and the remains were multidrug resistance Staphylococcus aureus 76.9% (10/13) but they were sensitive for oxacillin.

DISCUSSION & CONCLUSION
Our study indicates that all bodybuilding gyms, in which samples were collected, containing contamination by Staphylococcus aureus and MRSA. Additionally, more studies are needed to characterize the microbiome structure of surfaces at different bodybuilding gyms.
INTRODUCTION
Diabetes is a chronic heterogenous disorder characterized by increase glucose levels in plasma. There are two types of diabetes: type one and type two diabetes. Diabetes is usually diagnosed by measuring plasma glucose levels using fasting glucose or HbA1c tests. Because diabetes can lead to many complications such as retinopathy, cardiovascular disease, and neuropathy, several tests must be done for monitoring, one of which is erythrocyte sedimentation rate (ESR). Diabetes may lead to increase in ESR values due to many reasons such as rouleaux formation and glycation of haemoglobin. In this project, we wanted to see the relationship between diabetes and ESR values.

METHODS
Ten diabetic patients participated in this study, three of them were males and seven were females. All of them were Arabs living in Kuwait. An EDTA blood sample (5 ml) was taken from each patient, and ESR test was done using AlifaxTest1 automated machine in the haematology laboratory of Mubarak Al-Kabeer Hospital. Results were taken after one hour.

Results
The results showed that one male and three females had elevated ESR level (40% of the number of cases included in the project). Mean ESR for all the 10 patients was 25.7 mm/hr, which was more than the ESR normal range. Mean ESR for the 4 patients with high ESR was 50.25 mm/hr, which was much higher than the normal range for ESR.

Discussion & Conclusion
It seems that ESR tends to increase in almost half of diabetic patients. Still, future studies on more patients is needed to reach a better conclusion.
26. The effect of celery juice on blood components and comprehensive metabolic panel (full profile)  

Sara Mohammed Al-ostad

INTRODUCTION
This project was done to study the effects (beneficial or harmful) of celery juice on the body and health by doing CBC and chemistry full profile tests.

METHODS
11 volunteers were included in the project, 10 females and 1 male (22-51 years old), all of whom were Arabs. Two blood samples were drawn from each volunteer before and after the consumption of celery juice for 2 weeks: one EDTA tube for CBC analysis and one plain tube for chemistry full profile tests. Results were compared using Student t-test.

RESULTS
There was no significant difference in the CBC parameters (p-value > 0.05). However, chemistry full profile tests showed significant change in only TBIL, LDL and TCHOL levels (p-values < 0.05), where there was a significant increase, but still remained within the normal range. It was noticed that Ca also showed slight increase, but the p-value showed an exact 0.05 so the change is not significant, but still important.

DISCUSSION & CONCLUSION
The results indicated that celery juice has no significant effect on CBC parameters, but have a significant effect on TBIL, LDL, and TCHOL. However, this project should be repeated on larger number of volunteers and for a longer period of time to obtain more accurate results.
INTRODUCTION
Cupping Therapy (CT) or Al-Hijama is very important Islamic practice as it is recommended by Prophet Mohammed (PBUH). It is widely known to treat many diseases. The aim of this study was to prove whether CT causes changes in the body, reflected by laboratory tests such as Erythrocyte Sedimentation Rate (ESR) and Complete Blood Count (CBC), which includes (WBC, RBC, hemoglobin, hematocrit, platelets, and MPV).

METHODS
7 volunteers of Kuwaiti population (2 females and 5 males) were included, with age ranges of 21-60 years old. One blood sample was collected from each volunteer before CT (pre-cupping blood). Another sample was collected after 4 days of CT (post-cupping blood). The blood samples were used to perform CBC and ESR.

RESULTS
CT led to significant decrease in platelets count and ESR. However, WBC count, RBC count, Hb, Hct and MPV had no significant effect.

DISCUSSION & CONCLUSION
Al-Hijama revealed a reducing effect in ESR and platelets in the blood. More studies are needed on larger number of cases to get better confirmations.
INTRODUCTION
Antibiotic resistant (AR) is a global public health challenge and has been observed with increasing frequency over the past several decades. Our study is focusing on Antibiotic resistance airborne, which considered to be a challenge to human health and presented in different hospitals in Kuwait. Kuwait is mostly a desert, having tens of sand storms every year, that might contribute to the infections seen in clinical settings. Moreover, this study is conducted to investigate the distribution of AR in the dust raised from sand storms and its effect on the spreading of AR in Kuwait.

METHODS
Thirty-four airborne isolates were obtained from different sampling sites in several hospitals throughout a sand storm. Identification of the isolates growing on plates containing different antibiotics was initiated by DNA extraction and was followed by amplification of 16S rRNA gene, PCR product purification and sequencing. The isolates were finally identified using Ribosomal Database project and BLAST (http://blast.ncbi.nlm.nih.gov/Blast.cgi)

RESULTS
The airborne isolates from hospital sites that were identified showed similarity to the characteristic genera of hospital acquired bacteria such as Bacillus, Staphylococcus and Acinetobacter.

DISCUSSION & CONCLUSION
Identification of antibiotic resistance bacteria in hospital air is critical as the rising dust and the infections seen in hospitals might be correlated. We have identified resistant airborne bacteria from different departments of major Kuwaiti hospitals during sand storms as resistant airborne bacteria are capable of causing life-threatening infections.
29. **Vending Machines: A Source of Infection and Spread of high-Risk Contaminants**

Shahad Altabtabai

**INTRODUCTION**

Vending machines provide products where there are arranged inside the machine and the buyer chooses the product by alphanumeric keyboards. Direct or in-direct contact with hands is likely to be one of the main routes of infections. The aim to investigate microbial load on the surfaces of vending machine located in different places in Kuwait.

**METHODS**

A total of 20 samples were collected randomly from different faculties in Kuwait University, shopping centers, and hospitals in Kuwait. The samples were collected using sterile swabs that were immersed in nutrient broth (Oxoid, Basingstoke, UK). Three different agar media were used in this study for culturing microorganisms. The first agar used macConkey agar (MAC) for culturing Gram-negative bacilli, Blood agar (trypticase soya agar enriched with 5% sheep blood) for encouraging the growth of Gram-positive cocci and chocolate agar or chocolate blood agar, for the enrichment of the growth of Gram-negative coccobacilli (Oxoid, Basingstoke, UK).

**RESULTS**

All of the collected 20 samples were successfully sub-cultured and showed mixed growth of bacteria. The mixed cultures were purified and isolated bacteria were successfully identified. Generally, the following organisms were detected; Staphylococcus aureus (Staph. aureus), Escherichia coli (E. coli), coagulase-negative Staphylococci, and Gram-positive bacilli.

**DISCUSSION & CONCLUSION**

Hygiene awareness and application should be the first step taken to reduce the risk of spreading antimicrobial drug resistance. Also, means of routine cleaning of the surfaces of vending machines before and after use should be implemented. All to avoid further spread of contaminants to the community when the levels of transmission will not be controlled.
30. Are baby pacifier safe to use after they have fallen to the ground?
Fatma Hatem Attia Awad

INTRODUCTION
In modern countries, the use of pacifier is very common, especially in Canada. Approximately, 84% of Canadian infants use pacifier. Pacifier has several advantages, such as reduce the incidence of sudden infant death syndrome (SIDS). On the other hand, pacifier can lead to different problems like dental malocclusion, speech development, and exposure to bacteria and pollution, especially after contact with the ground. The project aims is to test the present of any bacteria on the pacifiers after they have fallen to the ground.

METHODS
The study involved 15 pacifiers taken from baby between 1-12 months. Pacifiers were identified using several microbiology techniques including: Blood Agar, Mannitol Salt Agar, Mueller Hinton Agar, and MacConkey Agar, gram stain, Catalase test, Coagulase test, and API 20E.

RESULTS
Results have shown that Only one of them was clean but other 14 were contain different bacteria. Acinetobacter spp. and Staphylococcus epidermidis are the prominent bacteria in baby's pacifier.

DISCUSSION & CONCLUSION
Studies have shown that the use of 0.12% chlorhexidine or boiled water for 15 minutes leads to sterilization of the pacifier and also it was recommended to not used for age more than 6 months.
INTRODUCTION
Microorganisms are found everywhere and constitute a major part of every ecosystem. Human hands usually harbor microorganisms both as part of body normal flora as well as transient microbes contacted from the environment. The most implicated probable sources of infections is door handles. The bacteria colonization and survival is depended on location and material of door handle. The aim of the project was to investigate the presence and types of bacteria found door handles in our house, to better understand the surrounding and better protect ourselves from any potentially harmful bacteria.

METHODS
The study involved 8 samples and it were identified using several microbiology techniques including: differential media, gram stain, catalase test, coagulase, and API testing.

RESULTS
Results have shown that Staphylococcus aureus an Escherichia coli are the prominent bacteria in door handles.

DISCUSSION & CONCLUSION
In conclusion, the load of bacterial contamination in the house door handles was considerable. Based on this study, more attention should be focused on cleaning door handles at home, as we have shown that there are potentially infectious bacteria lurking on door handles.
INTRODUCTION
Vitamin D is a fat-soluble vitamin, it is synthesized mainly in the skin then complete the journey in the liver and kidneys. The pathway of vitamin D synthesis controlled by hepatic hydroxylase and renal 1µhydroxylase. Vitamin D deficiency reduces blood calcium level and consequently the body will turn to the bone causing bone resorption to normalize the blood calcium. Long term vitamin D and Ca deficiency will lead to osteoporosis. Calcitonin is a hormone which act to prevent bone resorption and kidneys calcium excretion. The aim of this study is to investigate the effect of vitamin D deficiency on calcitonin levels.

Methods
Left over serum samples were collected from randomized outpatient and inpatient at Mubarak hospital. The samples were aliquoted then stored at -20°C until used. Renal function test (Na, Cl, K, creatinine, urea), phosphorus, glucose, adjusted calcium, alkaline phosphatase were analyzed by Dimension autoanalyzer (AU 5800). Vitamin D and Calcitonion were analysed using ELISA method.

Results
Vitamin D analysis revealed that 50% of group studied had vit D sufficiency, whereas 25% with insufficiency vit D and 25% with deficiency of vit D. However, calcitonin was within the normal range. Pearson correlation should no significant value between vit D and calcitonin, thus significant positive correlation =0.5).P= 0.13)

Discussion & Conclusion
This study showed 50% of the group studied had vitamin D insufficiency and deficiency. This could lead to negative effect on patients health and continues monitoring and vit D supplements needs to addressed. In addition, no correlation was observed between vitamin D and calcitonin, thus, a longitudinal controlled study is required to confirm the result.
INTRODUCTION
Cigarette smoking has long been known to be associated with many disease conditions mainly lung cancer and cardiovascular disease. Different studies strongly support the association of cigarette smoking and heart disease through different mechanisms. Elevated levels of cardiac enzymes such as creatinine kinase (CK) and Troponin T were found to be associated with cigarette smoking. In this study, we aim to study the effect of smoking cigarettes on cardiac enzymes level in Kuwait.

METHODS
Serum samples were collected from 44 patients, 22 were smokers while the rest were non-smokers, which they have been used as a control. The serum samples were measured using DXC 800 and Access 2 Immunoassay System and after that statistical software SPSS was used to perform statistical operations.

RESULTS
There were an elevation in cardiac enzymes Creatine Kinase, Creatine Kinase-MB and Troponin, although there was no statistical significant change in the mean CK, CK-MB and Troponin in smokers compared to non-smokers.

DISCUSSION & CONCLUSION
This study shows that smoking cigarettes may cause an elevation in cardiac enzymes CK, CK-MB and Troponin. However, there were many limitations that may affect accuracy of the study.
34. Investigation Of Antimicrobial Activity Of Honey And Garlic Against Multidrug Resistance Bacteria

Khawlah Alhajri

INTRODUCTION
In the face of multi-drug resistance (MDR), an alternative therapeutic option has to be available to reduce the increase reports and spread of resistance. Remedies have been used since ancient time. Manuka honey and garlic are some of which. Objective is to investigate the possibility of using honey and garlic in treating infections with MDR strains.

METHODS
Determination of minimum inhibitory concentrations (MICs) of honey and garlic against sensitive and resistant strains of Escherichia coli (E. coli), Staphylococcus aureus (Staph. aureus), and Pseudomonas aeruginosa (P. aeruginosa).

RESULTS
Honey and garlic were relatively efficient against fighting sensitive strains. However, both remedies failed in acting against MDR strains. Discussion: Failure to replace antimicrobial agents in treating infections associated MDR bacteria is inevitable. Regardless, scientists should investigate more options for treatment, one of which is the use of traditional remedies. Honey and garlic have the potential of acting as a first line of treatment. Yet, these two remedies cannot replace the use of antimicrobial agents.

DISCUSSION & CONCLUSION
Use of traditional remedies can be first line in treating infections and avoiding the overuse of antimicrobial agents and using antibiotics as a first line of choice.
35. Effect of Saxenda Injections with and without vitamin C on Liver and Kidneys Tissues of Rats

Zahra Abdulhadi Abbas

INTRODUCTION
Many people are using weight loss medicine to reach the ideal body weight without considering the dangerous effects on the body. Saxenda is one of these medicines. Aim: This study was carried out to investigate the effect of Saxenda injection with and without the use of vitamin C on the liver and kidney tissue using Sprange Dawly (SD) Rats.

METHODS
Three female SD rats were divided in to two groups. Experimental group, which contained two female SD rats within average weight of 0.233 Kg. The control group contained one female SD rat with weight of 0.236 Kg. The experimental rats were injected every day for a week using 3-ml subcutaneous Saxenda needle with a dose of 0.6-ml. One of the female SD rat was also given vitamin C tablets dissolved in water. At the end, dissection was performed and liver and kidney sections were obtain, processed, sections, and stained with H&E, PAS, and Gordon and Sweet's silver staining methods. Sections were examined under the microscope.

RESULTS
Under the microscope, the renal tissue of the Saxenda injected rat showed degenerative and the thickness of basement membrane and the amount of the PAS material for the renal tissue decreased whereas the renal tissue of Saxenda injected and vitamin C treated rat showed less degenerative changes and an increase in the amount of the PAS material. On the other hand, the liver section of the Saxenda injected rat showed slightly degenerative changes and an increase of the level of glycogen. However, the Saxenda injected and vitamin C treated rat showed less degenerative changes and slightly decrease in the level of glycogen.

DISCUSSION & CONCLUSION
The Saxenda has an effect on the histology of liver and kidney tissue, which could be corrected with vitamins intake.
36. In Vitro Effect of Curcumin on Expression of CD3+ TNF-α+ and CD3+IL-8+ Subpopulations in Peripheral Blood Mononuclear Cells from Type 2 Diabetes Patients

Rawaa Kittaneh

INTRODUCTION
There is an increasing evidence that low-grade inflammation is involved in the progression of Type 2 diabetes (T2DM) and is associated with complications. Elevated levels of tumor necrosis factor (TNF-α) and interleukin 8 (IL-8), may predict the development of Type 2 diabetes. Curcumin is an anti-inflammatory, anti-oxidant and anti-proliferative. Aim: to evaluate in vitro effect of curcumin treatment on inflammatory and regulatory cytokines in cells from T2DM patients.

METHODS
Ten ml of venous blood were collected in EDTA tube from 9 Kuwaiti participants, peripheral blood mononuclear cell (PBMC) were isolated by ficoll-paque. Cells were stimulated with 100 ng/ml lipopolysaccharide (LPS) and cultured for 24 hours at 2 x 106 cells/ml in RPMI 1640 cell culture medium with 10% FCS, 370 C, 5% CO2 in a fully humidified environment. Cells were harvested, washed and evaluated by 2-color flow cytometry for expression of CD3+IL-8+ and CD3+TNF-α+ T cells within the CD3+ subpopulation of each culture.

RESULTS
All of the LPS-treated cell cultures supplemented with curcumin in diabetes patients exhibited a reduction in stimulation indices (SI) for CD3+IL-8+ (p<0.05-0.001) and CD3+TNF-α+ T cells (p<0.05-0.01) relative to “baseline” cell cultures treated with LPS but not with curcumin. A significantly inverse correlation was observed between curcumin dosage and stimulation index (SI) for IL-8 and TNF-α (r = -0.480, p < 0.004) for IL-8 and (-0.386, p < 0.035) for TNF-α.

DISCUSSION & CONCLUSION
Curcumin has the ability to inhibit the production of inflammatory cytokines in the body, which could be of therapeutic use as a complementary nutrient in T2DM.
INTRODUCTION
Diabetes type 2 (T2DM) is characterized by high glucose levels and increased levels of pro-inflammatory cytokines like Interleukin-1β (IL-1β), Interleukin-6 (IL-6), Tumor necrosis factor-α (TNF-α) and Interferon-γ (IFN-γ). We hypothesize that acai berry is an anti-inflammatory and it has high contents of antioxidants. The aim of this study is to investigate the effect of acai berry on blood glucose level and inflammatory cytokines in T2DM patients.

METHODS
The study was performed on 17 diabetes patients by administration of acai berry into their diet for period of 8 weeks. Fasting blood samples were collected in plain tubes for chemistry profile testing and 10 ml were collected in EDTA tubes for measurement of intracellular cytokines. Chemistry analysis profile included Glycosylated hemoglobin (HbA1c), cholesterol, HDL, LDL, and triglycerides. The analysis took place in the main clinical laboratories of Mubarak Hospital. Peripheral blood mononuclear cells (PBMC) were analyzed by two color flow cytometry to evaluate CD4+ T cell expression of interleukin-6 (IL-6); interleukin-1beta (IL-1β), tumor necrosis factor-alpha (TNF-α) and interleukin-10 (IL-10).

RESULTS
After 8 weeks a significant decrease in HbA1c was observed (p<0.05). A significant decrease in CD4+TNF-α+ T cells and an increase in CD4+CD25+FOXP3+ cells and CD4+IL-10+ T cells was observed. Spearman rank correlation test showed an inverse correlation between lymphocyte expression of CD4+TNF-α+ T cells and CD4+CD25FOXP3+ Treg cells after intervention in the SCE group.

DISCUSSION AND CONCLUSION
The results suggest that acai berry has a potential therapeutic effect and can be used as a complementary medicine in T2DM as it is beneficial in lowering glucose and inflammatory cytokines.
38. **Comparative Study Of The Effect Of Glucophage And Novel Diabetic Support Formula In Blood Glucose Regulation And On Hepatic And Renal Dysfunction In Control And Diabetic Mice**

   Anwar Salem

**INTRODUCTION**
Glucophage is a commonly used anti-diabetic drug. However, this medicine has several side effects. Recently a diabetic support formula that includes the key anti-oxidant nutrients, Vitamin A, Vitamin C, Vitamin E, and Selenium, as well as Alpha Lipoic Acid, is used to regulate glucose metabolism. In this study the effect of Glucophage and supplement on the level of blood sugar and its histopathological effect on the liver and kidney of normal and obese diabetic mice were studied.

**METHODS**
Mice weighing 21-65g were divided into 6 groups. Group I and II were be used as control, which consist of 2 healthy mice's and 2 diabetics mice's, Groups III, 2 healthy animals were orally fed with Glucophage for 30 days. Groups III, 2 diabetics mice were orally fed with Glucophage for 30 days. Group V, 2 healthy animals were orally fed with diabetic support formula for 30 days. Group VI, 2 diabetics mice were orally fed with diabetic support formula for 30 days. After the experimental procedures the liver and kidney were removed and studied by eosin(H&E), reticulin and periodic acid Schiff's staining method.

**RESULTS**
The Hepatic histology of the obese mice after treatment with the supplement shows much improvement and recovery back to normal in the normal hepatic and renal histology, hepatic glycogen level, hepatic reticulin content and the pattern of renal basement membrane as compared to the mice treated with supplement. Blood glucose level showed much improvement in supplement treated mice.

**DISCUSSION & CONCLUSION**
The use of diabetic support formula did not show any adverse side effect that is observed in Glucophage treated mice. Moreover, in addition to the improvement in blood glucose level, supplement treatment improved the hepatic and renal histology of the diabetic mice.
39. Association between Serum Creatinine and BUN with Kidney
   Maryam Raed Abdullah Abdulwahab Alhomod, Dr. Hamad Yaseen

INTRODUCTION
ADPKD is an genetic disorder in kidney used ultra sound and see the association between bun, creatinine

METHODS
Samples took from patients having ADPKD, RFT is done in Mubarak hospital. The kidney volume calculated by the use of ultra sound. Pearson analysis between BUN/creatinine and kidney volume.

RESULTS
Pearson analysis shows: CKD-EPI & htTKV =-0.9364 Urea & htTKV =0.5828

DISCUSSION & CONCLUSION
The best associated marker is creatinine for kidney disease
INTRODUCTION
The consumption of acne treatment pills like Accutane has increased significantly. As the name implies, Acne treatment pills are supposed to treat mild to severe acne that affects the skin. Accutane contains isotretinoin, soya bean oil, beeswax and sorbitol, which are the main and most important components of this drug. Some of these compounds at high dose are toxic. Therefore, this study is focused on hepatic, renal and intestinal effects of Accutane in rats.

METHODS
In this study, Sprague Dawley Female rats weighing about 200g were used. The rats were divided into 2 groups. Group 1 was given Accutane pills dissolved in water, while group 2 animal was given only normal drinking water. The animals were given the respective drink for 7 days.

RESULTS
As compared to the control intestinal tissues, light microscopy of the intestinal tissues of the Accutane treated animals showed an increase in length and degenerative changes in the intestinal villi. Also there a decrease in the mucin produced in the intestinal mucosa. Hepatic tissues of the Accutane treated animals showed hypertrophy, degenerative changes in hepatocytes, and there was a decrease in glycogen and increase in reticulin level in the hepatocytes as compared to control. Renal sections of the Accutane treated animals showed glomerular degenerative changes and an increase in the thickness of the basement membrane as compared to the renal sections from the control animals.

DISCUSSION & CONCLUSION
The results presented in this study shows that Accutane use in higher dose causes pathological changes intestine, liver and kidney. Therefore, Accutane use for acne treatment should be done very carefully as the side effects of this drug has severe pathological effects in several vital organs of the body.
INTRODUCTION
The liver is a vital organ in our body. Nowadays, liver disease has been increasing leading to morbidity and mortality and an alternative hepatotherapeutic agent from plants is also increased. This study was done to detect the hepatoprotective effect of extra virgin olive oil (EVOO) alone, nigella sativa alone, and the combination of both of them on CCl4 induced liver injury in female rats.

METHODS
Nine female Sprague dawley rats weighting 250-300 g, were divided into 5 groups 2 rats in each group, one rat was used as a normal control. Group 1 were injected with CCl4, group 2 were injected with CCl4, then treated with extra virgin olive oil, group 3 were injected with CCl4 then treated with extra virgin olive oil mixed with nigella sativa, group 4 were injected with CCl4 for and then treated with nigella sativa in their water for and group 5 was the control normal. All groups were injected and treated for four days each.

RESULTS
The control group showed a normal liver cell structures whereas, the CCl4 showed a massive destruction and inflammation of the liver cell structure and after the treatment with (EVOO) a significant restoration of cell structure where demonstrated. While, the nigella sativa alone and the nigella sativa mixed with (EVOO) groups showed a mild restoration of central vein architecture, glycogen content and reticular fiber.

DISCUSSION & CONCLUSION
This study showed that nigella sativa alone and (EVOO) mixed with nigella sativa has a hepatoprotective effect against CCl4 induced hepatotoxicity but the EVOO was more effective than others.
INTRODUCTION
Probiotic food products contain a variety of different bacterial strains and may offer different health effects. Probiotics occur naturally in fermented foods and cultured milk, but you can also find manufactured probiotic supplements. Not all bacteria are bad guys. In fact, our bodies are home to an estimated 100 trillion “good” bacteria, many of which reside in our gut. The right type and amount of a probiotic can help in several ways. Yogurt has traditionally been considered a probiotic-carrier food with health-promoting effects. Aim To identify bacteria that found in probiotics products.

METHODS
Probiotic bacteria play important role in enhancing digestive system. This study was to follow steps of collecting samples, growing them in cultures, apply isolation, identity them by using Api and other identification tests. The subjects were twenty-four samples of yoghurt and laban drinks from different companies were taken for this study. 8 of them were expired and the other 16 samples were fresh.

RESULTS
9 of the samples included Streptococcus mitis and the others included streptococcus lactis, streptococcus sanguis, streptococcus milleri, streptococcus salivarius, and streptococcus morbillorum which are bacilli. One of the samples included staphylococcus saprophytic. Expired yoghurt/ laban drinks included more bacteria than fresh ones.

DISCUSSION & CONCLUSION
As shown in the results, bacilli are the most common bacteria in probiotic products, and play an important role in our digestive system. Expired yoghurt/ laban drinks included more bacteria than fresh ones. This should be taken into consideration, especially with elevated numbers of bacteria, this does not increase their efficacy, but rather may decrease it, as there would be more dead bacteria in the expired product that live bacteria.
43. Purification and Characterization of Secreted Exosomes from a Culture of Wharton's Jelly Mesenchymal Stem Cell.
Fatma AbduLRazzaq Sayer, Dr. Hamad Yaseen

INTRODUCTION
Exosomes are Nano-sized membrane vesicles that generated by endocytosis, released by organelle fusion with plasma membrane and secreted by body cells. They contain proteins, lipids & nucleic acids. Also, they involved in cell to cell communication. Wharton’s Jelly- derived Mesenchymal stem cells (WJ-MSCs), which are myofibroblastoid stromal cells, are isolated from the gelatinous layer within the umbilical cord tissue. The isolation exosomes from WJ-MSCs can be helpful in specific research purpose and research applications. The purpose of this study is to isolate, purification & characterize exosomes that are secreted from a culture of WJ- MSCs media sample.

METHODS
Exosomes have been isolated by sequential centrifugation and we utilized ultracentrifugation to purify the fraction & isolate exosome from WJ-MSCs sample. Then, we used AFM to measure the diameter and also we used WB to identify the markers expressed.

RESULTS
The exosomes resulting size was 104nm and 118nm in diameter. Also, they are express for CD63 & TSG101 markers, but they not express GRP94 marker.

DISCUSSION & CONCLUSION
In this research, we find that exosome’s size was less than 150nm in diameter. Also, CD63 and TSG101 are highly express in exosome with absent of GRP49. Finally, we successfully get exosomes from WJ-MSCs culture media sample.
44. Antibiotic resistance of historic isolates of Enterobacteriaceae  
   Wafaa Almutairi, Dr. Leila Vali

INTRODUCTION
As we know that, the resistance of Enterobacteriaceae in the urinary tract infection UTIs is combined with the plasmid gene encoded, and carbapenemase producing K. pneumoniae.

METHODS
The samples were taken from the freezer. After culturing them on MacConkey agar. The sensitivity testing was performed on Muller Hinton agar. The inhibition zone was measured. DNA extraction was done and PCR for 5 isolates. Finally, the presence of the genes were observed on an agaras gel.

RESULTS
From the results suggested that for these 35 multi drug resistance (MDR) isolates, Meropenem and imipenem were the best drug of choice because they have the highest sensitivity percentage. In contrast, cephalosporins have the highest antibiotic resistance percentage in this study. PCR results showed that none of the isolates contained blaCTX-M2 or blaOXA genes. Only 2 isolates (Y818 and ADA 193) contain blaCTX-M and blaTEM was found in all the isolates.

DISCUSSION & CONCLUSION
It is important to study the resistance of bacteria against antibiotics because it will lead us to understand not only past and present trends but also help us to predict possible future resistance trends. Our results showed that storing clinical isolates in the freezer did not impact the resistance of the studied isolates. In conclusion, we should educate the societies to how and when they must use the antibiotics to prevent resistance.
INTRODUCTION
Tubulointerstitial nephritis (TIN) can be defined as the inflammation of the interstitium tissues of the kidney. Histological characteristics of TIN lesions showing edema with T cells infiltrating the interstitium and tubular area. In addition to some plasma cells and macrophages with variable presence of eosinophils. Occasional unidentified structures were found residing the TIN. The appearance of these structure is smooth similar to hyaline, but the body tissues and cells are not reacting to it with inflammatory or fibrous reaction. Aim The aim of this project is to investigate and try to identify the chemical nature of this structure using different histological techniques.

METHODS
Five tissue sections (3mm thickness) were taken from one biopsy sample previously diagnosed with TIN and containing the unidentified globular structure. The sections were subjected to different staining techniques including; H&E, Periodic acid Schiffs, Masson’s Trichrome Staining, John Silver Stain and Galectin-3 using immunohistochemistry.

RESULTS
The general structure of globule is characterized by lobules with few cells trapped between them, there is no inflammatory reaction seen around the structure nor there is surrounded by fibrous material to make it into a cyst. The globular structure contains considerable amount of glycoconjugates in addition to some possible fibrous material. It was negative for Galectin-3, which disprove it possible origin as a sugar binding protein.

DISCUSSION & CONCLUSION
This is the first study to investigate the nature of the globular structure occupying some of areas of the renal interstitium of TIN disease. The structure is not considered as an antigen as there is no immune or fibrous reactions to it, in addition, it contains considerable amounts glycoproteins which could be produced by cells, it does not have any lectin expression and it could be working as a space filler in the tissue avoiding its collapse.
INTRODUCTION
Apolipoprotein L1 (APOL1) is a gene that encodes the ApoL1 protein and has been found with mutations in patients with Nephritis. Incidence of nephritis increased based on two risk variants on the Apol1 Gene, known as G1 and G2. The G1 variant is 2 different alleles, although G1G and G1M are rarely found without the other; hence, they are grouped into one variant. This research will look into the association between APOL1 risk variants, the prevalence of chronic kidney disease (CKD) and the correlation between increased risk of the disease with CKD based on the risk variants. Objective: This study was preformed to investigate the association between variants in the Apolipoprotein L1 gene in patients with Systemic Lupus Erythematosus (SLE) and SLE patients who developed nephritis.

METHODS
Twenty-nine samples were received (20 healthy individuals without history of lupus or nephritis, 5 with Systemic Lupus Erythematosus(SLE) but no evidence of nephritis, and 4 with Lupus nephritis (LN). Five ccs of blood were collected in Ethylenediaminetetraacetic acid (EDTA) tubes from all subjects. DNA was extracted from 2ml of whole blood using QIAamp DNA Blood Mini kit (QIAGEN 40724 Hilden, GERMANY) following the manufacture’s protocol. Polymerase Chain Reaction PCR was carried out by a using PROMEGA Kit, again following the manufacture’s protocol. DNA was subjected to PCR to amplify exact region, including Apol1 variants. PCR amplicons was subjected to direct sequence. Outcomes were analyzed using appropriate statistics.

RESULTS
Apol1 gene region was successfully amplified. Only one healthy control of the DNA was managed to sequence but not the rest of the samples due to a technical error. Because of a shortage of time, meta-analysis was formed from pervious related studies.

DISCUSSION & CONCLUSION
Personalized medicine is an important approach that checks genetic history of patient to improve patient follow up care.
INTRODUCTION
Nosocomial infections are known to be one of the most important causes of morbidity and mortality worldwide, especially in Intensive Care Units and less commonly in Cardiac Care Units. This study has been conducted in the ICU and CCU of two different hospitals to identify the bacterial contaminants found in the patient zone and to test their sensitivity to antibiotics.

METHODS
A total of 68 swabs were collected from 5 different places in those locations and were inoculated on different culture media and incubated for 24 hours at 37°C. Out of 68 swabs, 33 were positive for bacteria in the ICU and CCUs combined.

RESULTS
After sub culturing the bacteria and performing biochemical tests on them, 53.48% of them were coagulase negative staphylococci, 18.6% were Staphylococcus aureus and 13.95% were gram positive bacilli. In addition, 4.65% were gram negative bacilli, gram negative cocci and streptococci respectively. The highest rate (40%) of bacterial contamination in the ICU was found on bed handles, as compared to the CCU, where the highest rate (43.47%) of bacterial contamination was found on the bed side tables. As for the antibiotic sensitivity, 96.77% of the species tested with vancomycin were sensitive to it and only 1 bacterium was resistant to it (3.22%). As for clindamycin, 33.33% were sensitive to it, 50% were resistant and 16.6% were intermediately sensitive.

DISCUSSION & CONCLUSION
All Staphylococcus aureus were resistant to oxacillin, which makes them methicillin-resistant Staphylococcus aureus (MRSA). Gentamycin showed activity against 68.41% of the bacteria it was tested against, but 31.57% were resistant. 70.58% were sensitive to trimethoprim and the remaining 29.41% were resistant. All species tested with amoxicillin were sensitive (100%). As for piperacillin, 25% were sensitive, 25% were intermediately sensitive and 50% were resistant. Finally, ciprofloxacin showed activity against 80% of the species it was used against and 20% were resistant.
**INTRODUCTION**

Exosomes are attributed to the family of nanovesicles, actively released by almost all types of cells by fusion of the plasma membrane with multivesicular bodies. They are loaded with lipids, nucleic acids and specific proteins, which give them their significant value in performing many functions primarily cell-cell communication. This project was established to isolate and characterize exosomes from serum samples.

**METHODS**

Serum samples were used in obtaining exosomes by exosome isolation methods (centrifugations). Then, we used transmission electron microscope (TEM) to measure the diameter followed by exosomes analysis with the application of western blot showing the specific proteins of serum exosomes.

**RESULTS**

After serum exosome isolation and by the use of TEM, a fraction was seen rich in exosomes, and their sizes noticed were in the right range from 30-100 nm. They appeared to be gray, very small round vesicles. From western blotting technique, CD63 and TSG101 are expressed in the samples derived from serum, whereas GRP94 is not expressed.

**DISCUSSION & CONCLUSION**

My research shows that exosomes are present in serum specimens by visualization of them using TEM. They can easily be identified by their size, which is about 30-100 nm in diameter. The western blot analysis shows that exosomes isolated from serum contain specific proteins, including CD63 and TSG101. Presence of exosomes in serum samples provides an evidence that they can be found in vivo. Existence of CD63 and TSG101 in serum samples means exosomes are rich in specific proteins, which give them their importance in performing many biological as well as pathogenic functions.
INTRODUCTION
Dexamethasone is administered to pregnant women at risk of preterm delivery to allow maturation of fetal lung. However, dexamethasone administration results in intrauterine growth restriction (IUGR). This may be due to a decrease in metastasis tumor antigen 2 (MTA2) expression. Melatonin is a strong antioxidant and has been used to improve pregnancy outcomes. Our hypothesis is that dexamethasone induces IUGR due to a decrease in MTA2 expression which is reversed by melatonin. To investigate whether melatonin reverses the effect of dexamethasone on MTA2 expression.

METHODS
Pregnant Sprague-Dawley rats will be assigned into four groups: control (C), dexamethasone (DEX), melatonin (MEL), and DEX+melatonin (DEX+MEL). Intraperitoneal dexamethasone (0.2 mg/kg) will be injected to pregnant rats from gestational day 15 to 20. In the melatonin groups, rats will receive 0.01% melatonin in drinking water during their entire pregnancy. Protein and gene expression of MTA2 will be studied in the labyrinth and basal zones of the placenta by western blotting and real-time PCR, respectively.

RESULTS
DEX treatment caused a decrease in fetal body weight, placenta weight and in basal and labyrinth zone weights. This decrease was reversed by melatonin treatment. MTA2 gene expression decreased in the labyrinth zone in the DEX+MEL and MEL groups compared to control and DEX groups (p≤0.01 – p≤0.001); at the protein level the DEX+MEL group had higher MTA2 expression compared to all three groups (p≤0.05 – p≤0.001). In the basal zone no significant difference was detected at the gene level, however, at the protein level a significant increase was seen in the DEX and DEX+MEL groups compared to control and MEL groups (p≤0.01 – p≤0.001).

DISCUSSION & CONCLUSION
DEX treatment decreased fetal and placenta weights and this was reversed by melatonin. At the molecular level, MTA2 seems to play a different role in the basal and labyrinth zones.
INTRODUCTION
Lead is a toxic substance, widely distributed in the environment. Exposure to this substance leads to pathological changes in the vital organs such as liver, kidney, and the brain. Turmeric on the other hand has some protective in reversing the injury-induced effect in various tissues and organs by various toxic substances. Recent studies have demonstrated the effectiveness of turmeric in reversing the histopathological changes in the liver induced by toxic substances such as lead. This study is focused on the lead induced hepatic changes in adult wistar rats and its reversal by turmeric treatment.

METHODS
Female Wistar rats weighing 200-250 grams were used in this study. The animals were divided into three groups as follows. Group 1. Control group, which was given only water. Group 2. Lead group, which was given lead in drinking water for four days and water for another five days. Group 3. Lead and turmeric group, which was given lead for four days, followed by turmeric in drinking water for five days. After the experimental period, the animals were sacrificed and the hepatic tissues were processed for histopathological staining.

RESULTS
Light microscopy using haemtoxylin and eosin showed degenerative hepatic changes due to lead toxicity as compared to the control. The lead induced pathological changes were partially reversed by turmeric administration. Periodic acid Schiff's staining showed that hepatocytes showed severe decrease in the level of glycogen following lead toxicity, which was reversed by turmeric administration.

DISCUSSION & CONCLUSION
The data presented in this study shows that the hepatotoxic effects of lead are partially reversed by turmeric, which could be due to the antioxidant effects of turmeric.
51. The Impact Of Age On The Level Of Several Hemolytic Markers In Sickle Cell Anemia Patients

Amal Hussain Alajmi

INTRODUCTION
Sickle cell disease (SCD) is a hereditary hemoglobin disorder in which two copies of the abnormal hemoglobin S gene is inherited from both parents. The disease is characterized by chronic hemolytic anemia and the persistence painful vaso-occlusive events in which adherence of the sickle cell to the vascular endothelium occur leading to the disturbance of the blood flow and increasing the viscosity of the blood. The SCD patients experience progressive chronic organ damage and dysfunction associated with ageing. To investigate the impact of age on the level of several hemolytic markers such as hemoglobin, unconjugated bilirubin, lactate dehydrogenase and reticulocytes count in sickle cell anemia patients in our local population.

METHODS
We collected samples from 35 adult patient and 23 pediatric patient into two tubes. One plain tube was used to analyze LDH and unconjugated bilirubin and one EDTA tube for complete blood count analysis.

RESULTS
There were significant difference between adult patient and pediatric patient. Pediatric patient had higher levels of RBC count than adult (p=0.004), and lower reticulocyte count (p=0.003). There was no difference between adult and pediatric in terms of LDH (P=0.746), bilirubin levels (p=0.689) and other measured hemolytic parameters.

DISCUSSION & CONCLUSION
Our results indicate less hemolysis in the pediatric patients compared to the adult patients as evident from red blood cells and reticulocyte count. The lack of difference of the other hemolytic parameter may be due to the small number of population studied.
52. The Effect Of Menopause On Serum Thyroid Stimulating Hormone Levels
Manar Aldhaferi

INTRODUCTION
Prevalence of high levels of thyroid stimulating hormone increases with age, especially after menopause. Menopause process can cause some changes in body system controlling mechanism. As a result, thyroid hormone levels may show variations reflected by TSH levels. Thyroid glands disorders are among most prevalent endocrine disorders especially in women, second only to diabetes, and the incidence increase with age, particularly hypothyroidism. The diagnosis of any thyroid disorder is challenging in women over the age of 50 due to the symptoms are more subtle and attributed to menopausal symptoms. Studies on the relationship between menopause and thyroid function are few and do not allow to explain if menopause influences the thyroid. Aim and objective: To evaluate serum TSH statue in postmenopausal women and to know if there is correlation between menopause and serum TSH.

METHODS
The estimation of TSH level was done through immunoenzymatic assay by using DXC 800 machine in clinical chemistry lab, Alameri hospital. The study was conducted on 22 postmenopausal women of age group 50-87 years.

RESULTS
Analysis was done by Microsoft Excel. Mean ± SD of TSH was calculated. The prevalence of hypothyroidism was found to be 13.63% in postmenopausal women.

DISCUSSION & CONCLUSION
Postmenopausal women should be monitored for serum TSH levels for reducing risk of thyroid dysfunction.
53. DNA Extraction From Decalcified Bone Vs. Non Decalcified Bone
Hanadi Karkari

INTRODUCTION
Molecular studies suggest the importance of the extracting good quality and quantity of DNA samples that is obtained from any organism. This extraction is achieved by decalcification process, which is a common procedure and widely used in histology.

METHODS
In this study the decalcification effect on the bone samples was studied to examine its value in order to obtain good quality samples. Phenol chloroform extraction method was used for DNA extraction from decalcified bone and non-decalcified bone samples.

RESULTS
In this experiment, the results showed that the decalcification process that is done on bone samples was an important step in order to obtain high DNA yield. Although, from the extracted DNA samples without decalcification, Agaros gel electrophoresis showed stronger DNA band.

DISCUSSION & CONCLUSION
The result of this experiment was contradictory to the results obtained from similar studies where bone decalcification process was not a necessary step to get high yield of DNA.
INTRODUCTION
Diabetic Neuropathy (DN) is characterized with progressive neuronal loss, demyelination, and damaged nerve regeneration with ultimately dysfunction of nerve fibers in which affecting the whole nervous system. Hyperglycemia leads to damaging of neurons, Schwann cells, and endothelial cells of the vasa nervorum in the peripheral nerves. The pathogenesis of β-cell dysfunction results from changing in the stability of H2S in which occurs in response to T1 and T2 D. There is evidence showing that H2S controls the function of β cells in addition to that H2S modulates and possibly mediates the injury of β cells which underlies the pathogenesis of T1D. To investigation the effect H2S on the spinal cord cells in diabetic rats.

METHODS
Diabetes was induced with a single dose of STZ to eight Sprague Dawley rats. The GYY 4137 were injected intraperitoneally once daily. The tissues were stained for endothelial cells using CD31 and for infiltration of monocytes using CD68.

RESULTS
CD31 expression was seen in endothelial cells. The control did not show any cells. The treated control and diabetic treated groups were show few of endothelial cells. The diabetic group show many endothelial cells. CD68 expression was seen in monocytes and macrophages. Both the control and the diabetic treated groups did not show any type of cells. The control treated group showed few types of cells. The diabetic group showing many immune cells which could be monocytes, macrophages or even plasma cells.

DISCUSSION & CONCLUSION
H2S exposure has shown to reduce the inflammatory effects caused by diabetic neuropathy. The findings of investigation add more information regarding what could be a beneficial effect of H2S exposure on tissues. Further studies are needed to see the effect of the dose and time exposure on the tissue.
55. **The Association Between Serum Triglycerids And Calcium Level In Serum Of Healthy And Unhealthy Postmenopausal Women**

Zahraa Alashwak

**INTRODUCTION**

The following report deals with the effect of Calcium and triglycerides level in post menopausal women. Cardiovascular problem caused by change in Calcium level. It along with the profile of lipids with the adiposity may be the metabolic factors of risk for cardiovascular health issues in post menopausal women. The serum triglycerides levels are correlated with the diseases of heart attacks, stroke with people of low good cholesterol level called HDL and also in people having diabetes Type 2. Therefore, it is possible to improve the health by lowering the triglycerides level. Triglycerides and its high levels are mainly linked with pancreas and liver problems. The high levels of triglycerides also associated with increased blood pressure, obesity, diabetes, high LDL or bad cholesterol levels and low HDL or good cholesterol levels. Diseases which are said to be periodontal are inflammatory destructive disease which induces changes profound in the concentrations of plasma of cytokines which leads to alteration in the state of catabolism or alteration of metabolism of lipids as well as hypertriglyceridemia. The principle objective is to evaluate periodontal infection effect on the triglycerides levels of serum as well as calcium.
Occupational Therapy
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Taiba Alibrahem, Taibah Alyaqoub</td>
<td>Dementia Level Of Knowledge Among Caregivers Of People With Dementia</td>
</tr>
<tr>
<td>2</td>
<td>Menwah Al-akari And Fatemah Al-mohanna</td>
<td>Utilization Of Evidence-based Practice Among Healthcare Professionals In Kuwait</td>
</tr>
<tr>
<td>3</td>
<td>Alzahraa Alkout, Eman Alattar, Shouq M. Almutairi</td>
<td>The Relationship Between Sensory Processing Skills And School Performance Among Children In Primary School</td>
</tr>
<tr>
<td>4</td>
<td>Dr. Mohammed Nadar, Amna Mohammed, Basma Almatar</td>
<td>Inter-rater Reliability Of Goniometric Thumb Range Of Motion Measurements In Healthy Hands</td>
</tr>
<tr>
<td>5</td>
<td>Fahad Manee, Asmaa Sager, Mariam Al Shraim</td>
<td>Effectiveness Of A Training Program About Dementia On Knowledge And Confidence Of Health Care Professionals Dealing With Elders With Dementia</td>
</tr>
<tr>
<td>6</td>
<td>Fatima Rahi - Abeer Abdullah - Dr.Fahed Manee</td>
<td>Relationships Between Level Of Performance And Satisfaction With Daily Occupations And Depression Among People With Dialysis Living In The Community.</td>
</tr>
<tr>
<td>7</td>
<td>Kholoud Al-msaeed, Nouf Al-enezi</td>
<td>Characteristics Of Patients Referred To Hand Therapy Clinic In Kuwait</td>
</tr>
<tr>
<td>8</td>
<td>Reem Al-dhafiri, Sarah Almutairi And Musaed Al-zied Alnaser</td>
<td>Postural Risk Assessment Associated With Work Related Musculoskeletal Disorder Among Occupational And Physical Therapy</td>
</tr>
<tr>
<td>9</td>
<td>Shouq And Alia</td>
<td>Knowledge, Practice, And Attitudes In Ergonomics Among Occupational And Physical Therapists</td>
</tr>
<tr>
<td>10</td>
<td>Hajar Naif And Fatma Suliman</td>
<td>The Effect Of Sleep Duration On The Academic Level Of Middle School Students</td>
</tr>
<tr>
<td>11</td>
<td>Haya Ahmed And Zainab Jamal</td>
<td>Prevalence Of Burnout Among Occupational Therapists In Kuwait</td>
</tr>
<tr>
<td>12</td>
<td>Kawthar Abbas -Layla Abdulrasoul</td>
<td>Quality Of Life Among Hemodialysis Patients</td>
</tr>
<tr>
<td>13</td>
<td>Lgeen Othman/ Malak Alsulaimani</td>
<td>Hand Impairments, Functional Abilities, Psychosocial Status Of Rheumatoid Arthritis Population</td>
</tr>
</tbody>
</table>
1. Dementia Level of Knowledge among Caregivers of People with Dementia
   Taiba Alibrahem, Taibah Alyaqoub

INTRODUCTION
Dementia is not a disease in itself but rather it is an overall term that describes a group of symptoms. It causes a slow but progressive loss of cognitive function and loss of behavioral abilities, which in turn will affect the ability to participate in Activities of daily living. Caregivers have a great role in promoting their health and wellbeing. This study aimed to measure the caregiver's level of knowledge about dementia.

METHODS
A descriptive study was done in a main geriatric center in Mubarak Al-Kabeer hospital as well as a geriatric clinic. Dementia knowledge assessment scale (DKAS) was used to measure the Knowledge level of the dementia patient’s caregivers. The questionnaire was distributed by hand in a governmental hospital and by phone interviews.

RESULTS
Fifty-five caregivers of dementia patients included in this study (27.3% males and 72.7% females) with a mean age of 50.85 (SD= 11.063). Majority of participants did not have prior experience of caring for patients with dementia (83.6%). Seventy percent of the participants indicated their willingness to improve their knowledge about dementia. The overall knowledge of dementia among caregivers was moderate (50.4%) (Overall final mean score= 25.2 out of 50, SD= 6.175). The final score of Subscale (A) Causes and Characteristics was 6.31/14, Subscale (B) Communication and Behavior was 4.47/12, Subscale (C) Care Consideration 9.07/12, and Subscale (D) Risk factors and Health Promotion 5.35/12. Significance differences where indicated between subscale (B) and previous experience (P= 0.043), Subscale (C) and caregivers social state (P=0.031), and Subscale (C) and willingness to improve knowledge (P= 0.013).

DISCUSSION & CONCLUSION
This research is the first of its kind in Kuwait that assessed level of knowledge among caregivers of people with dementia. Further studies are recommended to explore caregivers’ knowledge and attitude about dementia care in Kuwait.
2. **Utilization of Evidence-Based Practice Among Healthcare Professionals in Kuwait**
   Menwah Al-Akari, Fatemah Al-Mohanna

**INTRODUCTION**
Decisions related to patient's advantage are considered as the major focus of Evidence-Based Practice (EBP), which is a combination of high quality research results, clinicians experience, education and skills, in addition to values and preferences of recipients of treatment to validate the best experience to the patient. The aim of the study was to investigate the extent of Kuwait's health care professional’s EBP knowledge, utilization, behaviors, and attitudes.

**METHODS**
Evidence-based practice profile questionnaire by The University of South Australia (REF) was distributed in three of Kuwait's governmental hospitals. A convenient sample (N=150) consisted of Physicians, nurses, occupational and physical therapists. Participant's evidence-based practice attitudes, knowledge, and behaviors were examined through five domains: relevance, sympathy, terminology, practice, and confidence. Descriptive statistics, t-test, correlation coefficient, and one-way ANOVA were used to analyze the data.

**RESULTS**
In total of 200 questioners, 150 were received, 19 from physicians, 47 from nurses, 30 from Occupational therapists, and 54 from Physical therapists. An independent-samples t-test showed that there was a significant difference in the final score of relevance (p = 0.005) and sympathy (p < 0.0001) toward EBP training. There was a positive correlation between the final score of relevance and the final score of terminology (p < 0.0001), relevance and practice (p < 0.0001), relevance and confidence (p < 0.0001), and relevance and sympathy (p = 0.015). One-way ANOVA test revealed a significant deference between groups in relevance (p=0.021), terminology (p <0.0001), practice (p <0.0001), and confident (p=0.002). yet, there was no significant deference in sympathy between groups.

**DISCUSSION & CONCLUSION**
Our data showed that healthcare professionals more often integrate evidence into clinical decision-making when the following characteristics are present: positive perceptions and attitudes toward EBP and educational training. Physicians and Occupational therapists had higher belief in the importance of EBP than Physical therapists and nurses.
INTRODUCTION
Sensation helps to take in information from reality and process it in a meaningful way. Commonness of sensory processing disorder is higher in children with neurological conditions compared to healthy population. According to Occupational Therapy Practice Framework, areas of occupations that could be affected by sensory processing disorder are: Activity of Daily Living, social participation, play, and school performance. Problems in sensation may affect children’s school performance. Therefore, this study aimed to examine the relationship between primary school children’s sensory processing skills and their school performance.

METHODS
E.A.N (440) 140 healthy developed students aged between 6 to 11 years old participated from six districts. The researchers used sensory profile questionnaire that contains 125 items divided into three sections to examine the sensory systems of the child and an attached sheet for total school performance grade.

RESULTS
Majority of the participants were males whereas females represented the minority and the age was between seven and eight years old. Participants were from six districts and the highest participants were from Mubarak Alkabeer and Aljahraa having the lowest number. There was significant difference in total school performance grade in only the following sensory profile components: Oral Sensory Sensitivity, Behavior Outcome of Sensory Processing, and Inattention and Distractibility. Furthermore, both genders were similar in all sensory components except behavior outcome of sensory processing within which male students demonstrated higher scores.

DISCUSSION & CONCLUSION
A difference was found between sub-components of sensory profile and school. Sensory processing skills in some of the primary school children were deviated meaning these children may require occupational therapy interventions. Sensory skills are required to be further examined with more number of participants with other school function performance to provide further evidence for occupational therapy interventions.
INTRODUCTION
A goniometer is an instrument that either measures an angle or allow an object to be rotated to a precise angular position. Although this instrument is used by rehabilitation therapists to assess the range of motion, the measurements may vary for many reasons. The purpose of this study was to assess the interrater reliability of thumb goniometric measurements including IP, MCP, and CMC joints in healthy hands.

METHODS
A between-subjects psychometric design was utilized. Four raters used the baseline 180-degree goniometer to measure each participant’s (n=20) thumb CMC, MCP, and IP joints. Interrater reliability was evaluated through the use of intraclass correlation coefficient (ICC).

RESULTS
Inter-rater reliability was poor for all CMC movements; flexion, extension, and abduction. As well as poor in IP flexion. On the other hand, MCP flexion was moderate reliability (r=.456, CI -.033, .744).

DISCUSSION & CONCLUSION
These findings validate the concerns that thumb goniometry inter-rater reliability of measurements including IP, MCP, and CMC joints, as well as between therapists and students’ populations. Further research on within-rater reliability is required as is study on clinical populations. These finding also support the common recommendation that the same rater should test and re-test the same client to minimize measurement error. Although effort was taken to standardize the procedure, the findings of this study support that in normal hands, the thumb CMC, MCP and IP active range of motion measurements are considered to be low in reliability.
5. Effectiveness Of A Training Program About Dementia On Knowledge And Confidence Of Health Care Professionals Dealing With Elders With Dementia

Asmaa Sager, Mariam Al Shraim, Dr. Fahad Manee

INTRODUCTION
The number of dementia cases is increasing by 10 million, which means that in every 100 individuals there are between 5 to 8 individuals diagnosed with dementia. Several studies were done in western countries to prove that training is an effective tool to increase the knowledge and the confidence levels of health care professionals dealing with patients with dementia. Unpublished research was done in Kuwait and showed that the knowledge level among healthcare professionals was limited, which can hinder their ability to care for dementia patients. The aim of this study was to measure the effectiveness of dementia training program on the knowledge and confidence of health care professionals dealing with elders with dementia.

METHODS
E.A.N (437) A total of 40 health care professionals were recruited and randomly assigned to 20 participants in the intervention group and 20 in the control group. A sociodemographic tool, confidence in dementia scale (CODE) and knowledge in dementia scale (KIDE) were administered for both groups. A training manual was handed to the intervention group to be studied within a period of 2 weeks. After 2 weeks, the same scales were administered again for both groups. Using this pre – post data, the changes in knowledge and confidence were analysed.

RESULTS
The results indicated a significant difference in confidence level of the intervention group when compared with the scores of control group (p=0.001). There was no significant difference between the two groups in term of the knowledge in dementia scale (KIDE).

DISCUSSION & CONCLUSION
The training program was almost well received. Changes in scores on the scales suggested that staff knowledge and confidence had improved, which was in line with the aim of the study. These are motivating and imply that the training may affect the knowledge and confidence of healthcare professionals working with dementia.
6. **Relationships Between Level of Performance and Satisfaction with Daily Occupations and Depression Among People with Dialysis Living in the Community.**

   Fatima Rahi - Abeer Abdullah, Dr. Fahed Manee

**INTRODUCTION**

Individuals who are diagnosed with end-stage renal disease (ESRD) undergo major changes in lifestyle and psychosocial aspects. The aim of this study is to investigate relationship between patients who undergo hemodialysis (HD) and their occupational performance status and satisfaction, and the level of depression.

**METHODS**

Non-experimental, descriptive, and cross-sectional study was conducted in order to know the relationships between level of performance and satisfaction with daily occupations and depression among people with dialysis living in the community. An Arabic version of SDO and BDI was used in this study.

**RESULTS**

A total of 103 hemodialysis patients participated in this study. SDO total score for performance was (mean = 10.18 out of 14, S.D = 3.15) and the total score for satisfaction for SDO was a mean of 47.26 out of 70 and S.D 10.8, Whereas Depression total score was a mean of 24.009 out of 51 and S.D 13.5. The mean for the male depression was 19.7 and the mean for male satisfaction was 49.96 whereas the mean for the female depression was 29.35 and the mean for female satisfaction was 43.9. The result indicates that there is Negative relationship was found between depression and satisfaction (P = 0.000).

**DISCUSSION & CONCLUSION**

Hemodialysis patients was having a moderate depression. They were more depressed and less satisfied than normal people. Most of the hemodialysis patient need the appropriate family support, motivation, health care to reduce depression and improve the level of satisfaction.
7. **Characteristics of Patients Referred to Hand Therapy Clinic in Kuwait**

Kholoud Al-Msaeed, Nouf Al-Enezi

**INTRODUCTION**

The hand is a delicate, yet highly complex, biomechanical structure that is capable of performing a range of activities. Hand therapy focuses on the rehabilitation of hand and upper extremity. The purpose of this study was to collect statistics about the characteristics of patients referred to the only hand therapy clinic in Kuwait.

**METHODS**

In this descriptive study, all the referrals to the Hand Therapy Clinic at the Physical Medicine and Rehabilitation Hospital during February and March (2019) were collected. We utilized a self-developed form to collect data from three domains; demographics, diagnoses, and referral. Approval number 436. During the two months of data collection, a total of 83 patients were referred to the Hand Therapy Clinic. Most of the referred patients were adults with a mean age of 33.84 years (SD= 19.453). A major delay was found in the durations from the surgery date to referral date to hand therapy (mean days = 78.04, SD=61.467). Most of referred patients were male 63.9%, with Kuwaiti nationals being the most referred (57.8%). The patients referred from Al-Razi Orthopedic Hospital represented 67.9% of all referrals, and 93.2% of all referrals were from orthopedic surgeons. The most referred diagnoses were fractures (27.7%) and nerve injuries (13.2%). The most common reasons for referral included range of motion (77.1%), home program (72.3%), and pain (67.5%).

**RESULTS**

The results show a serious delay in referrals from the day of surgery to Hand Therapy clinic. This may have contributed to the high prevalence of stiffness, functional limitations, and other complications amongst the referred patients.

**DISCUSSION & CONCLUSION**

The commonness of fractures and nerve injury referrals can help guide continuing education topics as well as curricular contents of hand therapy courses at Kuwait University. The information obtained by this study could benefit occupational therapy practitioners and students.
8. Postural Risk Assessment Associated With Work Related Musculoskeletal Disorder Among Occupational And Physical Therapy
Reem Al-dhafiri, Sarah Al-mutairi And Musaed Al-zied Al-naser

INTRODUCTION
Both occupational therapists (OTs) and physical therapists (PTs) face risks of injury and work-related musculoskeletal disorders (WMSDs) due to their job nature. WMSDs are triggered by occupational risk factors such as patient handling. Our study purpose is to examine the occupational risk factors among OTs and PTs in their clinical sitting.

METHODS
An observational, descriptive, and cross sectional study was done in 6 governmental hospitals in Kuwait. Workplace Ergonomic Risk Assessment (WERA) was used to assess participants’ posture in their workplace settings. Assessment was filled by the researchers and demographic sheet was distributed among therapists. Data was analysed using correlation coefficient to determine the relationship between the final score of both instruments and independent t-test to compare risk assessment of two groups. Ethical approval number is 975 70 participants (30 OT and 40 PT) were included in the study, T-test was conducted to compare the development of (WMSDs) in OTs and PTs.

RESULTS
There was a significant difference in the final scores for OTs (M= 34.13, SD= 4.67) and PTs (M= 37.58, SD= 4.70), p= 0.003 , in the wrist score for OTs (M= 3.70, SD= 0.877) and PTs (M= 4.38, SD= 1.055),p= 0.006 ,in the neck score for OTs (M= 3.30, SD= 1.088) and PTs (M= 3.95, SD= 0.932), p= 0.009 ,in the task duration score for OTs (M= 4.23, SD=0.858) and PTs (M= 4.80, SD=0.939), p= 0.012. Correlation findings have shown that there is a proportional relationship between force applied by work activities and over the shoulder (r=0.258, p= 0.031), wrist (r=0.344, p= 0.004), back (r=0.680, p= 0.0001), and neck (r= 0.434, p= 0.0001) among OTs and PTs.

DISCUSSION & CONCLUSION
Occupational risk factors, including wrong body biomechanics, contribute to develop WMSDs among therapists, which leads to experience pain.
9. Knowledge, Practice, and Attitudes in Ergonomics Among Occupational and Physical Therapists

Shouq, Alia

INTRODUCTION
Occupational therapy (OT) and Physical therapy (PT) are considered to be among the occupations that show high risk of developing musculoskeletal disorders (MSDs) due to their nature of work. Lacking appropriate ergonomics knowledge and practice would be an issue in implementing accurate work activities and tasks. The aim of this study was to investigate the level of ergonomics knowledge, practice, and attitude in clinical sittings among OTs and PTs.

METHODS
E.A.N(37) Cross-sectional study was done in three governmental hospitals in Kuwait. Ergonomics knowledge, practice and attitude for health care practitioners with patient handling was used to assess knowledge of ergonomics, practice of ergonomics principles, and attitude toward ergonomics principles in their clinical environment.

RESULTS
A total of 92 OTs and PTs have participated in this study. The results indicated that there was a positive correlation between actual knowledge and perceived knowledge (p ≤ 0.0001), as well as between actual knowledge and ergonomic in practice (p= 0.008). However, there was no significant statistical correlation between the actual knowledge and attitude toward ergonomics (p= 0.325). Results suggest that there was no significant difference between OTs and PTs in the actual knowledge (p= 0.126), perceived knowledge (p= 0.812), ergonomic in practice (p= 0.387), and attitude knowledge (p= 0.793).

DISCUSSION & CONCLUSION
In the present study, it is found that there was an obvious correlation between the actual knowledge of the participants about ergonomic and ergonomic in practice, which resulted from the participant’s appropriate implementation and well understanding of the knowledge and information about ergonomics. Participants with more years of experience recognized the value of using ergonomics, also they read and learnt more about it, that’s why they have a better knowledge, performance, and attitude.
10. **The Effect of Sleep Duration on the Academic Level of Middle School Students**  
Hajar Naif, Fatma Suliman

**INTRODUCTION**  
Sleep has an effect in the occupational performance, and it is considered as an important area of occupation. This research focuses on sleep duration factor and examine whether it has an impact on middle school student’s academic level. E.A.N(18)

**METHOD**  
A self-reported time diary was distributed among middle school students (11-15 years old), 540 participants from different Governorates. Findings: 1760 Questionnaires were distributed, 540 participated.

**RESULTS**  
The results showed no correlation (-0.06, P=0.19) between sleep time (M=57.9, SD= 9.4) and GPA (M=83.7, SD=9.3).

**DISCUSSION & CONCLUSION**  
No relation to academic performance and measured by GPA and sleep time spent on weekly. Both the genders spent almost similar mean in various activities of work, leisure and rest.
INTRODUCTION
Burnout is a common phenomenon affecting various healthcare professionals and is clinically complex. When experienced it results into reduced productivity, psychosocial and physical exhaustion, and reduced quality of care. The manifestations of burnout include feelings of depersonalization (DP), a state in which the professional dehumanizes and disrespects the clients; emotional exhaustion (EE), characterized by depletion of psychological and physical energy, and reduced personal accomplishment (PA), where a negative self-image is developed leading of feelings of incompetency (Schlenz, et al., 1994). Risk factors identified are increased number of cases seen per day, lack of support and chronic health conditions, etc. Its prevalence among occupational therapists is reported from several countries. However, in Kuwait it has not been explored. Objective: To explore the prevalence of this condition among occupational therapists working in different settings.

METHOD
This descriptive study, consisting of a survey included 36 occupational therapists working in Kuwait. The participants self-rated on the Maslach Burnout Inventory (MBI).

RESULTS
39% of the participants experienced elevated EE levels, 22% had decreased PA levels, and almost none experienced DP. Males were more emotionally exhausted and experienced more DP levels than females, while both presented almost identical PA scores. Kruskal-Wallis analyses yielded, significant difference in the PA dimension between therapist < 30 years with < 40 years. For all other comparisons no significant difference was observed.

DISCUSSION & CONCLUSION
The occupational therapists experienced low burnout in general, however amongst all domains the EE seems to be most predominant form of burnout and the least being the DP.
12. Quality Of Life Among Hemodialysis Patients  
   Kawthar Abbas, Layla Abdulrasoul

INTRODUCTION
Health related quality of life is one of the important figures in the end stage renal disease patients. Haemodialysis is a type of replacement therapy that usually done in dialysis centre two or three times a week for four hours per a day. Our aim of this study was to evaluate the quality of life for patient undergoing haemodialysis and assessed their needs for occupational therapy services.

METHODS
A cross sectional descriptive design was used in this study to assessed the quality of life of the patients undergoes haemodialysis in MOH haemodialysis centres in Kuwait. This study was conducted in Kuwait among 100 haemodialysis patient’s (38 males 62 females) in all ministry of health hospitals. Instrument: The instrument that was used in this study was kidney disease quality of life short form questionnaire. The questionnaire was done through interview to had accurate answers. The accumulative data from questionnaire were analysed using SPSS. Descriptive statistics, T-test, correlations were used.

RESULTS
Total QOL score was 40%, Which indicate low QOL among haemodialysis patient. The domain with highest score was patient satisfaction with medical care 60.1%. On the other hand, physical function was the lowest 25.3% followed by general health 32.8%. Male has better QOL in comparison with females in 3 domains: physical function, pain and emotional wellbeing.

DISCUSSION & CONCLUSION
We conclude that HD patients in our study had low QOL scores. Over all, male has better Quality of life than female. Since the quality of life is one of the major aspects of occupational therapy philosophy is it important to take it in consideration for the holistic approach of haemodialysis patient.
INTRODUCTION
Rheumatoid Arthritis (RA) is a chronic condition caused by synovium inflammation causing pain and joint damage. It affects the person’s ability to perform daily occupations. The aim of this study is to assess hand impairments, functional abilities, quality of life, and psychosocial status of RA patients in Kuwait.

METHODS
Eighty-one RA patient and 71 controls participated in this cross-sectional study. We used three standardised measures: The Disability of Arm, Shoulder, and Hand (DASH), the Kessler 10 (K10) distress scale, and the SF-12 Quality of Life questionnaires. Data was analysed by using t-test and descriptive statistics.

RESULTS
The RA patients had significantly higher upper extremity disability (P<0.001, t=5.1), although both groups had moderate disability (RA mean=40.01, controls mean=21.58). The K-10 revealed that both groups had “mild distress” (RA mean=24.10), (healthy control mean=21.39) and were not significantly different (P=0.076, t=1.8). Both groups had normal QOL; with Physical QOL score mean for RA = 39.40 and 40.22 for healthy controls, and Mental QOL score mean for RA was 46.40 and 45.36 for control group.

DISCUSSION & CONCLUSION
Medications and long duration of pain may explain the moderate disability for the RA patients. Many reasons explain the moderate disability for healthy controls including older age or due to their occupations that may require repetitive hand use. Findings indicate that RA patients are well served by the medical health care system in Kuwait. Good social support from family and friends can positively contribute to the good outcomes of RA patients. RA can cause disability and contribute to elevated levels of psychological distress, affecting the performance of multiple occupations.
Physical Therapy
<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alaa Al-Shobbar, Dalal Al-Omani, Maraheb Al-Khalidi, Zahraa Al-Sayegh, Dr. Maqdad Taaqi</td>
<td>The Application of Virtual Reality Along with Different Breathing Exercises on Acrophobic Population: A Pilot Study</td>
</tr>
<tr>
<td>2</td>
<td>Hind Almallah, Rawan Atef, Ftama Baqer, Reem Faraj, Mr. Baker AlZoabi</td>
<td>The Reliability and Validity of a Modified Stepping Version of Timed-Up and Go Test in Subjects with Stroke</td>
</tr>
<tr>
<td>3</td>
<td>Zahra’a AlQallaf, Kawthar Alkhabbaz, Zahra’a Rashed, Abdulaziz AlGadban supervisor: Dr Sharifah AlRagum</td>
<td>The Effect of Chemotherapy-induced Peripheral Neuropathy on Balance and Quality of Life in Adults with Cancer</td>
</tr>
<tr>
<td>4</td>
<td>Fatema Kh. Al-Zayed, Ghadeer H. Al-Shamali, Sarah E. Al-Rashidi, Rahaf S. AlEnezi</td>
<td>Shedding Light on The Relationship Between Sleep Disordered Breathing and Stroke in Kuwait</td>
</tr>
<tr>
<td>5</td>
<td>Fajer Al-Mutawa, Ghezlan Al-Hashash, Hessa Al-Senan, Sara Al-Kandari</td>
<td>The Relationship between Hyperandrogenism and Hand Strength in Female College Students</td>
</tr>
<tr>
<td>6</td>
<td>AlBatoul Farhan, Bader Alshammari, Ahmad Faraj, Kunouz Almutairi</td>
<td>Musculoskeletal Discomfort among Male High School students in Kuwait: Prevalence and Risk Factors.</td>
</tr>
<tr>
<td>7</td>
<td>Atyab Al-ansari, Aisha Eissa, Dalal Al-saadi, Fajer Al-wahabi</td>
<td>Prevalence of Stress Among Students in Health Science Center at Kuwait University</td>
</tr>
<tr>
<td>8</td>
<td>Maryam Alhadlaq, Alhadlaq H., Alajmi N., Alhamad Z.</td>
<td>Neuromuscular Electrical Potential Activities before and after Myofascial Trigger Points Dry Needling with Different Doses in Human</td>
</tr>
</tbody>
</table>
1. **The Application of Virtual Reality Along with Different Breathing Exercises on Acrophobic Population: A Pilot Study**  
   Alaa Al-Shobbar, Dalal Al-Omani, Maraheb Al-Khalidi,  
   Zahraa Al-Sayegh, Dr. Maqdad Taaqi

**INTRODUCTION**  
Phobias, type of anxiety disorder, it can be disabling to some people. The aim of this pilot study is to determine if breathing exercises in addition, the combination of breathing exercises with virtual reality can help in preventing its symptoms rather than the exposure of the VR alone.

**METHODS**  
An experimental, Single factor Pretest-Posttest group that used one experimental and one control group. Thirty participants, both males and females, were randomly selected from AHS and divided into two groups: control group (N=15), which received only VR, and an experimental group (N=15), which received VR and breathing exercises. Acrophobia Questionnaire (AQ) and Beck Anxiety Inventory (BAI) were used to evaluate participants during a 2-month period. SPSS version 25 was used to evaluate the data, P <0.05. Ethical approval number is 434.

**RESULTS**  
Group one had no significant difference in AQ (sig(2-tailed) = .462) while group two showed significant difference in AQ (sig(2-tailed) = .000. BAI for both groups did not defer and group two showed better results regarding the symptoms than group one.

**DISCUSSION & CONCLUSION**  
The outcomes support our hypothesis, the experimental group had better results than the control group in the AQ and the symptoms of acrophobia when combining VR and breathing exercises. These results when compared with others used VR alone showed to be superior. Both groups demonstrates changes however with the current experiment, the changes were further significant. This concludes that the combination of VR and breathing exercises is an effective treatment for the acrophobic population.
2. The Reliability and Validity of a Modified Stepping Version of Timed-Up and Go Test in Subjects with Stroke

Hind Almallah, Rawan Atef, Ftama Baqer, Reem Faraj, Mr. Baker AlZoabi

INTRODUCTION
Outcome measures are used to evaluate mobility and balance. A modified stepping (over and up) version of timed-up and go test (TUG) was established. The aim was studying the reliability and validity of step TUG in stroke population.

METHODS
This methodological study included twenty participants. TUG test was modified by placing a standard step (18cm height, 60cm length, 30cm width) at the mid of the 3-meter pathway. Step TUG1 was done by asking patients to step over the step when going and step up on it when returning. Step TUG2 involved stepping up on the step twice. Inter-rater and intra-rater reliability of both versions was studied. Step TUG tests were correlated with TUG, Dual TUG, and Mini-BEStest to establish alternate-forms reliability and concurrent validity. Intraclass correlations (ICC), Pearson correlations, and paired t-tests were used for statistical analysis. Ethical approval (8305) was obtained.

RESULTS
Step TUG1 and Step TUG2 had high inter-rater reliability (ICC= 0.995 and 0.999 respectively). Intra-rater reliability of both step TUG tests was high (ICC= 0.996 and 0.986 respectively). Step TUG, TUG, and dual TUG tests were highly correlated (P ranged from 0.93 to 0.97). Step TUG1 and Step TUG2 had significant negative correlation with Mini-BEStest (P = -0.80 and -0.82 respectively) indicating high concurrent validity. Thirty percent of subjects who passed TUG failed on step TUG tests. Patients failing step TUG tests were having significantly (p<0.001) poorer performance than subjects who passed them on both Mini-BEStest (12.3 Vs 20.5 points respectively) and TUG (46.7 Vs. 15.6 seconds respectively).

DISCUSSION & CONCLUSION
Step TUG test is a reliable and valid test in subjects with stroke. Subjects with poorer balance are more likely to fail the step TUG test. Step TUG might be a better predictor of falling risk.
3. The Effect of Chemotherapy-induced Peripheral Neuropathy on Balance and Quality of Life in Adults with Cancer

Zahra'a AlQallaf, Kawthar Alkhabbaz, Zahra'a Rashed, Abdulaziz Algadban, Dr. Sharifah Alragum

INTRODUCTION
Chemotherapy-induced peripheral neuropathy (CIPN) causes loss of sensation and proprioception with muscle weakness of upper and lower extremities; affecting balance and gait. It has also been shown to increase the risk of falling and affect the quality of life (QOL) of patients with cancer. Little is known about the patients with CIPN in Kuwait and how it affects patients receiving chemotherapy.

METHODS
Patients in chemotherapy department in Kuwait Cancer Control Center were invited to participate in the study. Participants filled a questionnaire containing their demographic data and The Functional Assessment of Cancer Therapy-General - Gynaecologic Oncology Group-Neurotoxicity (FACT-GOG-Ntx) (version 4) to measure Quality of Life. Participants who had symptoms of CIPN were tested by the Total neuropathy score (TNS) and their balance by The Mini-Balance Evaluation Systems Test (Mini-BESTest). SPSS was used for data analysis. Mean, Standard Deviation, and frequency were calculated for descriptive analysis. Correlation analysis was used to establish Correlation between variables. The study was approved by the HSC Ethics Committee for student research (#3).

RESULTS
A total of 46 adults with a mean age of 50 (±9.2) have completed FACT-GOG-Ntx (105±24). Only 7 subjects completed the TNS (4.3±2.7) and The miniBESTest (23.5±2.5). There was a correlation between CIPN and QOL (r=−0.5), CIPN and falling (r=0.2) and CIPN and Balance (r=−0.1).

DISCUSSION & CONCLUSION
The results support our hypothesis that CIPN has an effect on QOL in adults with cancer, and there was a low correlation between CIPN and balance; further studies with larger sample size are needed to confirm these findings.
INTRODUCTION
According to the international studies, 50% of stroke patients may experience sleep-disordered breathing (SDB) in which obstructive sleep apnea (OSA) occurs more than central sleep apnea (CSA). Unrecognized and untreated SDB may lead to poor rehabilitation and functional outcomes. Since none of those researches were done in Kuwait, this study was conducted to find out the relationship between SDB and its effect on stroke recovery process.

METHODS
Design: A cross-sectional pilot study parametric and non-parametric tests with both quantitative and qualitative variables. Subjects: 15 stroke patients were recruited based on the inclusion and exclusion criteria from different governmental hospitals. Procedure: All participants were given Berlin and STOP-BANG questionnaires. Some of physical therapy outcome measures were performed on participants who were able to walk > 10m. Statistical Analysis: The correlation between physical ability outcomes and SDB risk were analysed using SPSS version 25.0 with Pearson's, Kendall's tau-b, and Spearman Correlations.

RESULTS
The results showed very weak to moderate correlations between SDB and physical abilities in walking participants. The mean result between Berlin and speed p =0.302, Berlin and STREAM p =0.302, STOP-BANG and speed p =0.221, and STOP-BANG and STREAM p =0.271.

DISCUSSION
There was a correlation between physical ability and SDB level as participants who were unable to walk showed higher SDB level; however, the analysis did not show strong correlation, which might be due to student’s recall bias and lack of enough participants.

CONCLUSION
Although there is a negative influence on physical performance, but we can't assume there is a strong relationship between SDB and recovery. Ethical Approval: It was obtained from the Ethics Committee for Student Research as Project no. 16.
5. The Relationship between Hyperandrogenism and Hand Strength in Female College Students
Fajer Al-Mutawa, Ghezlan Al-Hashash, Hessa Al-Senan, Sara Al-Kandari

INTRODUCTION
Hyperandrogenism is a common endocrine disorder in reproductive aged females with a growing incidence worldwide. It is believed that androgens may be involved in regulating the distribution of body fat and affecting muscle mass and strength. The objective of this study is to determine the association of hyperandrogenism with hand strength and fat deposition in young females.

METHODS
Ninety-two college aged women aged 21 to 29 from the Health Sciences Center were recruited; 53 subjects with hyperandrogenism, and 39 with normal androgen levels. Blood was withdrawn from the subjects, an intake form was filled by the participant, then body composition, grip and pinch strength were measured. This project was approved by the IRB of the HSC; FOAHS #1.

RESULTS
Subjects with hyperandrogenism and weight-matched controls were similar in age (22.49 (20-31) versus 22.51 (20-33) years, p=0.51). Free androgen index (8.5 (4.1-30) versus (8.5 (4.1-30) versus (2.05 (0.17-4.0), SHBG (34.94 (11-68) versus (88.74 (39-222) nmol/L, and testosterone (2.6 (1.4-13.3) versus (1.47 (0.4-2.4)nmol/L differed significantly (p<0.01) between the groups. There was no difference between the groups in terms of body composition (p>0.05). The hyperandrogenism group showed a greater grip and pinch strength than the control group in positions 1 and 2 of the dominant hand (position 1 dominant hand: U=621, N0=39, N1=53, P=0.001; position 1 non-dominant hand: U=761, N0=39, N1=53, P=0.031; and position 2 dominant hand: U=766.5, N0=39, N1=53, P=0.035).

DISCUSSION & CONCLUSION
Hand grip strength was found to be greater in those with hyperandrogenism for only two grip positions while body fat composition was not found to be different in our sample. A high prevalence of hyperandrogenism was detected among the subjects. More studies are needed to determine the extent of hyperandrogenism in Kuwait.
INTRODUCTION
Musculoskeletal disorders (MSD) have been identified as a significant complaint by school students and become a concern among parents, educational professions and orthopedists. There are no studies have been conducted to investigate the musculoskeletal discomfort among male students, where it is well documented in the literature that the prevalence of musculoskeletal pain and disorder is present in both genders. The aim of the study is to investigate the prevalence and risk factors of MSD among male high school students in Kuwait.

METHODS
A cross-sectional survey design with a sample of convenience was used to investigate the prevalence and risk factors of MSD among male high school students in Kuwait. A questionnaire was distributed in a private high schools as English language is their main media of instruction. A total of 630 students had completed and returned the questionnaire. The questionnaire gathered demographic data as well as information on occurrence of musculoskeletal complaints in the previous 12 months. Descriptive statistics, frequency, and Chi-square analyses were used.

RESULTS
A total of 630 students had completed and returned the questionnaire. The response rate was 68% (630/931). The prevalence of MSD was 41%, with the neck complaints as the most common (23.8%), followed by the shoulder (22.5%), upper back (14%), and lower back (15.6%).

DISCUSSION & CONCLUSION
The data from this study indicated that MSD in neck was the most complaint. Mode of carrying and the level of school bag might be a factors contributing to MSD among the students. Further research is needed to explore the nature of the relationship between the characteristics of the school bag (type, weight, size) and MSD inflicting the torso region of the body.
7. Prevalence of Stress Among Students in Health Science Center at Kuwait University
Atyab Al-ansari, Aisha Eissa, Dalal Al-saadi, Fajer Al-wahabi

INTRODUCTION
Stress is a significant problem that students in health professions suffer from. Students experience several sources of stress, such as academic related factors, social, financial, and health issues. This study aimed to explore the prevalence of stress preserved by students at Health Sciences Center at Kuwait University, and determine the factors of stress among them.

METHODS
A cross-sectional study was conducted among all Health Sciences Center students from Kuwait University, using the shorter version of medical student stressor questionnaire (MSSQ). It consists of 20 items representing the six-stressor domains.

RESULTS
A total of 1151 questionnaire was distributed, and 903 completed and returned with a response rate of 85.9%. The mean age was 20.8 years with 789 (88.8%) were female. Of all the students 57.25% were moderately to sever stressed. Students in faculty of pharmacy were highly stressed compared to other faculties (P=0.040). The top 5 factors of stress were academic related-stressor (54.44%). Gender, year of education, direct contact with patient, family income, and students GPA were strong indicators of high stress level.

DISCUSSION & CONCLUSION
More than 1/2 of the students at Health Science Center at Kuwait University were stressed. Female were significantly more stressed compared to male students. Students at their final years in all majors were more stressed. Students with low GPA and low family income were more stressed. It is crucial to establish a counselling system in Health Sciences Center to guide students who need support with more emphasis on females and students with low GPA.
INTRODUCTION
The use of dry needling increasing recently to treat trigger point muscle pain. The pain decreases due to the release of the accumulated acetylcholine under the motor end plate junction.

METHODS
Fifty-four (15 male and 38 female) normal subjects volunteered to participate in this study. The subjects divided randomly into a control (no trigger point pain) and two experimental (with trigger point pain) groups. The experimental groups received dry needling in a painful trigger point and electromyography motor unit action potential (MUAP) was recorded before and after the dry needling. The experimental group were divided into two groups according to the dry needling dosage. The control group received dry needle in a none trigger point area and electromyography was recorded before and after dry needling. Numeric pain rating scale was used to measure pain before and after dry needling.

RESULTS
Pain was statistically decreased in both experimental groups after dry needling. The results suggested no relationship between dry needling dosage and the decrease in pain level. MUAP amplitude decreased significantly in both experimental groups. Both female and male showed a similar behavior in MUAP amplitude drop. There was no significant difference between the decrease in MUAP amplitude between the two experimental groups. The control group did not show any significant changes before and after dry needling in MUAP amplitude.

CONCLUSION
The decrease of MUAP after dry needling in both dosage groups suggest motor end plate lesion. Repeating dry needling of the same muscle over time might cause less and less motor unit to fire. This loss might lead to muscle weakness over time. Dry needling dose not treat the main cause of muscle pain, it only silent the pain while the main cause of pain creates another trigger point in another area of the same muscle.
Radiologic Sciences
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ghadeer AlFahid, Meshael AlSabaie, Hadeer Saad</td>
<td>The effect of different breast thickness and composition, target/filter combination materials, and exposure factors on radiation dose for digital mammography and digital breast tomosynthesis using breast phantoms in clinical setting</td>
</tr>
<tr>
<td>2</td>
<td>Sarah Ali Al Hajri, Wasmira Marafi, Amani Al Zafiri,</td>
<td>Comparative Radiation Dose between Diagnostic Digital Breast Tomosynthesis (DBT) and Digital Mammography (DM) among Women in Kuwait</td>
</tr>
<tr>
<td>3</td>
<td>Haya Alrashedi, Hana Aldehani, Shahad Alajmi</td>
<td>Pediatric Imaging; Effects Of Manipulating CT Parameters To Reduce Radiation Dose In PET-CT Digital Scanner</td>
</tr>
<tr>
<td>4</td>
<td>Hajar AlShammari, Manal AlSa'adon, Monira AlShammari</td>
<td>Knowledge and Attitudes towards TB and Diabetes Mellitus Patients among Radiographer Students in Kuwait University</td>
</tr>
<tr>
<td>5</td>
<td>Faye Upton, Fatima Buhamad, Malak Al Bathali</td>
<td>The Discrepancy Between GFR Measurements Using Dynamic Renal Scintigraphy and Laboratory Techniques: A Pilot Study</td>
</tr>
<tr>
<td>6</td>
<td>Noura alansari, Amna mandani</td>
<td>The best sensitive method to see gastroesophageal reflux disease in post sleeve patients under fluoroscopy</td>
</tr>
<tr>
<td>7</td>
<td>Nada Al Otaibi, Abyan Abdulqani</td>
<td>Stress and Depression among technicians in Kuwait Hospitals</td>
</tr>
<tr>
<td>8</td>
<td>Hanan Hendal, Khalid AlFadly, Sarah AlHarbi</td>
<td>Establishing Diagnostic Reference Level for Myocardial Perfusion Imaging (MPI)</td>
</tr>
<tr>
<td>8</td>
<td>Mariam AlJafar, Fatma Alshammiri, Sarah Alostad</td>
<td>dependence of measured CT numbers on image reconstruction techniques in pediatric imaging</td>
</tr>
<tr>
<td>10</td>
<td>Essa abdullah Shaha albutti Jarrah bassam</td>
<td>The awareness level of Risk Factors, Symptoms and Diagnostic Imaging Procedures Of Colorectal Cancer among Public In Kuwait</td>
</tr>
</tbody>
</table>
1. The Effect of Different Breast Thickness and Composition, Target/Filter Combination Materials, and Exposure Factors on Radiation Dose for Digital Mammography and Digital Breast Tomosynthesis Using Breast Phantoms in Clinical Setting

Ghadeer AlFahid, Meshael AlSabaie, Hadeer Saad

INTRODUCTION
To evaluate the radiation dose in terms of entrance skin exposure (ESE) and average glandular dose (AGD) derived from digital mammography (DM) and digital breast tomosynthesis (DBT) at different breast phantom thickness and at different target/filter materials in clinical settings.

METHODS
A total of 30 DM and DBT cranio-caudal (CC) phantom images were obtained using a GE Senographe Essential DM unit with dual target/filter molybdenum (Mo) and rhodium (Rh). The tissue-equivalent mammography phantom (CIRS model 010C Model) images were acquired at each thickness and composition at three exposures (kV/mAs) levels (28/50, 30/56, 32/56) and at three different targets of Molybdenum (Mo)/Rhodium (Rh) x-ray tube, Mo/Rh filter material combinations (Mo/Mo, Mo/Rh, Rh/Rh).

RESULTS
DBT dose was greater than that of DM at 32/56 kV/mAs setting and Rh/Rh target filter material for all the breast thickness and composition. The percentage differences in ESE and AGD between the two techniques decrease with increasing phantoms thickness except for a phantom thickness of 6cm, where it was increasing. The percentage differences in ESE and AGD for 4cm, 5cm, and 6cm phantom thickness were 21.1% and 20.8%, 14.6% and 4.5%, and 57%-179%, respectively. Kruskal Wallis test showed that there was significant difference for ESE (P=.029) but not for AGD (P=.758) in DM. Also there was significant difference between ESE and AGD between DM and DBT techniques for all the mammographic parameters (p<.05).

CONCLUSIONS
The radiation dose from DBT was higher than that of DM especially at a thicker breast. The difference in ESE and AGD between the two techniques decreases as the phantom thickness increases.
2. Comparative Radiation Dose between Diagnostic Digital Breast Tomosynthesis (DBT) and Digital Mammography (DM) among Women in Kuwait
Sarah Ali Al Hajri, Wasmiya Marafi, Amani Al Zafiri

INTRODUCTION
To compare the entrance skin exposure (ESE) and average glandular dose (AGD) for women who underwent diagnostic digital mammography (DM) and digital breast tomosynthesis (DBT) of fibro-fatty breast of different thickness in clinical setting.

METHODS
200 women (400 breasts) were consecutively participated. All acquisitions were performed on a single commercially available mammography system Senographe Essential (GE Healthcare, Buc, France) capable of DM and DBT acquisitions in cranio-caudal (CC) and medio-lateral (ML) projections using an anti-scatter grid. The ESE and AGD in mGy were retrieved from the DICOM metadata according to mammographic parameters such as compressed breast thickness (<4cm, 4-6cm, and >6cm), tube voltage (kV)/tube output (mAs), and target/filter material (Molybdenum/Mo, Rhodium/Rh).

RESULTS
The median ESE in mGy for DM and DBT techniques for <4cm, 4-6cm, and >6cm compressed breast thickness was (4.5, 4), (6.2, 5.6), and (8.2, 8.2), respectively. The median AGD in mGy for DM and DBT techniques for <4cm, 4-6cm, and >6cm compressed breast thickness was (1.1, 1.2), (1.2, 1.4), and (1.5, 1.8), respectively. The total AGD for DM and DBT in mGy for <4cm, 4-6cm, and >6cm compressed breast thickness was 4.3, 2.4; 4.9, 2.8; and 5.6, 3.8, respectively. The median difference (%) for total AGD for <4cm, 4-6cm, and >6cm compressed breast thickness was 1.9 (44.2), 2.1 (42.9), and 1.8 (32.1), respectively. Wilcoxon related samples signed rank test showed significant difference between the total AGD between DM and DBT and being higher for DM than DBT technique (P<.05). Kruskal Wallis and pairwise comparison tests showed significance difference within each technique for different compressed thickness (P<.05).

CONCLUSION
A single-view DBT total AGD was lower than two-view DM technique. This offers opportunities for the implementation of DBT in the breast cancer screening setting with higher diagnostic accuracy and an improvement in patient management.
3. Pediatric Imaging; Effects Of Manipulating CT Parameters To Reduce Radiation Dose In PET-CT Digital Scanner

Haya Alrashedi, Hana Aldehani, Shahad Alajmi

INTRODUCTION

Functional imaging with positron emission tomography (PET) is playing an increasingly important role in the diagnosis and staging of malignant disease, image-guided therapy planning, and treatment monitoring. In 1975, the first PET scanner was available. PET with the labeled glucose analogue fluorine 18 fluorodeoxyglucose (FDG) is a relatively recent addition to the medical technology for imaging of cancer, and FDG PET complements the more conventional anatomic imaging modalities of computed tomography (CT) and magnetic resonance imaging. CT has become an essential tool in the assessment of a variety of disorders, including cancer, trauma, and inflammation. CT is complementary in the sense that it provides accurate localization of organs and lesions, while PET maps both normal and abnormal tissue function. When combined, the two modalities can help both identify and localize functional abnormalities. The aim of this study is to produce an acceptable CT image with minimal amount of dose to register with PET scan during pediatric imaging. (1)

METHODS

CIRS ATOM® pediatric phantom was used to obtain images using variety of imaging protocols, each with different exposure parameters; i.e.; KVP and mAs, on a 64-slice GE (general electric) discovery 710 PET-CT scanner. Images were evaluated qualitatively for spatial resolution and noise measurements using five ROIs, one each at 3, 6, 9 and 12 o’clock positions and at the center of image.

RESULTS

Patient dose reduction of about 25% can be achieved by simply altering exposure factors to produce acceptable image rather than the optimal image required for diagnosis.

CONCLUSION

Images can be obtained with a minimum amount of dose when a reduced amount of KVP is used.
4. Knowledge and Attitudes towards TB and Diabetes Mellitus Patients among Radiographer Students in Kuwait University

Hajar AlShammari, Manal AlSa’adon, Monira AlShammari

INTRODUCTION
Infection control is important with preventing the transmission of infections through the hospitals and in the radiology department. Many health workers have died as a result of not following infection control rules in their department, especially when handling people with infectious diseases, such as tuberculosis or diabetic patients with complications, such as foot gangrene. The aim of this study is to investigate the level of knowledge among the radiographer students studying at Kuwait University towards patients with TB or diabetes who needs x rays.

METHODS
A survey was designed, and 100 questionnaires with 20 questions were circulated between 3rd and 4th year radiologic sciences (RS) students (Male/Female) from 21+ years old. Ethics was gained from the faculty of medicine (993/2019).

RESULTS
In total of 55 students; (28 female- 2 male) in 3rd and (23 female- 2 male) in 4th were responded to participate between March-April 2019. It was indicated that 93% of 3rd and 92% of 4th year students are washing their hands when dealing with a patient with a diabetic foot. Whereas, 77% of 3rd and 58% of 4th year students are wearing masks when dealing with TB patients.

DISCUSSION & CONCLUSION
Wearing gloves and washing hands are more applied than wearing masks among RS students; this might be due to the fact of the unpleasant look of the diabetic gangrene foot with fluid and skin lose. Whereas, TB cannot be detected unless reading the patient history or the patient coughs. Despite there are few radiographer students in Kuwait University are failed to apply infection control guidelines, but the majority are aware of following infection control procedures in order to prevent spreading infections in the work field.
5. The Discrepancy Between GFR Measurements Using Dynamic Renal Scintigraphy and Laboratory Techniques: A Pilot Study
Faye Upton, Fatima Buhmad, Malak Al Bathali

INTRODUCTION
Glomerular filtration rate (GFR) is the most important parameter for the assessment of renal function. Nuclear Medicine is now one of the most used departments for GFR measurement. The aim of our research is to compare between GFR values obtained from renal dynamic scintigraphy and multiple blood samples.

METHODS
30 patients, 20 of which were male and 10 were female, who have done both GFR methods were selected randomly. GFR from renal dynamic imaging was obtained by injecting 10 mci of Te99m DTPA and acquiring dynamic, pre void and post void posterior images of the kidneys. The images are then processed by computer software. The second method was done by getting 3 blood samples and measuring the counts in the plasma by using a multi gamma well counter. Both GFR measurements were normalized to the patient’s body surface area.

RESULTS
3 non-parametric SPSS tests were conducted. All 3 tests showed an insignificant difference between the two methods. The 2 methods were then correlated with BMI and age. Both age and BMI had a negative and weak correlation with renal dynamic imaging GFR. Where as, there was a positive but weak correlation between BMI and multiple blood samples GFR and a negative but moderate correlation with age.

CONCLUSION
We can confidently say that the difference between renal dynamic imaging GFR and multiple blood samples GFR is insignificant even though there was significance between age and multiple blood samples GFR. This caused a minor conflict between the overall results that could have been avoided with more patients and further investigations.
Gastroesophageal reflux disease is the most common disease affecting the gastrointestinal tract. So, accurate diagnosis will enable the affected patients to benefit from a variety of treatment options ranging from lifestyle changes to medication or surgery. There are many tests to detect gastroesophageal reflux disease but radiographically, there is barium swallow and/or meal test. This test has several techniques that can be performed in it to show the reflux accurately. For example: Valsalva maneuver, drinking water, toe touch, Trendelenburg position, and coughing. This study is done to detect the most sensitive technique that could help in saving dose, effort and time during barium swallow and/or meal procedure under fluoroscopy.

Methods:
A sample of 49 post sleeve patients was collected, since most of post sleeve patients suffer from heartburn sensation and reflux after the surgery, and we are going to perform all of the previously mentioned techniques and record the results for how much each method showed the reflux more on the screen.
7. Stress and Depression among Technicians in Kuwait Hospitals
Nada Al Otaibi, Abyan Abdulqani

INTRODUCTION
Impairment from depression and its impact on productivity are of profound societal importance. We report the result of depression on the work productivity among technicians in hospitals. Stress and depression are the most mental factors. Diagnosed stress in early stage better than late stage to avoid any depressed lifestyle, which can lead to suicide. Aims to review work related stress among technicians. Job satisfaction and job anxiety to the employers.

METHODS
A questioner was done in 4 governmental hospitals in Kuwait. 109 participants from both gender who aged 21 and above were included in this study. We measured the degree of stress among technicians in Kuwait hospitals through a questioner.

RESULTS
109 participants (54.1% male and 45.9% female) included in this study. The data was done using the SPSS-PC software. Results showed that no significant different in stress score in Kuwait hospitals.

CONCLUSION
In this research we approved that there is no significant increasing in stress and depression in Kuwait hospitals.
8. Establishing Diagnostic Reference Level for Myocardial Perfusion Imaging (MP)
Hanan Hendal, Khalid AlFadly, Sarah AlHarbi

INTRODUCTION
As a part of radiation protection principles, imaging procedures using ionizing radiation must be frequently optimized by establishing local Diagnostic Reference Levels (DRL) to provide clinical benefits with lowest radiation dose possible. The use of CT for attenuation correction in Myocardial Perfusion Imaging (MPI) for detection of cardiac abnormalities adds extra radiation dose to the patients compared to using Single Photon Emission Computed Tomography (SPECT) alone. This study aims to establish DRLs for SPECT and CT in MPI in Kuwait.

METHODS
Image acquisition and dosimetry parameters for SPECT and CT of 414 adult patients who have undergone MPI from four hospitals were reviewed. Patients were categorized according to imaging procedures, body mass index (BMI) and body weight. Correlation between BMI and administered activity (AA), volume CT Dose Index (CTDI) and Dose Length Product (DLP) were evaluated. The DRL value for AA, CTDI and DLP were established using the 75th percentile of the distribution.

RESULTS
There weren’t any significant differences in all dosimetry quantities among hospitals (p > 0.10) and scanners used. Statistically significant (p < 0.001) but moderate correlation was found between AA and BMI. The DRL for total AA, volume CTDI and DLP were found to be higher than some values reported in literature.

DISCUSSION & CONCLUSION
The DRL for total AA, volume CTDI and DLP were found to be 51 mCi (1900 MBq), 3.8 mGy and 69 mGy.cm respectively. These values are from a limited number of hospitals that perform MPI and a wider survey should be carried out. Comparison with published values will enable further optimization of imaging procedures.
INTRODUCTION
Computed Tomography (CT) imaging is used not only for diagnosis in Radiology but also for Nuclear Medicine (NM) attenuation correction and Radiation Therapy (RT) treatment planning. The accuracy of CT numbers of tissues obtained from a CT image important. Since CT number depends on many image acquisition and reconstruction factors, the main purpose of this research is to investigate any changes in CT number at different x-ray energies and image reconstruction parameters.

METHODS
The CIRS Model 062M Electron Density Phantom was imaged in two CT scanners of the same model in 2 different hospitals. Images were acquired at three different x-ray tube voltage (kV) values and were reconstructed using 5 different degrees of Adaptive Statistical Image Reconstruction (ASIR) method. The mean CT number of different tissues and the noise level were obtained using ImageJ software. Statistical analysis was carried out using Kruskal-Wallis Test to compare the CT numbers from different reconstruction techniques and kV at p < 0.05.

RESULTS
Different degrees of ASIR used in the reconstruction of CT images did not show significant differences (p > 0.05) in CT numbers of most tissues at all kV values tested in this study. However, as the amount of ASIR increased, the image noise reduced significantly (p < 0.014) for all tissues at all kV values. When kV was increased, the CT number of bone decreased significantly (p < 0.001) from 2000 at 70 kV to 950 at 120 kV. For all other tissues, small but statistically significant (p < 0.049) decrease in CT number was observed as kV increased.

DISCUSSION & CONCLUSION
ASIR can be used for noise reduction in CT image reconstruction without any effect on CT numbers. However, care should be taken when using CT number of bone in attenuation correction in NM and treatment planning in RT.
10. The Awareness level of Risk Factors, Symptoms and Diagnostic Imaging Procedures of Colorectal Cancer among Public In Kuwait
Essa Abdullah, Shaha Albutti, Jarrah Bassam Alsalmi, Dr. Mohsen Dashti

INTRODUCTION
Colorectal cancer (CRC) is the second most common type of cancer and also the third most common cause of cancer related death for both men and women worldwide. The CRC is considered to be the second killer in Kuwait after breast cancer. Aim; to assess and identify the level of knowledge and awareness of CRC among public in Kuwait and their level of knowledge about its risk factors, symptoms and its diagnostic imaging procedures.

METHOD
A total of 200 questionnaires were distributed to measure degree of awareness and knowledge of CRC among population in Kuwait.

RESULTS
It show that 83% of the participants had heard about CRC. Results revealed that the most frequent risk factor that was chosen is alcohol consumption (75.6%). On the other hand, the minimal risk factors that were chosen is the diabetes (17.8%). The most frequent diagnostic procedure that was chosen is the barium study (44.4%) while mri was chosen next (40%). On the other hand, there were (18.5%) of the participants that had no idea about these different diagnostic procedures.

DISCUSSION AND CONCLUSION
Although a response rate of 67.5% was achieved on this study, it reflects that participants were keen to know and learn more about the CRC. Increase public awareness on the proper diagnostic procedures of CRC is a must via public seminars, school visits, TV shows and information leaflets were always considered as the right choice here.
Information Posters
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Abstract Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sara Musalam Almutairi</td>
<td>Role of Health Informatics Continuous Educational Training on Health Care Provider Performance</td>
</tr>
<tr>
<td>2</td>
<td>Asmaa Hamadan Alenezi</td>
<td>Integration of lab information system into outpatient clinic using artificial intelligence technology</td>
</tr>
<tr>
<td>3</td>
<td>Sara Al-Amhouj, Noof Al-Daihani</td>
<td>The Utilization of Internet of Medical Things (IoMT) Technology in Smart Management of Diabetes Mellitus</td>
</tr>
</tbody>
</table>
1. Role of Health Informatics Continuous Educational Training on Health Care Provider Performance

Sara Musalam Almutairi

Health informatics plays a key role in delivering an integrated health care system with improved patient outcomes. Developing an eHealth-ready workforce is becoming a key priority for addressing the complex challenges in health care globally. Limited adoption of eHealth for informal learning and continuing professional development within healthcare environments has been explained primarily as an issue of insufficient digital and eHealth literacy of healthcare professionals. A health care provider’s performance in an eHealth environment is greatly affected by their level of health informatics knowledge and skills which is essential for the workforce digital literacy. Transformation of learning and teaching to enable transfer of digital knowledge, through the inclusion of technology learning into a health providers practice, will ensure them to have options to advance practice by accessing current evidence-based information as required. Therefore, continuous educational training is very important, because it improves their performance within healthcare environments. Conformity of instruction on regarding learning will promote proficiency in digital and eHealth literacy of health care providers that can be translated to digital knowledge for assisting patients at point of care. The health care providers need to understand informal learning at point of care can be included as a form of continuous professional development. They need to be supported and encouraged to become proficient in using health information technology, so they can benefit from it and improve their performance. Continuous educational training on health care providers do change their knowledge and skills, which improves their productivity and efficiency. Health informatics continuous professional development is essential for all health care work force to enhance their work performance in patientcare.
2. Integration Of Lab Information System Into Outpatient Clinic Using Artificial Intelligence Technology

Asmaa Hamadan Alenezi

Linking laboratory information system by using artificial intelligence technology leads to improving quality of outpatient clinic. In the total laboratory automation (TLA), which generally refers to an integrated model of automation joined by a conveyor system, there are many analyzers performing different types of tests on different sample matrices are physically integrated as modular systems or physically connected by assembly lines. It is opportunity to integrate multiple diagnostic specialties to one single track seems effective to improve efficiency, organization, standardization, quality and safety of laboratory testing. In the laboratories there is a system information technology–based systems that use patient-specific characteristics and match these to a knowledge base using rule-based algorithms known as computerized clinical decision support systems (CCDSSs). CCDSSs are believed to be effective in reducing unnecessary diagnostic testing. To date, no review has been undertaken to evaluate CCDSSs aimed specifically at laboratory test ordering. Implementation of artificial intelligence technology using Artificial Neural Network (ANN) for total laboratory automation to reduce the turnaround time of critical orders delayed, and improve the management of Sample dilution to obtain a measure within the analytical range is a common task in clinical laboratories, which is necessary whenever the amount of analyte in the sample exceeds the linear range of the test. TLA is effective in improving the treating of critical samples if supported by an ANN that recognizes concentrated samples prior to their test. There are benefits of linking outpatient clinic with laboratory information system using artificial intelligence technology which has an impact to improve the doctors work, include faster service deliveries, increase accuracy and fast generation of diagnosis reports which enhance treatment and managerial decisions, to increase number of patients treated per day, and faster transfer of records from one department to another.
Using Health Information Technology to Reduce Medication Errors
Mona Al Mutairi

Information Technology (IT) systems can improve access to pieces of information, organize them, and identify links between them. A medication error is a failure in the treatment process that lead to, harm to the patient. Avoiding medication errors is important in balanced prescribing, which is the use of a medicine that is appropriate to the patient's condition and within the limits created by the uncertainty that attends therapeutic decisions, in a dosage regimen that optimizes the balance of benefit to harm. Common prescribing errors include errors include using the wrong drug or dosage form, incorrect dose calculation, not checking for allergies, and failure to adjust dosages Strategies using IT to reduce errors: Three strategies can be adopted: 1. Preventing errors and adverse events, 2. Facilitate a more rapid response after an adverse event has occurred, 3. Track and provide feedback about adverse events. Plan of action to implement IT strategies to reduce medication errors: - Implement clinical decision support and Computerized Physician Order Entry systems (CPOE), - electronic prescribing, bard-coding for medications - promote adoption of standards for data and systems, - develop systems that communicate with each other, - use systems that measure and prevent adverse consequences - improve regulation and remove disincentives for vendors to provide clinical decision support. Challenges: - Financial challenges: limited funding when trying to implement medical applications of IT. - Lack of standards: for representation of most types of key clinical data, including conditions, procedures, medications and laboratory data. - Cultural challenges: a tendency for clinicians and policymakers to see IT as unimportant for medical practice. Conclusion: Training in the use of Information Technology should be done by the healthcare organizations for its medical staff to improve quality of care. Proper information systems need CPOE to be implemented and its policies and procedures need to be enforced to reduce medication errors.
NUMBER OF POSTERS - 2019

- Health Informatics & Information Management: 55
- Medical Laboratory Sciences: 12
- Occupational Therapy: 12
- Physical Therapy: 14
- Radiological Sciences: 8
- Other Faculties: 13
12TH STUDENT RESEARCH DAY
2019