



# SOP Magazine

Volume 6 Issue 1 | Summer 2018

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Education is what remains  
after one has forgotten what  
one has learned in school.

Albert Einstein



# SOP Magazine

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## About the LIU School of Pharmacy

One of the highly ranked private schools of pharmacy nationwide, the Lebanese International University School of Pharmacy maintains an elegant reputation for innovative educational programs and skillful training through both degrees it offers, the BPharm and PharmD. Over the past few years the School has strived to establish a structure which enables our graduates to become an added quality to the healthcare system. The School focuses on clinical pharmacy, community outreach, and training on the optimal use of medication therapy through didactic as well as clerkship/internship courses. Today, our School is acknowledged by private, public, and international institutions. Our graduates attain high success rate in the national pharmacy examination (colloquium), and are highly recognized by national and international pharmaceutical companies.

The SOP Magazine, published tri-annually, delivers drug and health information news from the School's Faculty members, highlights some of the School's events, as well as faculty, students, and alumni latest news.

*Letters to the editor, questions, comments, and requests should be kindly addressed to:*

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Pharmacy Day 2017 | Bekaa Campus

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## LETTER FROM THE DEAN

*Dearest Graduates,*

There is nothing more superior to success and distinction, and there is no joy equals the joy of accomplishment and excellence. Your success did not come easily or by chance, but it was a result of the extensive effort, research, determination and willpower that you put through your years of study. You have achieved your ambitions, goals and wishes through your success and graduation from the university and by pioneering in the colloquium exams. You are distinguished by your knowledge, ethics, skills, and communications with your patients and with you colleague doctors and nurses as well as other healthcare providers, and by that, you reflect the true image and value of Lebanese International University.

I have no doubts that you will continue to serve as worthy representative for the University by building upon our reputation for excellence. The school of pharmacy has nurtured a patient centered model into its didactic and experiential curricula. This means that you are trained to learn the craft of patient education and patient advocacy. Therefore, I urge you to remember as you embark upon through your careers to always serve our communities and improve the quality of life and health of its members with compassion, and honesty. You are not, as many people think, traders and your sole goal is to make money and your major concern is to calculate profits and losses. You do not trade with people's lives; instead, you save people's lives insure the society's wellbeing. You are the brave guards of the homeland who protect the health of our children, elders, mothers, and all people. Your profession is subjected to many challenges and distortions and often to fabrications. It is your duty to preserve it and protect it and to fortify it with your unity, determination and professional development. The last thing that I would like to mention is a message of love and belonging to this University, and to the School of Pharmacy, and to the dedicated soldiers in this school; the amazing, astonishing, and wonderful instructors of the school.

The mission of the university was and will continue to be the provision of the distinguished education to all citizens of the country; and the aim of the school was to develop and upgrade its scientific level to compete with the most prestigious universities, not only local but even global ones and has become one of the best schools worldwide. Our School is in the process of achieving ACPE Certification, reflecting the quality of pharmacy education at LIU. Accreditation is distinguished from licensure, acknowledging international standards of our curriculum.

*Congratulations..*

**Mohamad Rahal, PhD**

Dean of the School of Pharmacy, Lebanese International University  
 Accreditation Council for Pharmacy Education (ACPE) ISP Advisory Group  
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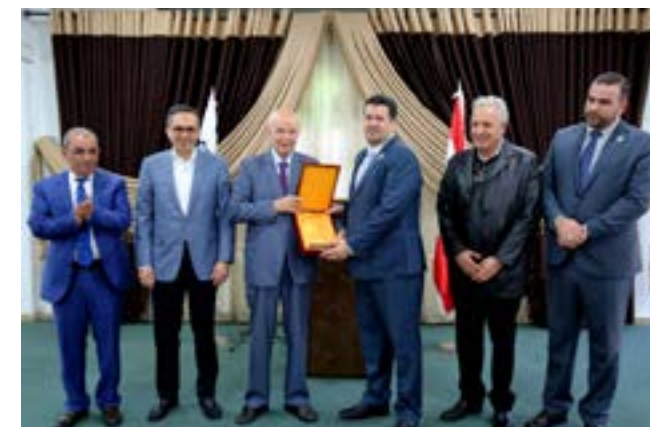
## Dr. Rahal: International Consultant of the American Council for Pharmacy Education - ACPE

Under the patronage of H.E. Mr. Abdul Rahim Mourad, the Lebanese International University (LIU) organized an Honor Ceremony to celebrate the appointment of Dr. Mohamad Rahal, Dean of the School of Pharmacy, as International Consultant of the American Council for Pharmacy Education (ACPE) ISP Advisory Group on Saturday, March 17, 2018 at the Islamic Centre Hall Lala.

The celebration was inaugurated by both the Lebanese national anthem and LIU anthem. Then Mr. Mohamed Najmuddin, Director of the Omar Al-Mukhtar Educational Center, delivered a speech congratulating Dr. Rahal on the new international position at the ACPE.

Then, Dr. Mohamad Rahal thanked the president for this honor and declared his pride to the university and the president, who provides full support to the School of Pharmacy to be from the top pharmacy schools in Lebanon and the region. Next, the vice president of LIU for academic affairs in the Bekaa Campus, Dr. Ahmad Faraj, praised Dr. Rahal's activities in advancing School of Pharmacy at LIU. Finally, the president of LIU, H.E. Mr. Abdul Rahim Mourad, congratulated Dr. Rahal for this achievement noting his remarkable impact on the development of School of Pharmacy.

By the end of the celebration, the president delivered a trophy to Dr. Rahal.







## Dr. Rahal Academic Journey

Dr. Rahal academic career started in 1998 as an assistant professor at the Lebanese American University (LAU), where he was involved in the planning and obtaining the ACPE full accreditation for the PharmD program. In year 2002, he chaired a team at the Lebanese International University (LIU) to establish a new school of pharmacy that offers Bachelor of Pharmacy (BPharm) and Doctor of Pharmacy (PharmD) degrees. In year 2004, he was appointed as the Dean of the school of Pharmacy and was promoted from assistant professor to associate professor, and recently to professor.

In year 2010, he joined the Scientific Association of Colleges of Pharmacy in the Arab World, and became a member in the executive committee of the association. During October 2016, he chaired the 19<sup>th</sup> congress of the association at the Lebanese International University that was attended by 43 deans of schools of pharmacy from ten Arab countries, and international speakers from the USA, UK, Switzerland, and Canada. During the Congress, he was appointed the chair of the executive committee of the Scientific Association of Colleges of Pharmacy in the Arab World.

In year 2015, he joined the International Federation of Pharmacists (FIP) and attended the 75<sup>th</sup> FIP World Congress of Pharmacy and Pharmaceutical Sciences 2015 congress in Germany and the 76th Congress in Argentina where he was involved in the Deans' Forum and discussions.

In year 2018, he was appointed as International Consultant of the American Council for Pharmacy Education (ACPE) ISP Advisory Group.

## ACPE International Services Program

American Council for Pharmacy Education (ACPE) International Services Program (ISP) offers consultation, training, and professional degree program Certification to stakeholders around the world who seek guidance related to quality assurance and advancement of pharmacy education. The expertise, global perspectives, staff resources, and formal processes within the ISP support international stakeholders to advance pharmacy education and quality in their respective countries. ISP main mission is to promote, assure, and advance the quality of pharmacy education internationally to improve patient care through safe and effective medication use. The activities and programs of the ISP are supported and guided by the International Commission (IC), whose members are appointed by the ACPE Board of Directors, and the ISP Advisory Group (ISPAG), whose expert members are drawn from around the world.



## Dr. Assi Attained his PhD

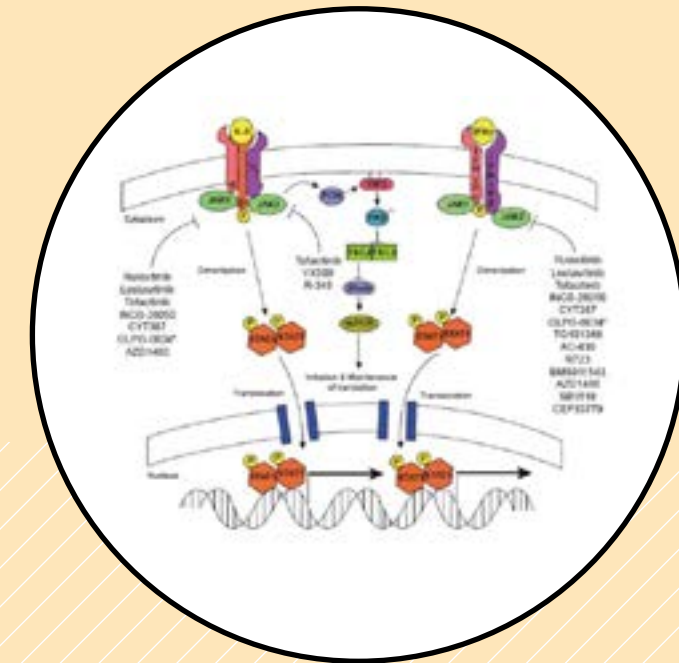
Dr. Mohammad Assi has attained his PhD degree in "Pharmaceutical Sciences" from Beirut Arab University. Dr. Assi has successfully defended his dissertation entitled: **"A Phytochemical Study of Potential Bioactive Compounds of some Inula and Conyza Species Growing in Lebanon"**.

This work has included collection and identification of three selected plant materials: *Inula viscosa*, *Inula vulgaris*, and *Conyza bonariensis*, extraction and fractionation of the chemical constituents of the selected plant materials, isolation of some chemical constituents of the chosen plants and structure elucidation of the pure isolates using different spectroscopic and chromatographic techniques.

Furthermore, the total phenolic and the total flavonoid contents of the three plants were determined. In addition, the antioxidant activity, anti-diabetic activity, ability to ameliorate diabetic neuropathy, and anticancer activity on three cell lines were investigated.





Caption this here

## FDA Approves OLUMIANT® (Baricitinib) for the Treatment of Adults with Moderately- to-Severely Active Rheumatoid Arthritis

Ahmad Dimassi, BSBC, PharmD, MSc.

**Key point:** On June 1st, the US Food and Drug Administration (FDA) approved baricitinib (Olumiant®, Eli Lilly and Company and Incyte Corporation) 2-mg tablets for the treatment of moderately to severely active rheumatoid arthritis (RA) in adults who have not responded adequately to one or more tumor necrosis factor (TNF) inhibitor therapies.

**Finer points:** RA is a chronic, painful and progressive form of arthritis. It is estimated that about two-thirds of established RA patients will not reach clinical remission with their first TNF inhibitor therapy, and a significant percentage will not maintain efficacy as time goes on. Baricitinib reversibly inhibits Janus kinase 1 with a half maximal inhibito-

ry concentration (IC50) of 5.9 nM and Janus kinase 2 with an IC50 of 5.7 nM. Janus kinase 3 is affected much less (IC50 = 53 nM), and tyrosine kinase 2, which belongs to the same enzyme family, even less (IC50 > 400 nM). Via a signal transduction pathway involving STAT proteins, this ultimately modulates gene expression in immunological cells.

Baricitinib's clinical outcomes were based on RA-BEACON study, a randomized, double-blind, placebo-controlled trial in which patients were randomly assigned to receive Olumiant® 2 mg, baricitinib 4 mg or placebo, in addition to conventional Disease-Modifying Anti-Rheumatic Drugs (DMARDs) that they were currently using. This study included

527 patients who had an inadequate response or intolerance to one or more TNF inhibitor therapies. Patients could have had prior therapy with other DMARDs.

The study results showed that significantly higher American College of Rheumatology 20% improvement response criteria (ACR20) rates and improvement in all individual ACR20 component scores were observed at Week 12 with Olumiant®. The study found that patients treated with baricitinib had significantly higher rates of ACR20 response versus placebo-treated patients at Week 12 (49% of baricitinib-treated patients versus 27% of placebo-treated patients). Baricitinib also demonstrated early symptom relief, with ACR20 responses

seen as early as Week 1. Patients treated with baricitinib reported significant improvements in physical function based on the Health Assessment Questionnaire Disability Index (HAQ-DI) (recording an average score of 1.71 before treatment and 1.31 at Week 12) compared to placebo-treated patients (who recorded an average score of 1.78 before treatment and 1.59 at Week 12).

**Olumiant® is FDA approved for the treatment of moderate to severe active rheumatoid arthritis with a Boxed Warning for the risk of serious infections, malignancies and thrombosis.**

Common adverse reactions include upper respiratory tract infections, nausea, herpes simplex, and herpes zoster.

The recommended dose of baricitinib is 2 mg oral tablet once daily, and may be used as monotherapy or in combination with methotrexate or other DMARDs.

**What you need to know:** Baricitinib (Olumiant®) 2mg oral tablet is indicated for the treatment of moderate to severe active rheumatoid arthritis in adult patients who have responded inadequately to, or who are intolerant to one or more disease-modifying anti-rheumatic drugs. Baricitinib may be used as monotherapy or in combination with methotrexate or other non-biologic DMARDs.

### References:

- 1- Rivellese, F., Lobasso, A., Barbieri, L., Liccardo, B., De, A. P., & Rossi, F. W. (2018). Novel therapeutic approaches in Rheumatoid Arthritis: Role of Janus Kinases Inhibitors. *Current medicinal chemistry*.
- 2- Smolen, J. S., Kremer, J. M., Gaich, C. L., DeLozier, A. M., Schlichting, D. E., Xie, L., ... & Genovese, M. C. (2016). Patient-reported outcomes from a randomised phase III study of baricitinib in patients with rheumatoid arthritis and an inadequate response to biological agents (RA-BEACON). *Annals of the rheumatic diseases*, annrheumdis-2016.
- 3- Genovese, M. C., Kremer, J., Zamani, O., Ludvico, C., Krogulec, M., Xie, & Macias, W. L. (2016). Baricitinib in patients with refractory rheumatoid arthritis. *New England Journal of Medicine*, 374(13), 1243-1252.
- 4- Kremer, J. M., Schiff, M., Muram, D., Zhong, J., Alam, J., & Genovese, M. C. (2018). Response to baricitinib therapy in patients with rheumatoid arthritis with inadequate response to csDMARDs as a function of baseline characteristics. *RMD Open*, 4(1), e000581.

# Vernakalant use in Atrial Fibrillation

Elise Makhoul, PharmD



SOP Magazine Summer 2018



**Key Point:** BRINAVESS® (Vernakalant HCl, IV) is an antiarrhythmic drug that acts by inhibiting several potassium and sodium currents is available in Europe by still not approved for use in the United States.

**Finer Points:** Atrial Fibrillation (AF) is a supraventricular tachyarrhythmia with uncoordinated atrial activation resulting in ineffective atrial contraction and if left untreated, structural and/or electrophysiological atrial tissue abnormalities. AF is a common cardiac rhythm disturbance that increases in prevalence with advancing age. According to the American Heart Association, estimates of the prevalence of AF in the U.S. ranged from 2.7 million to 6.1 million in 2010, and are expected to rise to between 5.6 million to 12 million in 2030.

Two strategies are present to manage AF, rhythm- or rate-control. A rate control is achieved by using beta blocker or non-dihydropyridine calcium channel antagonist. A rhythm-control strategy may be used in patients who are severely compromised, remain symptomatic despite adequate rate control, when adequate rate control is difficult to achieve, when long term rhythm control therapy is preferred, younger patient age, presence of tachycardia-mediated cardiomyopathy, and first episode of AF. Rhythm-control is achieved by using a combination of approaches, including cardioversion, antiarrhythmic drugs, and radiofrequency catheter ablation in the setting of appropriate anticoagula-

tion and rate control. Early intervention with a rhythm-control strategy to prevent progression of AF may be beneficial to the AF patient.

BRINAVESS® (Vernakalant HCl, IV) is an antiarrhythmic drug that acts by inhibiting several potassium and sodium currents. This results in prolongation of atrial refractoriness and rate dependent slowing of atrial conduction to suppress atrial re-entry. It has little impact on currents involved in ventricular repolarization. Brinavess® is approved for marketing in Europe on 1 September 2010, Canada on 12 June 2017 and several other countries worldwide. **In Europe, it is approved for the rapid conversion of recent onset atrial fibrillation to sinus rhythm in adults:**

- 1) For non-surgery patients: atrial fibrillation <7 days duration; and
- 2) For post-cardiac surgery patients: atrial fibrillation < 3 days duration.

**Cardiome believes the clinical trial and commercial experience with Brinavess® demonstrates that it's a best-in-class; fast-acting, atrial fibrillation converting agent and it intends to explore every reasonable avenue available to make Vernakalant available in the United States.**

## What you need to know:

VANCOUVER, Aug. 21, 2017 - Cardiome Pharma Corp. today announced that it has received a response from the U.S. Food and Drug Administration (FDA) regarding the regulatory path for Brinavess® (vernakalant hydrochloride, IV), the Company's antiarrhythmic drug for the rapid conversion of recent onset atrial fibrillation (AF). In its written reply, the FDA advised Cardiome that the data package proposed by Cardiome would not be sufficient to support a resubmission of the Brinavess® New Drug Application (NDA).

## References:

1. Cardiome Announces Commercial Launch of BRINAVESS® (Vernakalant Hydrochloride) in Canada (2017). Available at: <https://www.prnewswire.com/news-releases/cardiome-announces-commercial-launch-of-brinavess-vernakalant-hydrochloride-in-canada-627916913.html>
2. AHA/ ACC/ HRS Guideline for the Management of Patients with Atrial Fibrillation (2014). Journal of the American College of Cardiology. Available at: <https://www.acc.org/-/media/Non-Clinical/Files-PDFs-Excel-MS-Word-etc/Tools%20and%20Practice%20Support/Quality%20Programs/Anticoag-10-14/GuidelinesAndBackground/1%20January%20ACC%20AHA%20HRS%202014%20AFib%20Guidelines.pdf?la=en>

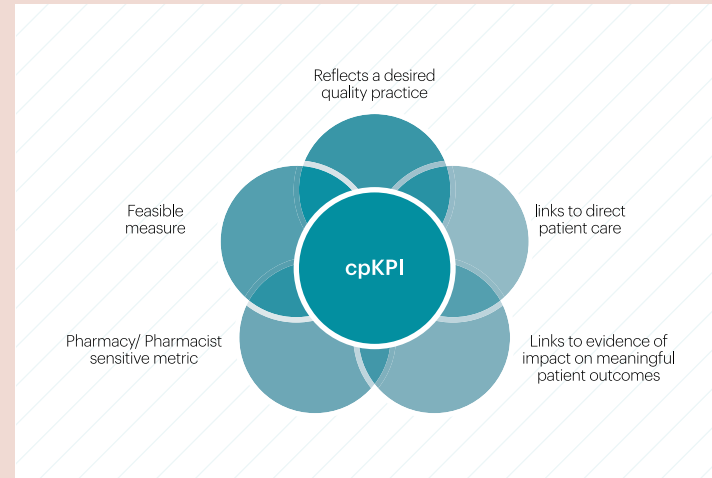


# Clinical Pharmacy Indicators (cpKPI): Advancing Practice to Improve Patient Outcomes

Hussein Sabry, RPh, MHCQM, CAS

**Key point:** Health care–related key performance indicators (KPIs) are quantifiable measures of quality used to track an organization’s progress with specific, essential processes and outcomes. A clinical pharmacy KPI (cpKPI) is a KPI that is designed to measure progress for a particular clinical pharmacy activity. The implementation of cpKPIs in hospital settings is intended mainly to improve quality of care and advance clinical pharmacy practice toward desired evidence-informed patient outcomes.

**Finer points:** All cpKPIs shall: reflect a desired quality practice, link to direct patient care, have evidence supporting an impact on meaningful patient outcomes, be pharmacy or pharmacist sensitive, and be feasible to measure. (Figure 1)



**Figure 1:** Characteristics of Clinical Pharmacy Key Performance Indicators

An expert panel of Canadian hospital pharmacists systematically determined that 8 cpKPIs could be useful to advance clinical pharmacy practice to improve the quality of patient care. The 8 indicators represent clinical pharmacy activities demonstrated to improve patient outcomes. These activities involve BPMH (best possible medication history), admission medication reconciliation, patient care rounds, pharmaceutical care, patient education/ discharge counseling, and discharge medication reconciliation.

**Below you can find some examples of suggested cpKPI Topic and its related KPI:**

**Accurate medication history:** Percentage of patients with completed medication history by a pharmacist within 24 hours of admission or presentation.

**Medication reconciliation:** Percentage of patients with completed medication reconciliation by a pharmacist within 24 hours of admission or presentation.

**Assessment of current medication management:**

Number of assessments of current medication managements by a pharmacist per total patient bed days.

**Therapeutic drug monitoring:**

Percentage of patients with an INR > 4 that have had their dosage adjusted or reviewed prior to the next warfarin dose.

**Medication management plan:**

Percentage of patients with a documented initial medication management plan within 24 hours of admission or presentation.

**Provision of medicines information to patients:**

Percentage of patients that received appropriate verbal counseling and/or written information about their medicines prior to discharge.

**Information for ongoing care on discharge or transfer:**

Percentage of discharge summaries that document an accurate medicines list and the reasons for all medication therapy changes from medications taken prior to admission.

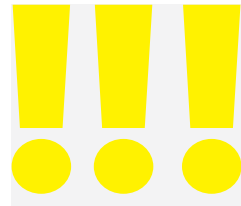
**What you need to know:** Successfully implemented, standardized cpKPIs could be used to identify significant achievements and deficiencies in clinical pharmacy care, justify the allocation of scarce resources, and facilitate continuous improvement in the quality of clinical pharmacy practice and consequently improve the quality of care for hospitalized patients.

**References**

1. Olavo Fernandes, Kent Toombs, Taciana Pereira, Catherine Lyder, Aleksandra Bjelajac . (2015). Canadian Consensus on Clinical Pharmacy Key Performance Indicators:Quick Reference Guide. Canadian Society of Hospital Pharmacists (CSHP), (pp. 1-32). Ottawa .
2. Olavo Fernandes, PharmD, Sean K. Gorman, PharmD, (2016). Development of Clinical Pharmacy Key Performance Indicators for Hospital Pharmacists Using a Modified Delphi Approach. PENNSYLVANIA: Annals of Pharmacotherapy







# Oral OTC Benzocaine: Risk of Fatal Blood Disorder

Iqbal Fahs, PharmD

**Key point:** Risk of serious and potentially fatal blood disorder prompts the U.S. Food and Drug Administration (FDA) action on oral OTC benzocaine products used for teething and mouth pain and prescription local anesthetics.

**Finer points:** Benzocaine is a local anesthetic contained in some OTC products for the temporary relief of pain due to teething, minor irritation, soreness, or injury of the mouth and throat. Benzocaine products are marketed as gels, sprays, ointments, solutions, and lozenges under different brand names.

FDA has been closely monitoring the risk of methemoglobinemia with the use of OTC and prescription local anesthetics and previously communicated about this risk in 2014, 2011, and 2006. Methemoglobinemia is characterized by increased quantities of hemoglobin in which the iron of heme is oxidized to the ferric (Fe<sup>3+</sup>) form. Methemoglobin is useless as an oxygen carrier and thus the amount of oxygen carried through the blood is greatly reduced, which can be life-threatening and even result in death.

**Due to the significant safety risk of methemoglobinemia, FDA has urged manufacturers that they should stop marketing OTC oral drug products for treating teething in infants and children younger than 2 years.**

Any potential benefits of using these products to treat teething pain do not outweigh their risks. If companies do not comply, FDA will take action to remove these products from the market. FDA has also urged manufacturers of OTC oral drug products containing benzocaine for adults and children 2 years and older

to add warning about methemoglobinemia to the labels of their products. If these products are to be used in this age group, patients should be advised to use the smallest amount of benzocaine possible to relieve pain and not to apply the product more frequently than four times daily. In addition, patients or their provider should be educated on the possible signs and symptoms of methemoglobinemia, including pale, gray or blue colored skin, lips, and nail beds; headache; lightheadedness; shortness of breath; fatigue; and tachycardia. Signs and symptoms of methemoglobinemia may appear within minutes to one or two hours after using benzocaine, and may occur after using benzocaine for the first time as well as after several uses. If any of these symptoms occur, patients should seek medical attention immediately. In addition, patients who have breathing problems such as asthma, bronchitis, or emphysema, patients with heart disease, patients who smoke, elderly patients and patients with certain inborn defects such as glucose-6-phosphodiesterase deficiency may also be at greater risk of developing methemoglobinemia.

**What you need to know:** Each OTC oral drug product containing benzocaine should include warning about methemoglobinemia in its label.

#### References:

- Hartman NR, et al. More methemoglobin is produced by benzocaine treatment than lidocaine treatment in human in vitro systems. *Regul Toxicol Pharmacol.* 2014; 70:182-8.
- Risk of serious and potentially fatal blood disorder prompts FDA action on oral over-the-counter benzocaine products used for teething and mouth pain and prescription local anesthetics. *Fdagov.*2018. Available at: <https://www.fda.gov/Drugs/DrugSafety/ucm608265.htm>



# EMA New "Guideline on Good Pharmacogenomic Practice"

Maha Lakkis, Ph.D.

**Key Point:** The value of pharmacogenomics is well established in healthcare to select the drug most likely to work, optimize drug dose, or avoid adverse effects. FDA already issued a pharmacogenomics guidance "**Clinical Pharmacogenomics: Premarket Evaluation in Early-Phase Clinical Studies and Recommendations for Labeling**" in January 2013 and pharmacogenomics information is included in the labeling of more than 175 FDA-approved drugs/indications, not including genotyping of pathogens.

**Finer Points:** European Medicines Agency (EMA) lagged behind in issuing a specific "Guideline" even though there are more than 500 centrally approved drugs with pharmacogenomics information in Europe.

EMA issued "**Guideline on good pharmacogenomic practice**" in 22 February 2018 to be implemented 1 September 2018. The Guideline provides guidance on methods of evaluating genetic variations in germline DNA only (vs. somatic genetic mutations) that are related to drug metabolizing enzymes, drug transporters, and drug targets (pharmacodynamics). In addition, it addressed a very important issue by including new information for prediction of idiosyncratic rare adverse drug reactions related to HLA alleles.

*The main recommendations and conclusions of this guideline are:*

- Using high quality DNA, long allele PCR amplification and several sequencing methods to insure correct DNA sequence and identify rare variants of functional importance for drug pharmacokinetics and drug response.
- Clinical trials should consider inter-ethnic differences in the distribution of genetic variants in their relevant genomic studies.
- Role of HLA alleles in drug safety, specifically HLA-A, -B, -C, -DR, -DQ and -DP HLA genes. It suggests that DNA from clinical trials should be collected for later HLA typing to identify predictive HLA biomarkers. This is because rare idiosyncratic adverse drug reactions appear only when many individuals are exposed to the drug after its marketing. More than 15,000 different HLA alleles are known; therefore, the entire HLA gene should be sequenced. It provided examples of some HLA alleles genotyping that are already mandatory to reduce the incidence of hypersensitivity reactions such as testing for HLA-B\*57:01 or HLA-B\*58:01 alleles before using abacavir or allopurinol respectively.

**What you need to know:** The value of pharmacogenomics in therapeutic decisions is increasingly being recognized to potentially become a standard practice before optimal drug treatment decisions.

#### References:

- "Table of Pharmacogenomic Biomarkers in Drug Labeling" (Last Update of 12/2017): <https://www.fda.gov/downloads/Drugs/ScienceResearch/UCM578588.pdf>
- "Clinical Pharmacogenomics: Premarket Evaluation in Early-Phase Clinical Studies and Recommendations for Labeling", January 2013: <https://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM337169.pdf>
- "Guideline on good pharmacogenomic practice", 22 February 2018: [http://www.ema.europa.eu/docs/en\\_GB/document\\_library/Scientific\\_guideline/2018/03/WC500245944.pdf](http://www.ema.europa.eu/docs/en_GB/document_library/Scientific_guideline/2018/03/WC500245944.pdf)





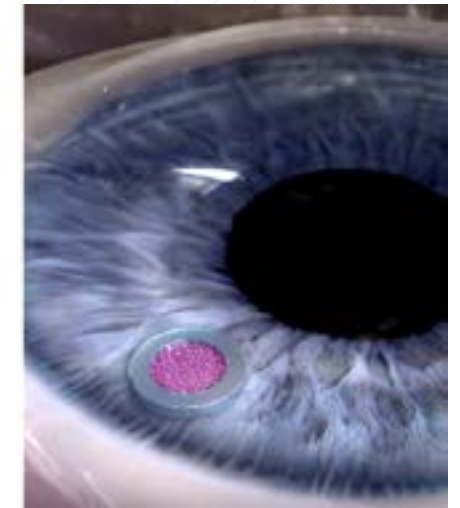
# Like a Butterfly's Wings!

Nisreen Mourad, PharmD



SOP Magazine Summer 2018

The Greta Oto which is known as the Glasswing Butterfly or as Espejitos in Spanish is a species of brush-footed butterfly that is commonly found in central and northern regions of South America. The Glasswing Butterfly was named so due to its transparent wings which have a remarkable and unique physiology that has attracted the attention of many scientists.



The wings of Greta Oro are covered in tiny pillars that average only 100 nanometres high and spaced about 150 nanometres apart. These pillars have angle-independent antireflection properties, where they are able to redirect the light so that rays pass through the wings regardless of their original direction without causing any reflection.



**These butterfly nanostructures inspired the manufacturing of an implant that promises to ease the lives of glaucoma sufferers.**

In fact, glaucoma is the world's second leading cause of sight loss, with the global number of cases expected to top 53 million by 2020. Knowing that glaucoma can cause irreversible damage on the optic nerve due to the increased pressure within the eye; monitoring this pressure could prevent such complication.

A novel monitor is in process with an implant that depends on the butterfly's nanostructure concept, this hand-held monitor will allow the patient to obtain an instant reading of his intra-ocular pressure thus allowing him to judge when the medication should be taken to prevent the eye damage.

**References:**

- 1- <https://www.nih.gov/news-events/nih-research-matters/butterfly-wing-inspired-design-glaucoma-sensor>
- 2- <https://www.anywhere.com/flora-fauna/invertebrates/glasswing-butterfly>



# FDA Approves Erenumab: First-In-Class Drug for Migraine Prevention

Nour Chamsine, PharmD

**Key point:** On May 17, 2018 The US Food and Drug Administration (FDA) has approved the fully human monoclonal antibody erenumab (Aimovig®) for the prevention of migraine in adult patients.

**Finer points:** Migraine is a distinct neurological disease. It involves recurrent attacks of moderate to severe head pain that is typically pulsating, often unilateral and associated with nausea, vomiting and sensitivity to light, sound and odors. Migraine is associated with personal pain, disability and reduced quality of life, and financial cost to society. It has a profound and limiting impact on an individual's abilities to carry out everyday tasks and was reported by the World Health Organization to be one of the top 10 causes of years lived with disability for men and women. It remains under-recognized and under-treated. Existing preventive therapies have been repurposed from other indications and are often associated with poor tolerability and lack of efficacy, with high discontinuation rates among patients.

Erenumab is a human immunoglobulin G2 antagonist monoclonal antibody that blocks the calcitonin gene related peptide (CGRP) receptor, which plays an important role in migraine. Erenumab is available in a pre-filled syringe and can be self-administered subcutaneously (SQ). The recommended dosage of erenumab is 70 mg injected SQ one monthly. Some patients may benefit from a dosage

of 140 mg injected SQ one monthly, which is administered as two consecutive SQ injections of 70 mg each.

The FDA approval of erenumab was based on the results of three randomized, double-blind, placebo-controlled studies. The first study included 955 participants with a history of episodic migraine (4 to 14 migraine days per month) and compared erenumab to placebo. Over the course of 6 months, erenumab-treated patients experienced, on average, one to two fewer monthly migraine days than those on placebo. The second study included 577 patients with a history of episodic migraine and compared erenumab to placebo. Over the course of three months, erenumab treated patients experienced, on average, one fewer migraine day per month than those on placebo. The third study evaluated 667 patients with a history of chronic migraine ( $\geq 15$  headache days per month with  $\geq 8$  migraine days per month) and compared erenumab to placebo. In that study, over the course of 3 months, patients treated with erenumab experienced, on average, 2½ fewer monthly migraine days than those receiving placebo.

**Erenumab consistently demonstrated an ability to reduce monthly migraine days in patients with episodic and chronic migraine.**

The most common side effects with erenumab include injection site reactions and constipation.



aimovig<sup>™</sup>  
(erenumab-aooe) injection 70 mg/0.5mL

## What you need to know:

Erenumab is the first FDA-approved preventive migraine treatment in a new class of drugs that work by blocking the activity of calcitonin gene-related peptide. Erenumab provides patients with a novel option for reducing the number of days with migraine.



## References:

1. Migraine Research Foundation. Migraine Fact Sheet. 2015. Retrieved from <http://www.migraineresearchfoundation.org/fact-sheet.html>.
2. World Health Organization. Headache disorders. Retrieved from <http://www.who.int/mediacentre/factsheets/fs277/en/>
3. Blumenfeld AM et al. Patterns of use and reasons for discontinuation of prophylactic medications for episodic migraine and chronic migraine: results from the second international burden of migraine study (IBMS-II). *Headache*. 2013 Apr;53(4):644-55.
4. US Food and Drug Administration (2018). News and events. Retrieved from: <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm549078.htm>
5. Reuter, U et al. Efficacy and safety of erenumab in episodic migraine patients with 2-4 prior preventive treatment failures: Results from the Phase 3b LIBERTY study. Emerging science abstract presented at AAN, 24 April 2018, Los Angeles.
6. Goadsby P, et al "Randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of erenumab in migraine prevention: Primary results of the STRIVE trial" AAN Meeting 2017.
7. Dodick D, et al "A phase III, double-blind, placebo-controlled study to evaluate the efficacy and safety of erenumab in migraine prevention: Primary results of the ARISE trial" AAN Meeting 2017.



# The First FDA-Approved Non-Opioid for Opioid Use Disorder

Razan Mhanna, PharmD

**Key points:** Opioid use disorder (OUD), known previously as opioid dependence, is a chronic, relapsing disease, which has significant economic, personal, and public health consequences. Current guidelines recommend comprehensive treatment with pharmacological agents (opioid partial agonists or antagonists) as well as psychosocial therapy. Until recently, the U.S. Food and Drug Administration (FDA) approved Lucemyra (lofexidine hydrochloride), as the first non-opioid used for the mitigation of withdrawal symptoms associated with OUD.

**Finer points:** According to Centers for Disease Control and Prevention (CDC), opioids killed more than 42,000 people in 2016, more than any year on record. Also, they reported a 30% increase in emergency department visits for opioid overdose across US from July 2016-September 2017.

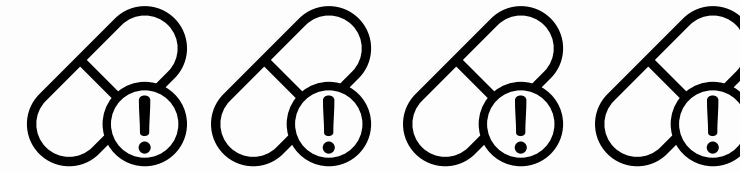
Opioid withdrawal occurs when a patient with physiologic dependence on opioids reduces or stops using an opioid abruptly, or when an antagonist or partial agonist is administered to a patient with physiologic dependence. Untreated opioid withdrawal frequently results in relapse to opioid use. The signs and symptoms of unmedicated opioid withdrawal include:

- **Gastrointestinal distress** – Abdominal cramps, diarrhea, nausea, vomiting
- **Flu-like symptoms** – Lacrimation, rhinorrhea, diaphoresis, shivering, and piloerection (goosebumps)
- **Sympathetic nerve and central nervous system arousal** – Mydriasis, mild hypertension and tachycardia, anxiety and irritability, insomnia, agitation, restless leg syndrome, general restlessness, tremor, and, less frequently, low grade temperature and tactile sensitivity
- **Other** – Yawning, sneezing, anorexia, dizziness, myalgias/arthralgias, and leg cramps

The diagnosis of opioid use disorder is based on criteria outlined in the DSM-5 that describes a problematic pattern of opioid use leading to clinically significant impairment or distress. There are a total of 11 symptoms and severity is specified as either mild (presence of 2-3 symptoms), moderate (presence of 4-5 symptoms) or severe (presence of 6 or more symptoms) within a 12 month period.

Opioid use disorder requires that at least two of the following 11 criteria be met within a twelve-month period:

- (1) Taking opioids in larger amounts or over a longer period of time than intended;
- (2) Having a persistent desire or unsuccessful attempts to reduce or control opioid use;
- (3) Spending excess time obtaining, using or recovering from opioids;
- (4) Craving for opioids;
- (5) Continuing opioid use causing inability to fulfill work, home, or school responsibilities;
- (6) Continuing opioid use despite having persistent social or interpersonal problems;
- (7) Lack of involvement in social, occupational or recreational activities;
- (8) Using opioids in physically hazardous situations;
- (9) Continuing opioid use in spite of awareness of persistent physical or psychological problems;
- (10) Tolerance
- (11) Withdrawal

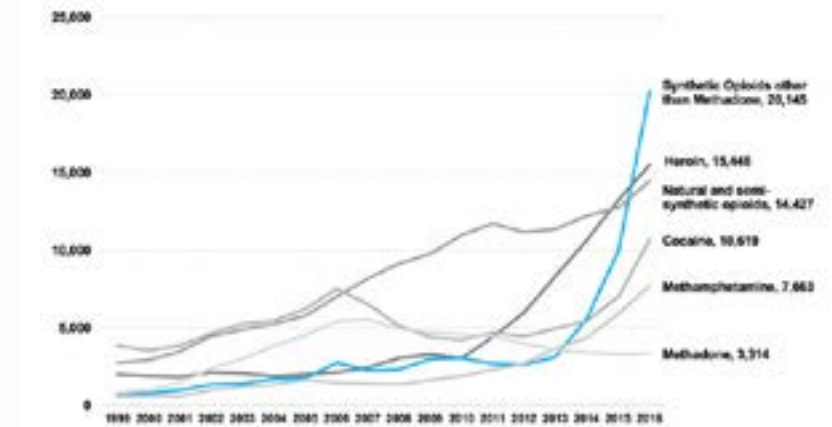


In patients using opioid analgesics appropriately as prescribed, opioid withdrawal is typically managed by slow taper of the medication, which is intended to avoid or lessen the effects of withdrawal while allowing the body to adapt to not having the opioid. In patients with OUD, withdrawal is typically managed by substitution of another opioid medicine, followed by gradual reduction or transition to maintenance therapy with FDA-approved medication-assisted treatment drugs such as methadone, buprenorphine (oral or long-acting subdermal implant) or naltrexone; all of which are opioid-derived. The approval of Lucemyra comes as the first non-opioid approved to be used in treating withdrawal symptoms associated with OUD.

**Lofexidine hydrochloride is an oral, selective alpha 2-adrenergic receptor agonist that reduces the release of norepinephrine. The actions of norepinephrine in the autonomic nervous system are believed to play a role in many of the symptoms of opioid withdrawal.**

The safety and efficacy of Lucemyra was supported by two randomized, double-blind, placebo-controlled clinical trials of 866 adults meeting Diagnostic and Statistical Manual-IV criteria for opioid dependence who were physically dependent on opioids and undergoing abrupt opioid discontinuation. The studies evaluated benefit using the Short Opiate Withdrawal Scale of Gossop

Drugs Involved in U.S. Overdose Deaths, 2000 to 2016



(SOWS-Gossop), which is a patient-reported outcome instrument that assesses opioid withdrawal symptoms.

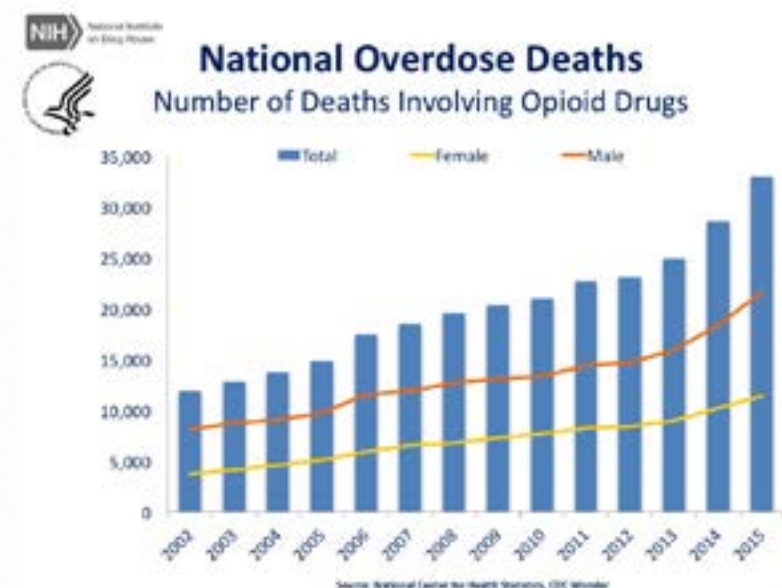
The most common side effects from treatment with Lucemyra include hypotension, bradycardia, somnolence, sedation and dizziness. Lucemyra was also associated with a few cases of syncope. Lucemyra effect the heart's electrical activity, which can increase the risk of abnormal heart rhythms. When Lucemyra is stopped, patients can experience a marked increase in blood pressure.

The safety and efficacy of Lucemyra have not been established in children or adolescents less than 17 years of age. After a period of not using opioid drugs, patients may be more sensitive to the effects of lower amounts of opioids if relapse does occur, and taking opioids in amounts that were used before withdrawing from opioids can lead to overdose and death.

**What you need to know:** While Lucemyra (Lofexidine hydrochloride) may lessen the severity of withdrawal symptoms; it may not completely prevent them and is only approved for treatment for up to 14 days. Lucemyra is not a treatment for opioid use disorder (OUD), but can be used as part of a broader, long-term treatment plan for managing OUD.

**References:**

1. Centers for Disease Control and Prevention (CDC). (2017). Opioid Overdose. Retrieved on June 1, 2018, from <https://www.cdc.gov/drugoverdose/>
2. FDA News Release (May, 2018). FDA approves the first non-opioid treatment for management of opioid withdrawal symptoms in adults. Retrieved on June 1, 2018, from <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm607884.htm>.
3. American Society of Addiction Medicine. (2015). The ASAM National Practice Guideline for the Use of Medications in the Treatment of Addiction Involving Opioid Use. P 20-29.
4. Uptodate. Pharmacotherapy for Opioid Use Disorder. (2018). Retrieved on June 4, 2018 from [https://www.uptodate.com/contents/pharmacotherapy-for-opioid-use-disorder?search=opioid%20withdrawal&source=search\\_result&selectedTitle=8-148&usage\\_type=default&display\\_rank=8](https://www.uptodate.com/contents/pharmacotherapy-for-opioid-use-disorder?search=opioid%20withdrawal&source=search_result&selectedTitle=8-148&usage_type=default&display_rank=8)





## Shingrix®: The New Zoster Vaccine

Seham Kenaan, PharmD

**Key point:** On October 20, 2017, the US Food and Drug Administration (FDA) approved Shingrix® (GlaxoSmithKline Biologicals), an inactivated recombinant zoster vaccine, for prevention of herpes zoster (shingles) in adults aged 50 years and older.

**Finer points:** Herpes zoster or shingles is a disease that presents with a painful blistered rash on one side of the body. It occurs in patients with history of chicken pox. Varicella Zoster virus causes chicken pox, however the virus remains dormant and reactivate later to cause shingles.

Zoster vaccine is indicated for the prevention of shingles and its most common complication, postherpetic neuralgia (PHN). Shingrix® is an inactivated recombinant zoster vaccine (RZV) that was approved in October 2017 by the FDA for herpes zoster prevention. The older vaccine, Zostavax®, which has been used in the past years, is a live vaccine (ZVL i.e. zoster vaccine live) that was approved by the FDA in 2006.

The new 2018 CDC recommendations prefer the RZV (Shingrix®) over the old ZVL (Zostavax®) to prevent shingles and PHN. Shingrix® has proven to have a higher efficacy in

preventing shingles and longer lasting immunity compared to Zostavax®. There is no upper age limit to receive zoster vaccines, although their efficacy decreases with age. However, the efficacy of ZVL declines much more than RZV with increasing age.

**The FDA approval of Shingrix® was based on a randomized, placebo-controlled, observer-blind clinical study conducted in 18 countries. Compared with placebo, Shingrix® significantly reduced the risk of developing HZ by 97.2% in subjects 50 years and older.**

Shingrix® should be administered as 2 IM doses (2-6 months apart) to adults aged 50 years or older regardless of past episode of herpes zoster or receipt of Zostavax®. For those who has received ZVL before, the RZV can only be administered after 2 months of administering ZVL.

For adults aged 60 years and above, the CDC recommends either RZV or ZVL but still notes that RZV is

preferred in this age group. Zostavax® (ZVL) is administered as a single SQ dose.

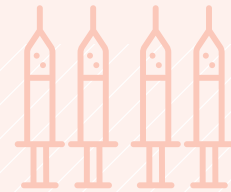
Severe allergic reaction is the only contraindication for Shingrix®. Most common side effects include injection site reactions (pain, redness, and swelling), fatigue, and myalgia.

### What you need to know:

Shingrix® is the new inactivated recombinant vaccine approved to decrease risk of shingles. It is preferred over the old live vaccine Zostavax® in terms of efficacy and durability. It should be administered as 2 IM doses for individuals 50 years or above.

### References:

- 1- What everyone should know about shingles vaccine (2018, June18). Retrieved from <https://www.cdc.gov/vaccines/vpd/shingles/public/index.html>
- 2- Shingrix (Zoster Vaccine Recombinant, Adjuvanted). (2017). Retrieved from <https://www.centerwatch.com/drug-information/fda-approved-drugs/drug/100232/shingrix-zoster-vaccine-recombinant-adjuvanted->
- 3- Shingrix Prescribing information. (2017). Retrieved from [https://www.gsksource.com/pharma/content/dam/GlaxoSmithKline/US/en/Prescribing\\_Information/Shingrix/pdf/SHINGRIX.PDF](https://www.gsksource.com/pharma/content/dam/GlaxoSmithKline/US/en/Prescribing_Information/Shingrix/pdf/SHINGRIX.PDF)



## Breakthrough Multiple Sclerosis, Whatever It Takes

Susana Abdel Fattah, RPh, MBA, PharmD

**Key point:** On May11, 2018, the U.S. Food and Drug Administration (FDA) expanded approval of Gilenya® (fingolimod) to treat relapsing multiple sclerosis (MS) in children and adolescents age 10 years and older, to be the first FDA approved drug to treat MS in pediatric patients.

**Finer points:** MS is a disease that impacts the brain and spinal cord which make up the nervous system that controls everything we do. MS is increasingly recognized in the pediatric population, and it is usually diagnosed around 15 years of age. The exact cause of MS is still unknown, but what is known is that something triggers the immune system to attack the brain and spinal cord resulting in damage of myelin sheath. This damage causes disruption of signals from and to the brain. The interruption of communication signals generates unpredictable signs such as numbness, mood changes, memory problems, pain, fatigue, blindness, or even paralysis. MS in children almost always presents in the relapsing-remittent form. The therapy involves treatment of relapses, in addition to immunomodulatory and symptomatic treatment.

**Gilenya® (fingolimod) was first approved by the FDA in 2010 to treat adults with relapsing MS, and now approved to treat MS in pediatric patients.**

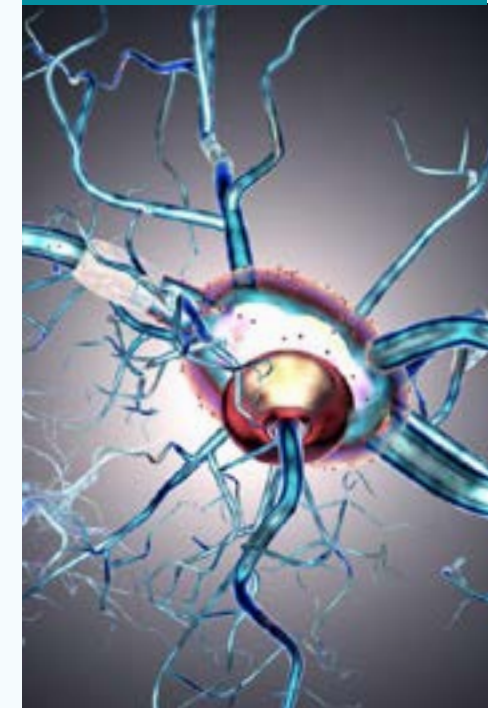
Fingolimod-phosphate, the active metabolite of fingolimod, binds to sphingosine 1-phosphate receptors 1, 3, 4, and 5. Fingolimod-phosphate blocks the lymphocytes' ability to emerge from lymph nodes; therefore, the amount of lymphocytes available to the central nervous system is decreased, which reduces central inflammation.

The approval of Gilenya® for the younger patient population was supported by PARADIGMS, a double-blind, randomized, multi-center Phase III safety and efficacy study of Gilenya vs. interferon beta-1a, designed specifically for children and adolescents with RMS. The primary endpoint demonstrated that oral Gilenya® reduced the rate of relapses (annualized relapse rate) by approximately 82% (p <0.001) over a period of up to two years compared to interferon beta-1a intramuscular injections in children and adolescents (ages 10 and older) with relapsing MS. The safety profile of Gilenya® in this study was overall consistent with that seen in previous clinical trials in adults.

Gilenya® must be dispensed with a patient Medication Guide that describes important information about the drug's uses and risks. Serious risks include bradycardia, especially after the first dose. Gilenya may cause immunosuppression, increasing the risk of serious infections. Patients should be monitored for infection during treatment and for two months after discontinuation. A rare brain infection that usually leads to death or severe disability, called progressive multifocal leukoencephalopathy (PML) has been reported in patients being treated with Gilenya®. Vision problems were also reported. Gilenya® may increase the risk for swelling and narrowing of the blood vessels in the brain (posterior reversible encephalopathy syndrome). Other serious risks include respiratory problems, liver injury, increased blood pressure and skin cancer. The FDA granted Priority Review and Breakthrough Therapy designation for this indication. To add, the FDA granted the approval of Gilenya to Novartis.

### What you need to know:

MS is a devastating disease that is increasingly recognized in pediatric population. Being the first FDA approved therapy to treat relapsing MS in this population, Gilenya® holds a promise.



### References:

- 1- FDA News & Events, Newsroom, Press Announcements (2018). FDA expands approval of Gilenya to treat multiple sclerosis in pediatric patients. Available at: <https://www.fda.gov/newsevents/Newsroom/PressAnnouncements/ucm607501.htm>
- 2- Pena JA, Lotze TE. Pediatric multiple sclerosis: current concepts and consensus definitions. *Autoimmune Dis.* 2013;2013:673947
- 3- Gilenya (fingolimod) [product monograph]. Dorval, Quebec, Canada: Novartis Pharmaceuticals Canada Inc; October 2017
- 4- Chitnis T et al. PARADIGMS: A Randomised Double-blind Study of Fingolimod Versus Interferon B-1a in Paediatric Multiple Sclerosis. Abstract no. 276. Oral presentation at 7th JointECTRIMS-ACTRIMS Meeting, Paris, France, October 25-28, 2017.



# Dipeptidyl Peptidase-4 Inhibitors and Incidence of Inflammatory Bowel Disease Among Patients with Type 2 Diabetes

Sylvia Saade, PharmD

**Key Point:** The use of dipeptidyl peptidase-4 (DPP-4) inhibitors in the treatment of type 2 diabetes has increased considerably since their introduction a decade ago. Their effects are mediated by inhibition of the dipeptidyl peptidase-4 enzyme leading to a rise in glucagon-like peptide 1 concentrations, but inhibition may also have unintended effects. The dipeptidyl peptidase-4 enzyme is found in the serum and is also expressed on the surface of a variety of cell types, including those involved in immune response. Clinical data indicate that patients with inflammatory bowel disease (IBD) have lower serum dipeptidyl peptidase-4 enzyme concentrations than healthy controls. Moreover, such lower concentrations are inversely associated with increased disease activity, although whether this is the cause or consequence of active disease is unclear.

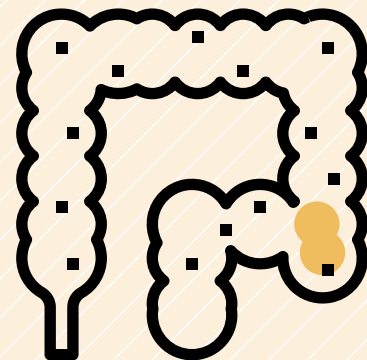
**Finer points:** In a cohort study published in February 2018, 141 170 patients were included. These patients were followed for a median of 3.6 (interquartile range 1.6-5.9) years beyond the six month post-cohort entry lag period. During 552 413 person years of follow-up, 208 incident inflammatory bowel disease events occurred (crude incidence rate of 37.7 (95% confidence interval 32.7 to 43.1) per 100 000 person years). Overall, use of dipeptidyl peptidase-4 inhibitors was associated with an increased risk of inflammatory bowel disease (53.4 v 34.5 per 100 000 person

years; hazard ratio 1.75, 95% confidence interval 1.22 to 2.49). Hazard ratios gradually increased with longer durations of use, reaching a peak after three to four years of use (hazard ratio 2.90, 1.31 to 6.41) and decreasing after more than four years of use (1.45, 0.44 to 4.76). A similar pattern was observed with time since starting dipeptidyl peptidase-4 inhibitors.

**What you need to know:** The effect of the dipeptidyl peptidase-4 enzyme in autoimmune diseases such as inflammatory bowel disease is not well understood. Low concentrations of the DPP-4 enzyme have been associated with increased IBD activity, although the direction of this association remains unclear. Use of DPP-4 inhibitors was associated with an overall 75% increase in the risk of IBD. This association was elevated between three and four years of use and between two and four years after the start of treatment. These findings need to be replicated, but physicians should be made aware of this possible association.

#### References:

1. AMERICAN DIABETES ASSOCIATION STANDARDS OF MEDICAL CARE IN DIABETES—2018
2. Abrahami, D., Douros, A., Yin, H., Yu, O. H. Y., Renoux, C., Bitton, A., & Azoulay, L. (2018). Dipeptidyl peptidase-4 inhibitors and incidence of inflammatory bowel disease among patients with type 2 diabetes: population based cohort study. *bmj*, 360, k872.



## THE THIRTEENTH PHARMACY DAY



A PHARMACY TALE  
FROM ANTIQUITY TO INNOVATION  
FRIDAY, MAY 11 2018 . 10:00-16:30 . LIU BEKAA CAMPUS





# Thirteenth Pharmacy Day A Pharmacy Tale: From Antiquity to Innovation

**Dr. Samar Younes**

One of the unique annual events of the School of Pharmacy (SOP) at the Lebanese International University (LIU) is the Pharmacy Day that engages pharmacy students in spreading community awareness through professional communication, poster presentations, and having a fundraiser for a needy organization.

This year, and under the patronage of the president of the Lebanese Order of Pharmacists, Dr. Georges Sili, the SOP organized its 13th Pharmacy Day entitled: "A Pharmacy Tale: From Antiquity to Innovation". This event was held on Friday, May 11th, 2018 in Bekaa Campus.

Following the national and LIU anthems, the coordinator of the pharmacy day, Dr. Samar Younes, delivered a welcoming speech. It was followed by speeches from the dean of the SOP, Dr. Mohamad Rahal; Project Manager of University Medical City at Al-Imam Muhammad Ibn Saud Islamic University, Dr. Walid Al Shaka; the students' representative, Ms. Fatima Ajami; the general manager of Pharmacists Medical Drugstore, Dr. Ghassan Amin; the president of the Lebanese Order of pharmacists, Dr. Georges Sili, and last but not least, the president of LIU, H.E. Mr. Abdul Rahim Mourad represented by Mr. Omar Mourad, the vice president of Ghad Afdal institutions. All their words praised the SOP's tremendous success in raising high caliber students who are ready to face the future with the best knowledge attained at LIU.

After the opening ceremony, the attendees visited the scientific exhibition, whereby the students





presented around 30 posters which shared a common theme about the story of pharmacy. In the exhibition, the origin and evolution of pharmacy was covered by tracing the history of pharmacy through a pleasant journey. The journey started from the ancient times, then highlighting the milestones of both medicine and pharmacy toward a more patient-centered care and finally reaching the role of technology in modern pharmacy. Additionally, in the occasion of Ramadan, pharmacy students prepared a Ramadan tent where the invitees rested and had some dates, maamoul, jalab and coffee.

The posters were evaluated by the invitees and a fundraising campaign was conducted for “Dar El Hanan” and “Red Cross” by having a bake sale booth and sale of tombola tickets.

During the closing ceremony, the activities started by displaying videos prepared by pharmacy students, then followed by the Pharmacy Got Talent show where 10 talents from the SOP competed for the best performance. Finally, prizes were distributed to the best scientific projects and a raffle was conducted whereby many valuable prizes were distributed. The day was really a great success where all the attendees enjoyed the joyful and interactive atmosphere of the event.



















## SOP Faculty Contribution to Saint-Joseph University 7<sup>th</sup> International Conference

Dr. Dalal Hammoudi

The LIU School of Pharmacy participated in the 7th international conference of the Faculty of Pharmacy of Saint-Joseph University, Beirut, on, April 12th-13th, 2018. The theme of the conference was: **“The Pharmacist Amidst Therapeutic and Humanitarian Challenges”**.

The Dean, Dr. Mohamad Rahal, participated in the meeting of the executive committee of the Scientific Association of colleges of Pharmacy in the Arab World, which was held in parallel with the conference. Dr. Dalal Hammoudi, Chairperson of the Pharmaceutical Sciences Department, participated in the scientific sessions of the conference through a presentation about carbapenem resistance, describing some findings of a joint study between the Schools of Pharmacy at both USJ and LIU, in collaboration with Zayed University, Dubai.

The conference was chaired by Prof. Marianne Abi Fadel, Dean of the Faculty of Pharmacy at USJ, and was attended by Lebanese, Arab, and international speakers, students, and pharmacy scholars.



## SOP Faculty Contribution to Beirut Arab University 3<sup>rd</sup> International Conference

Dr. Etwal Bou Raad and Dr. Nisreen Mourad



The School of Pharmacy at the Lebanese International University (LIU) headed by its Dean Dr. Mohamad Rahal in addition to Dr. Dalal Hammoudi, Dr. Diana Malaeb, Dr. Etwal Bou Raad, Dr. Michelle Cherfan, and Dr. Nisreen Mourad participated in the Third International Conference entitled **“Towards Best Pharmacy Practices: Enhancing Pharmacy Education”** at Beirut Arab University (BAU) that was held on May 8th, 2018. In addition, the Third Forum on Advancing Pharmacy Education in the Middle East and the Gulf Region” was held in parallel to the conference.

The forum contained series of workshops. Dr. Dalal Hammoudi and Dr. Nisreen Mourad participated in its first workshop entitled **“Overview on Principles of Assessment”** along with pharmacy faculty members from Qatar, Kuwait, and BAU. Dr. Hammoudi and Dr. Mourad elaborated first on the formative assessment methods and feedback techniques and then engaged the audience in activities on how to apply these methods in their assessment

processes. Within the second day of the forum, Dr. Etwal Bou Raad was one of the team members for the workshop entitled **“Performance-Based Assessment (PBA)”**. Dr. Bou Raad delivered the facilitators part in implementing PBA. Before the session started, the attendees were asked to sit into different groups and brain storm list of barriers and facilitators they perceive while implementing PBA in their institutions using colored sticky notes. Then each group representative presented and discussed the facilitators and barriers on a white board. This activity gave chances for all attendees to share their experiences and thoughts for PBA.

After the activity, Dr. Bou Raad presented the facilitators focusing on a model that helps in understanding the different steps in implementing PBA in pharmacy schools. Throughout her presentation, Dr. Bou Raad gave examples of different strategies that have been implemented at the Lebanese International University School of pharmacy to facilitate PBA in some courses.







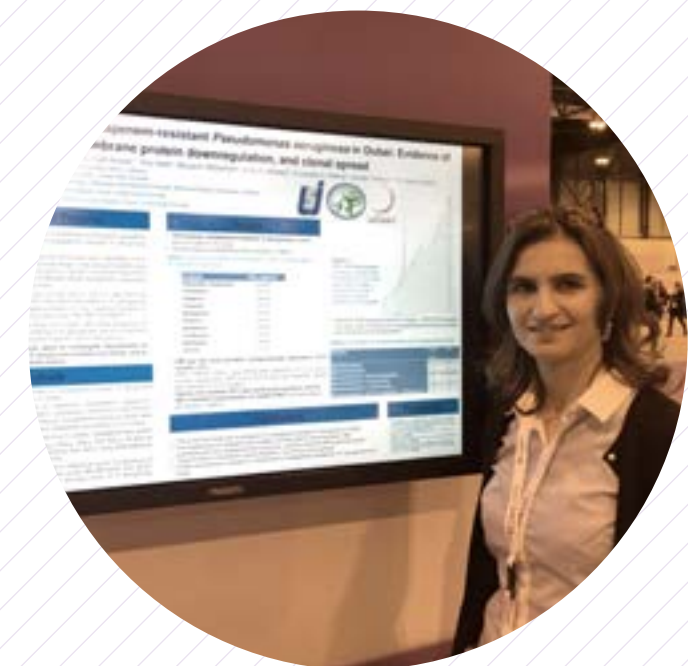
## Dr. Hammoudi's Participation in the European Congress of Clinical Microbiology and Infectious Diseases

Dr. Dalal Hammoudi

The School of Pharmacy at LIU Bekaa Campus participated in this year's European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), a record-breaking event with 12,949 attendees from 128 countries. The congress was held on April 21st-24th, in Madrid, Spain, and featured more than 150 sessions with invited speakers covering the entire field of infectious diseases and clinical microbiology, including eight keynote lectures, more than 100 symposia and oral sessions, 22 educational workshops and 22 meet-the-expert sessions.

The congress also offered attendees 29 industry-organized symposia and an exhibition with 198 exhibitors. High tech display was available for 3,563 abstracts in oral, poster, poster talks, and paper poster sessions, as well as 370 speakers and 206 chairs, together with live broadcast conferences and numerous press releases.

Dr. Dalal Hammoudi participated in the congress through a poster and eposter from collaborative research project of SOP with Saint-Joseph University, Faculty of Pharmacy, and Zayed University, Dubai. Dr. Hammoudi was also the co-author of an oral session from the same project presented by one of her co-workers.





# Workshop for UNRWA: Training and Capacity Building of UNRWA Health Staff in Drug Therapeutic

Dr. Mariam Dabbous



The School of Pharmacy at the Lebanese International University conducted a training workshop for the UNRWA Health Staff entitled “Training and capacity building of UNRWA health staff in Drug Therapeutic”.

Two identical training workshops targeted around 46 pharmacists from all UNRWA health centers in Lebanon were conducted during February 20<sup>th</sup> -22<sup>nd</sup>, 2018 and February 27<sup>th</sup> - March 1<sup>st</sup>, 2018. It aimed at improving the **knowledge and skills of the pharmacists** in the field of pharmacy within primary health care with main focus on pharmacology of the most common drugs, inventory management, healthy storage conditions, communications skills and provision of health education to the Palestine refugees from Lebanon as well from Syria, all over Lebanon.

During the workshop, the Faculty highlighted on the evidence based treatment plans for managing hypertension, and major cardiovascular diseases (CVD) including dyslipidemia and coronary artery disease (CAD), discussed different classes of antibiotics and their spectrum, while focusing on those that are most commonly used in primary care, devised evidence based



treatment plans for managing diabetes mellitus type one and two while discussing different medications used in treating, demonstrated fundamental knowledge and skills in the management of inventory, keeping healthy and safe storage conditions from medications and other issues related to effective and efficient supply chain management, and demonstrated fundamental knowledge and skills in rational use of medications, in delivering health education information to patients and in counseling various Beneficiaries regarding medications use.

On day 1 of the workshop, **Dr. Mohamad Rahal**, Dean of School of Pharmacy, welcomed the attendees and gave them a brief **introduction about the School of Pharmacy and overview on the workshop** highlighting that the information will be delivered through interactive case based workshops in order to prepare the pharmacists for the challenges they face in the real world. Then, **Dr. Faraj Saadeh**, started session 1 and discussed **hypertension with the different medications used in the treatment**. Session 2 focused on **Cardiovascular diseases: Dyslipidemia and Coronary Artery Disease**, where **Dr. Michelle Cherfan**, focused on treatment plans for managing major cardiovascular diseases (CVD) including dyslipidemia and coronary artery disease (CAD) and discussed the different medications used in treating dyslipidemia and the discharge plan of CAD patients. **Dr. Samar Younes** then highlighted on indication, use, pharmacology, and side effects for anticoagulants. Sessions 3 delivered by **Dr. Maya Faran**, focused on **Supply Chain Management and Inventory Management**, where she defined the supply chain management, (SCM) its importance, components and functions, while discussing it from a pharmaceutical perspective through software integration that entails a pharmacy strategy and service outcomes. Moreover, a discussion on Inventory Management procedures including purchasing, receiving, and storage, along with an illustration on how the pharmacist can benefit from technology software development was done. Session 4 delivered by **Dr. Hadi Dassouki** focused on the **Storage and stability, Shelf Life Disposal of expired and near expired medications**, where he delivered the basic knowledge related to drug storage and stability. He focused on establishing an effective policy & system process for identifying and handling expired and near-expired medications and disposition of expired ones that are consistent with the guidelines set forth by the Lebanese Ministry of Public Health.





On Day 2, session 1 was delivered by **Dr. Fadi Hdeib**, where he discussed the **different classes of antibiotics used in Upper and Lower Respiratory Tract Infections** and their spectrum along with a revision of evidence-based guidelines and recommendations for proper antibiotic drug use. In session 2, the main focus was on **Skin and Soft Tissue Infections and Urinary Tract Infections**. **Dr. Fouad Sakr** discussed the best pharmacological care plan for skin and soft tissue infections, while focusing on diabetic foot infection and cellulitis. Then **Dr. Nisreen Mourad**, explained appropriate treatment plans to manage urinary tract infections (UTIs), while differentiating between upper and lower UTIs. She highlighted on the role of pharmacist in SSTIs and UTIs management. Session 3 delivered by **Dr. Etwal Bouraad**, focused on the **drugs that are considered safe and unsafe in pregnancy and lactation**. Session 4 was delivered by **Dr. Mariam Dabbous**, she addressed the **skills needed to deal with patients that have special communication needs** such as older adults, communication impairments, patients with disabilities, terminally ill, HIV or AIDS, mental health problems, suicidality, low health literacy, and caregivers.

On Day 3, session 1 delivered by **Dr. Diana Malaeb**, discussed the **evidence based treatment plans for managing diabetes mellitus type one and two**, while discussing different medications used in the treatment. Session 2 was delivered by **Dr. Dalal Hammoudi**, she discussed the **common dermatologic conditions** like acne, eczema, scabies, and pediculosis, and different pharmaceutical products and lifestyle modifications used for their management. Session 3, was delivered by **Dr. Marwan Akel**, he discussed the **different treatment in migraine headache**.

At the end of the workshop, an evaluation form was filled by the attendees, and most of them agreed that the workshop was comfortable and conducive of learning, and met the objectives of the project aiming at training of UNRWA health staff.



## Heartsaver First Aid CPR AED Training Workshop

**Dr. Mariam Dabbous**

The School of Pharmacy at the Lebanese International University organized a Heartsaver First Aid CPR AED training workshop for pharmacy students in collaboration with Tripoli International Training Center for life support (an American Heart Association Certified Center).

The course was a full day with aim to provide our students with the skills to successfully save a life. During the course, the students learned to provide cardio pulmonary resuscitation, use automated external defibrillator, relief of choking in children and adults, use of barrier devices for all ages with first aid course.

102 students participated in this course training and four different workshops were conducted each included 25-27 students, on Thursday, March 29<sup>th</sup>, 2018; Thursday, April 5<sup>th</sup>, 2018; Thursday, April 26<sup>th</sup>, 2018, and Thursday, May 3<sup>rd</sup>, 2018.

By end of the course, our students were provided with **AHA HEARTSAVER FIRST AID CPR AED** card that they may use in 81 different countries, and certificate of completion.





# LIU Pharmacy Alumni Association

The Lebanese International University (LIU) Pharmacy Alumni Association is a non-profit organization that welcomes all graduates, former students, faculty, staff, and friends of the School of Pharmacy, as members. We connect alumni to the LIU Pharmacy School, mobilize alumni support for the school, and provide valuable benefits, services, as well as resources.

Membership in the LIU Pharmacy Alumni Association will encompass more than 700 alumni who are one of the most talented and professional pharmacists in Lebanon. The Pharmacy Alumni Association is a gateway to this community. It provides services and resources that strengthen alumni ties to each other across every stage of life and around the world.

**There are many ways you can stay connected to the University and your fellow alumni:**

1. Fill membership application and send it to [sop.alumni@liu.edu.lb](mailto:sop.alumni@liu.edu.lb)
2. Share your achievements on social media: keep in touch on our facebook page LIU Pharmacy Alumni Association
3. Come along to SOP events



## LIU Pharmacy Alumni Association

Name: ..... Date of birth: .....

Mobile Number: ..... Home Number: .....

Email: ..... Year of graduation: .....

Region/ Address: .....

Employment(s): .....

I confirm my LIU Pharmacy Alumni Association membership:

Yes  No

I am interested to be an LIU Pharmacy Alumni Association board member:

Yes  No

LIU Pharmacy Alumni Association  
 Email: [sop.alumni@liu.edu.lb](mailto:sop.alumni@liu.edu.lb)  
 P. O. Box: 146404 Mazraa, Beirut - Lebanon  
 Fb: [alumni.sop.liu](https://www.facebook.com/alumni.sop.liu)

## Class of 2009: What our Graduates are doing now?



**Dina Abou Hamine** *Class of 2009*

I obtained my Bachelor of Pharmacy from the Lebanese International University in 2009 on the distinguish list. Then, I travelled to United State and got my U.S. pharmacy license in 2014 and now I am working as a relief pharmacist at Kansas City.



**Fouad Sakr**, *Class of 2009*

I had both a pharmacy BS (2009) and PharmD (2011) degrees from the Lebanese International University (LIU), Beirut, Lebanon. I am currently a full-time faculty member at LIU – School of Pharmacy. I am the chairman of PharmD program as of October 2017. I am a member in the assessment, research and accreditation committees. I was LIU's Pharmacy Day coordinator during the academic years 2013- 2014 and 2014-2015. I am a registered pharmacist (RPh) in the Lebanese Order of Pharmacists (OPL), as well, I am a member in the American Society of Health System Pharmacists (ASHP).



**Nadine Zeinab**, *Class of 2009*

Graduated from the Lebanese International University in 2009 with distinction and it all started thereafter. I worked as community pharmacist for one year. I believed that with deeper insight into drug pharmacology and therapeutics the pharmacist can further participate in drug research and be able to be a key role player in the multidisciplinary team that manages the patient's treatment plan when having a broader scope about the drug pharmacology. Pharmacist plays a crucial role in clinical trials and in- Vito trials to further master this I attended the Lebanese clinical trial registry training.



**Elham Santina** *Class of 2009*

I obtained my B.Sc in Pharmacy from the Lebanese International University in 2009. Subsequently, I embarked on a new journey through moving to the UK where I obtained my PhD in Oncology in 2016, researching and identifying novel drugs targeting the antioxidant enzyme "NQO2" in breast cancer at the University of Manchester.

Following the publication of these studies, I was awarded a research grant, and appointed as a postdoctoral research scientist in the institute of translational medicine at the Cancer Research Centre in University of Liverpool. Currently, I am investigating the P53/MDM2 pathway and developing a combinational therapy in kidney cancer targeting the metabolic and apoptotic regulators. I am proud to be a member of the British and American Associations for Cancer research to bring further collaboration and contributions towards better discovery of therapeutic interventions to treat cancer.

I have extensive clinical and community pharmacy practice experience acquired through the leading Lebanese medical institutes as the American University of Beirut Medical Center (AUBMC), Rafik Hariri University Hospital (RHUH), Makassed General University Hospital, Zahraa University Hospital, Trad Hospital and Medical Center, and others. During my career at LIU, I taught Pharmacotherapy of Infectious Diseases, Interpretations of Laboratory Data, Non-prescription Drugs, Physical Pharmacy, Pharmacy Seminar, Compounding Lab, and Introduction to Drug Information. As well as, being a clinical and community preceptor.

Moreover, I was the Pharmacy Practice Experience III/IV (PPEIII/ IV) coordinator during the academic years 2014-2015 and 2015-2016. I have worked in the Lighthouse Pharmacy in Beirut for two years as a chief pharmacist. I got detailed experience in the Lebanese, American, and European drug formulary, drug compounding, and counseling; as well as in parapharmaceutical care.

Following my graduation with a master degree in pharmacology and therapeutic from AUB with high honor, I got motivated to transfer my knowledge into clinical bed side especially cancer related discipline. Believing that treatment should be personalized to each patient and the pharmacist must be involved from treatment plan setting to treatment outcome monitoring I applied for a Clinical oncology pharmacist at Clemenceau Medical Center. Throughout my work practice I faced a lot of challenges trying to set steps and further emphasize the crucial role that the clinical pharmacist plays at the level of the quality of care.

I have attended and participated in several cancer care forums and masterclasses and became a member at the European Society of Oncology Pharmacist. I am a senior clinical oncology pharmacist at CMC now, and have participated in setting different hospital oncology pharmacy related policies and a member at the CMC ethics committee.



# SOP Second Annual Sohour its Alumni

Dr. Mariam Dabbous and Dr. Fadi Hdeib

The School of Pharmacy at the Lebanese International University organized the second annual sohour for the Alumni at the Golf Club on Tuesday, June 12, 2018. The attendees included graduates from 2006 till 2017, faculty, administrative members of the LIU community, and SOP special guests. The organizer, Dr. Fadi Hdeib, gave the opening speech to welcome the attendees, and announced the launching of SOP Alumni Association task force.

**Dr. Mohammad Rahal**, the Dean of the SOP, highlighted on importance of participation and engagement of all alumni in such reunion. It is vital to the strength of the University, directly impacting the quality of learning and life.

**Mohamad Bilal**, SOP Graduate year 2008, gave a speech in the name of Alumni. He thanked the SOP for all the support and good knowledge that supported them to build a successful career.

**Hind Hajj**, a member of the Alumni Association, described the role of association in helping all graduates, and organizing multiple events each year for alumni reunion. She encouraged all graduates to be a member of this association and work together to help make all aspects of alumni reunion successful.

**Dr. Ghassan Al Amin**, OPL previous president and event sponsor, addressed the alumni and encouraged them to participate actively in the Lebanese order of Pharmacist. He highly emphasized the importance of our graduates in improving the pharmacy career by electing the suitable person to OPI presidency. He took the opportunity to highlight his election program for the upcoming OPI elections.

**The president H.E. Mr. Abdul Rahim Mourad**, expressed his pleasure to meet with many of SOP graduates after a long time. He mentioned that our University was a small organization. But, if we talk about today, our graduates have widely-spread throughout the globe in search for growth, learning, knowledge and their performances make difference everywhere.

Finally, a trophy of appreciation was given to Dr. Ghassan Al Amin, and all attendees were invited to enjoy the Sohour.









# Class of 2018: Memories and Words to Share



**Hanine Awada**

*5 years passed...*

5 years of hard work and fun...

5 years were enough to discover who I am, what and where I can be...

5 years of memories, some were bad where I learned a lot and some were awesome where I met so many lovely people...

5 years searching for myself, my capabilities and my core competencies...

5 years building on my values more positive thoughts and quotes...

5 years at the Lebanese international University.....

5 years to have at the end an academic degree melt with extracurricular activities that make my CV stronger...

Thanks LIU and my whole family who led to this unforgettable moment...



**Lamis Kassim**

Work, respect and brotherhood is what LIU is all about. We cried sometime, laugh another time, making friends "even with doctors" feeling of belong to this place. We learned how to be confident and a quick learner and how to be useful. Doctors were kind, have patience and have of course the art of teaching.



**Lama Siklawi**

Through the five years of Pharmacy, we have earned a lot of capacities and we realized that nothing having worth comes easy so never give up and keep going and looking forward for what you want to be.



**Rayan Al Hage**

Our remarkable memories are not only the key for our pleasant past, but for the brighter future awaiting for us.

# Class of 2018: Memories and Words to Share



**Malak Abdallah**

You are never really playing an opponent. You are playing yourself, your own highest standards, and when you reach your limit, which is real joy.



**Raghad Iskandar**

5 years of hard work ended with success, LIU was a beautiful Journey.



**Sara Abdel Samad**

Graduates! That's what we are! Congratulations for surviving 5 years of hard work! 5 years of isolation from the external world, sleepless nights, and caffeine overdose. Yet that's not what we should congratulate ourselves for. Congratulations for meeting extraordinary people who became your family; people with whom you've shared your laughs, happy dances, tears, and even mourning over your grades. I don't know about you guys, but I've met my family without which my life makes no sense; we've shared every single detail of our lives for the past couple of years, and hopefully we're stuck together for many years, and that's what I'm grateful for.



**Wassim Al Bast**

I was asked to write a couple of words regarding my journey in the SOP. Well, really no amount of words can ever express my gratitude, my enthusiasm...

Yesterday we were having our first moments at LIU; now we're having the last ones. Suddenly, the time has passed us by while we had best memories with best friends and instructors. We shared smiles, laughter and tears. We even though these days would never end... but unfortunately, now they remain as beautiful memories that we will carry for the rest of our lives.

It's hard to forget people who gave so much to remember; from the dean of the faculty Prof. Rahal, to the instructors and finally to my friends. Different bloods have united to form one big family "THE SOP FAMILY". Destiny is not a matter of choice, rather it is a matter of chance, and my destiny was to meet you!

Forever you will be on my mind and in my heart!





## Oral Hygiene Awareness at Dar Hanan

Dr. Samar Younes

In occasion of the National Children's Dental Health, the School of Pharmacy at Bekaa Campus organized an event on Thursday, March 8th to celebrate the benefits of a healthy mouth and to promote awareness of oral health and the importance of oral hygiene to looking after everyone.

This activity targeted Dar Hanan Grade Five and Six students on site on Thursday, March 8th where Dr. Dima Baal-backi, dentist, delivered a presentation about oral hygiene. She emphasized on proper tooth brushing techniques and routine oral hygiene, dietary advice about cariogenic foods versus healthy foods and importance of routine dental check-up. Tooth brushes, toothpastes and worksheets were distributed to the schoolchildren, and pharmacy students performed many entertaining and informative activities for them.



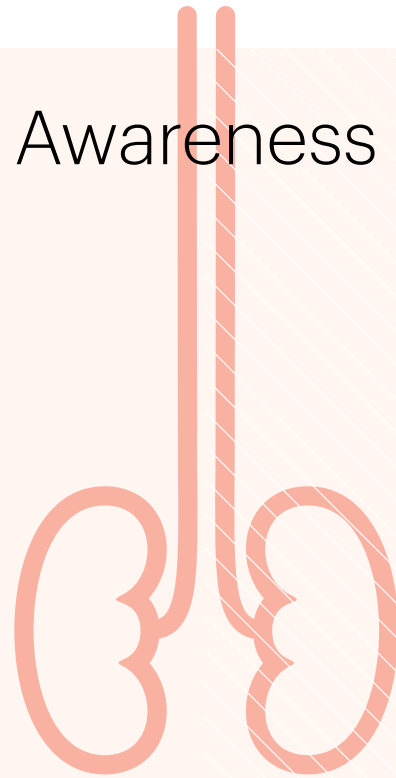


# SOP Kidney Awareness Campaign

Dr. Samar Younes

In the process of keeping up with the **“World Kidney Day”** event which is held annually, the School of Pharmacy (SOP) at the Lebanese International University, Bekaa Campus organized a one-day campaign. The campaign aimed at raising awareness of the importance of our kidneys to our overall health and at reducing the frequency and impact of kidney disease and its associated problems on the Bekaa population. This year’s theme is: **“Kidneys and Women’s Health: Include, Value, Empower”**.

The campaign was conducted on Friday, March 9th, 2018; at Cascada Mall. A variety of activities were performed by pharmacy students during this day. Students provided



scientific counseling about kidney disease focusing on the important functions of the kidneys, in addition to presenting epidemiological data and facts about kidney disease, diagnosis, preventative methods, and management options. Additionally, they assessed participants at risk of developing kidney disease by allowing them to fill a checklist of risk factors. They also handed out informative leaflets and fact sheets about the disease.

Moreover, measurements of blood pressure and obesity parameters were collected. Those who were found to be at risk were encouraged to adopt healthy lifestyle changes and to monitor their weight and blood pressure on regular basis.



# Chronic Care Center Visit

Dr. Dalal hammoudi

The LIU School of Pharmacy fourth year students from Bekaa campus visited on Thursday, March 26th, the Chronic Care Center (CCC), a medico-social institution, specialized in the treatment and follow-up of childhood chronic diseases: thalassemia and type I diabetes.

The field visit was directed by the CCC medical director, Dr. Therese Abou Nasr, who introduced the students to the services of CCC. Specialists in thalassemia and diabetes type 1 then led a series of talks and discussion about the topics, and joined students in a visit to thalassemia patients and to different laboratory and blood banking units of the CCC.

As a courtesy to the CCC, the student Ahmad Abou Ali donated a blood unit to their blood bank.







## World Hypertension Day: Know Your Numbers

Dr. Iqbal Fahs

The School of Pharmacy at the Lebanese International University organized an awareness campaign on occasion of the World Hypertension Day, whose theme for the year 2018 is: "Know Your Numbers". Fifth year LIU pharmacy students and their preceptor Dr. Iqbal Fahs prepared for this campaign that was held at the SPOT Mall (Nabatieh) on Sunday, May 27<sup>th</sup>, 2018 in collaboration with the dietitian Ms. Hamida Jomaa. The purpose of this activity was to improve people's awareness regarding hypertension including levels, targets, causes, prevention, and management. The campaign consisted of two stations; one for the pharmacy students who measured blood pressure and blood glucose levels and accordingly counseled the attendees and encouraged them to seek medical attention if needed; the other station was for the dietitian who measured the weight, BMI, fat and muscle percentages and advised the people to improve their weights and to follow proper diets to avoid or manage hypertension. A poster and some activities displaying essentials that the public should know about hypertension and its management were presented. Students distributed informational pamphlets about hypertension, and entertained the attendees through games, tips to handle hypertension, gifts and many other fun activities.





# WHO Health Days Awareness Campaigns at the Lebanese Hospitals by Lebanese International University-Pharmacy Students.

Dr. Mariam Dabbous

The School of Pharmacy at the Lebanese International University plays a crucial role in raising and promoting health awareness among different segments of the society.

We, at the School of Pharmacy, believe that by raising awareness to society, we make people take better care of themselves; they are less likely to fall ill and hence place a little burden on the health care system.

Our students in the Lebanese hospitals were conducting different campaigns to promote knowledge and raise awareness related to disease prevention. Those campaigns were conducted according to the WHO Health Days: World Kidney Day, World Health Day, World Immunization Week, World Malaria Day, World Asthma Day, World Hypertension Day, and World No Tobacco Day.

Our Health awareness campaigns consisted of skit, pamphlet distribution, poster presentation, giving door-to-door information, and general interaction with patients and visitors.

SOP Magazine Summer 2018



World Kidney Day at Farhat Hospital by 5<sup>th</sup> year students' under supervision of Dr. Rasha Jbara



World Health Day at New Mazloum Hospital by 5<sup>th</sup> year students' under supervision of Dr. Sahar Haydar



World Immunization Week at Al Zahraa University Hospital by 5<sup>th</sup> year students' under supervision of Dr. Siham Kenaan



World Malaria Day at Hayek Hospital by 5<sup>th</sup> year students' under supervision of Dr. Tarek Jinani



Antibiotics Misuse Awareness at Libano-Francaise Hospital Zahle Hospital by 5<sup>th</sup> year students' under supervision of Dr. Dalal Hammoudi







World Asthma Day at Tel Chiha Hospital by 5<sup>th</sup> year students' under supervision of Dr. Rasha Jbara



World Hypertension Day at Sahel General Hospital by 5<sup>th</sup> year students' under supervision of Dr. Sahar AboRyda



World Asthma Day at Albert Haykal Hospital by 5<sup>th</sup> year students' under supervision of Dr. Nour Chamsine



World Hypertension Day at Hammoud Hospital University Medical Center by 5<sup>th</sup> year students' under supervision of Dr. Zeina Shrayteh



World Asthma Day at Sacre-Coeur Hospital by 5<sup>th</sup> year students' under supervision of Dr. Sylvia Saade



World Hypertension Day at Saint George Hospital by 5<sup>th</sup> year students' under supervision of Dr. Sahar Abo Ryda







World No-Tobacco Day at Hiram Hospital by 5<sup>th</sup> year students' under supervision of Dr. Lama Faddoul



World No-Tobacco Day at Al Khoury Hospital Hospital by 5<sup>th</sup> year students' under supervision of Dr. Suzana Abdel Fattah

# Kidney Day: Your Kidney is In your Hand

Dr. Mariam Dabbous

March 8 is the World Kidney Day and we at the School of Pharmacy, as health care professionals, play a vital role in raising awareness.

## Kidneys & Women's Health: Include, Value, Empower



We conducted Kidney Awareness Campaign at the Lebanese International University, Beirut campus Block D and F on March 8, 2018 from 11:00 till 14:00 to focus on the importance of our kidneys on our overall health.

The professional communications students with supervision of their instructor Dr. Elise Makhoul, and help of pharmacy club students, designed posters and pamphlet to provide knowledge about kidney disease, and encourage preventive behaviors for kidney function. They gave all attendees tips on reducing the frequency and impact of kidney disease and its associated health problems.

All students and faculty wear green and enjoyed the day with lot of activities.







# Oral Health Day: THINK MOUTH THINK HEALTH

**Dr. Mariam Dabbous**

March 20 is the World Oral Health Day and in celebration of this day, the School of Pharmacy organized awareness campaign on Thursday, March 29, 2018, at the Lebanese International University-Beirut Campus block D to spread messages about good oral hygiene practices to adults and children alike and demonstrates the importance of optimal oral health in maintaining general health and well-being.

## 'Say Ahh'

The professional communications students' under supervision of their instructor Dr. Malak Alame and help of pharmacy club students organized full awareness day.

The students divided themselves into three groups; and three poster were designed to discuss different topics.

Students: Hoda Mohammad Khalifeh, Nour Mhamad Noun, Ghinwa Haydar Haydar, and Ali Ahmad Rai, designed a poster entitled: "Save Your Life, Save Your Mouth" and focus on oral cancer, risk factors, role of pharmacist in the prevention.

Students: Maya Abboud Bou Mechrek, Heba Haitham Tabatabai, Stephanie Kaysar Harfouche, Nadine Nafez Haddad, and Sireen Mahmoud Abou Sheikh, designed a poster entitled: "Get Ready to Smile" and discussed risk of dental caries, and educate attendees on ways to keep health teeth.

Students: Anthony Joseph Bader, Ghadeer Ali Yassine, Lamis Ahmad Jaber, and Yara Abdo Bou Akl, designed a poster entitled "Say Ahhh" to promote knowledge about problems could poor dental health cause.

A healthy mouth and a healthy body go hand in hand was the focus of the campaign.







Physical Activity Day:  
**PASS HIT KEEP FIT**

Dr. Mariam Dabbous



The School of Pharmacy organized Physical Activity Day on Tuesday, April 24th, 2018 at the Lebanese International University- Beirut Campus.

This year theme was "PASS HIT KEEP FIT".

**“Physical inactivity is disease!, physical activity is health “**

The aim of this event is to engage our pharmacy students in different physical activities and promote a healthy lifestyle by creating a fun and memorable day.

The event started with a bake sale, followed by a students’ posters presentation to educate about the importance of physical activities in promoting healthy growth and development in children and youth, and healthy ageing, lowering the risk of several diseases, prolonging life, and enhancing productivity.

Students and instructors competed in different fun games as pushups, situps, planks, jump rope and others. Then they actively participated in five sports classes by Radical Fitness ( X55, FACTOR F, UBOUND, MEGADANZ, FIGHT DO).

Penalties were done between students and faculty, where more than 20 students and instructors participated in this activity.

All students and faculty had a lot of fun during this day.











# Immunization Day: Bee Wise Immunize

Dr. Mariam Dabbous

Last week of April is the World Immunization Week which aims to highlight the collective action needed to ensure that every person is protected from vaccine-preventable diseases.

## “Protected Together, #Vaccines Work”

The professional communication students’ at the School of Pharmacy under supervision of their instructor Dr. Ahmad Dimassi organized a full day on Thursday, April 24, 2018 at the Lebanese International University Beirut campus block B, to highlight on the importance of immunization.

Immunization saves millions of lives and is widely recognized as one of the world’s most successful and cost-effective health interventions.

Immunization is a fundamental strategy in achieving other health priorities, from controlling viral hepatitis, to curbing antimicrobial resistance, to providing a platform for adolescent health and improving antenatal and newborn care.

Two posters were done by students: Aya Ibrahim, Maryam Saade, Razan Nehme, Rim Al Zein, Sara Houseini, Sara Shahrouf, and Zeinab Yousef.

The main poster entitled “BEE WISE IMMUNIZE” showed the relationship between the bees and immunization, adding to this how vaccines work and their importance in preventing deadly diseases. The other poster included table of vaccines; its aim was to allocate the different vaccines that are recommended for each age group.

The campaign’s goal was to educate people about the importance of vaccination and its vital role in creating a “disease free” community.





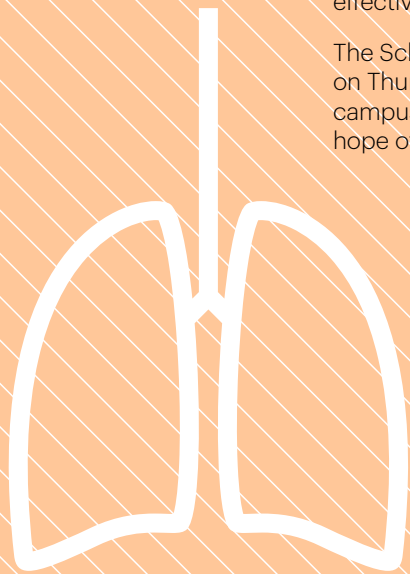
# Asthma Day: It's Always Right Time to Address Airways Disease

Dr. Mariam Dabbous

May is Asthma Awareness Month to improve asthma awareness and care around the world.

Asthma is a chronic lung disease which causes breathing difficulties and affects sufferers to varying degrees. Asthma is caused by swelling and inflammation of the bronchial tubes, sometimes in reaction to allergens, exercise, stress or changes in temperature. Asthma is not usually curable but can be controlled to certain extents, depending on how it affects the sufferer. If asthma is controlled then sufferers can live relatively normal lives, although some triggers may have to be avoided. Asthma is controlled by prevention medication for chronic symptoms and relief medication for flare-ups of asthma symptoms. Education and understanding are keys to effective control of asthma, which can be fatal if not managed properly.

The School of Pharmacy organized awareness campaign on asthma control on Thursday, May 3rd, 2018 at the Lebanese International University Beirut campus block D to educate and raise awareness of this condition in the hope of relieving suffering and reducing deaths.



**NEVER TOO  
EARLY,  
NEVER TOO  
LATE**

The professional communications students' under supervision of their instructor Dr. Sylvia Saade designed two posters to provide advices on asthma control.

Students: Marwa Beyroui, Julie Mitri, Nour Mohammad, Salha Alhaji, Chahnaz Choueiki and Dima Al Mokdad, designed a poster entitled: "Ease your Wheeze" and focus on asthma attack triggers, warning signs, and provide advices on the non-pharmacological preventable measures for asthma.

Students: Sara Selmán Siba Farhat, Emame Abdalla, Aya Rida, Elyse Abboud, designed a poster entitled: "It Ain't Easy Being Wheezy" and focus on the medical therapy of asthma and proper use of inhalers to control asthma.





# Honor Ceremony for Students on the Dean's List

Dr. Mariam Dabbous

At the end of each fall and spring semester, the Dean's List is created to recognize the academic achievements of matriculated students who have excelled at their studies and achieved a GPA above 3.5. The School of Pharmacy at the Lebanese International University organized the Dean's Honor Ceremony on Tuesday, May 15, 2018 at Beirut Campus, and Friday, June 22, 2018 at Bekaa Campus.

Dean of School of Pharmacy Dr. Mohamad Rahal, expressed his warmest congratulations to the students on Dean's list for excellent academic performance during Fall 2017/2018. Dr. Rahal encouraged the students to continue to pursue this academic excellence. Then he distributed the certificates for all involved students.

At the end, the students cut the cake with the dean and faculty members of the school of pharmacy and took some pictures.





## Clinical Neurology: “When less is More: the Deprescribing Effect”

**Dr. Etwal Bou Raad**

On 27th of March 2018, the school of pharmacy organized a seminar entitled “When less is more: the deprescribing effect” by Dr. Mazen Jabre, clinical neurologist.

Dr. Jabre is a clinical neurologist at the Parkinson, Memory & Movement Disorders Center and a lecturer at the Lebanese American University of Beirut, school of Pharmacy. Dr Mazen contributed for many scientific papers and conferences on a national and international level.

During his presentation that was attended by 4th pharmacy students and faculty members, Dr. Mazen presented a case of an elderly patient that was presented to the clinic with many neurological manifestations. Dr. Mazen as a clinical neurologist and specialized pharmacist was able to detect the major drug-drug interactions contributing to her symptoms. Dr Jabre explained the advantages of having clinical pharmacist who is specialized in every center. Clinical pharmacist can effectively reduce medication's error and consequently the overall morbidity and morbidity resulting from “overprescribing” or prescribing error.



## Prevent and Reverse Aging By Nutrition & Micronutrition

**Dr. Mariam Dabbous**

The School of Pharmacy at Beirut campus organized a seminar on Tuesday, May 15, 2018 entitled “Prevent and Reverse Aging By Nutrition & Micronutrition”

The seminar highlighted on the ways an individual can stay young and in good shape by nutrition and micronutrition. The seminar was delivered by Dr. Tamarah Sabbagh. Dr. Sabbagh graduated with Doctor of Pharmacy from Lebanese University, then continued master II in pharmaceutical marketing & management, faculty of pharmacy, Paris XI, and a master II in International Business Management. She is co-founder of a french line of food supplements tamipharm.

Dr. Sabbagh gave a brief introduction about aging and its causes. She explained how to prevent, correct, and reverse aging according to the cause by supplements. “Decrease free radicals production is a key element in the prevention and reverse of aging” Dr. Sabbagh said. She highlighted on the ways to increase oxidation by food and health life style. The seminar was concluded by giving a trophy of gratitude from the SOP to the speaker.



## Vaccination: Overview and Current Practices

**Dr. Dalal Hammoud**

In line with this year's World Health Organization vaccination theme, “Protected Together, Vaccines work”, “Vaccination: Overview and Current Practices” was the title of a seminar hosted by LIU School of Pharmacy at Bekaa Campus.

The speaker was Dr. Rima Halat, MD, Pediatrician, member of the American Academy of Pediatrics, and member of the Lebanese Pediatric Society. Dr. Halat elaborated on the different vaccination/immunization types, and on the mandatory schedule of vaccination that is needed in both children and adults. In her presentation, Dr. Halat emphasized on how vaccines have changed the natural history of numerous deadly infections, and on how the science of vaccinology is continuously evolving to make such preparations more safe and effective.

She also discussed some of the concerns raised by pharmacy students about vaccines available in Lebanese pharmacies and health clinics.



## Creating Solutions for You to Drive Healthcare Forward

**Dr. Hind Hajj**

The School of Pharmacy at Beirut campus organized a seminar on Tuesday, May 22, 2018 entitled “: Creating Solutions for You to Drive Healthcare Forward”

The aim of the seminar was to introduce fifth year students to an example of a pharmaceutical and healthcare management party which drives the healthcare forward in terms of clinical trials, patient journey, market research and access solutions. Quintile IMS company supports pharmaceutical companies with deep insights on the pharmaceutical market shares of products sold in community and hospital pharmacy in several countries. Such data are highly essential to analyze the performance of the sales unit, competitors' status, revenues, and market growth. And enable companies to design and improve their marketing plan. Also, Quintile IMS provides other services as post launch research, patient support programs, payer solutions...All of which the pharmacists working in several departments in pharmaceutical company are involved to efficiently deliver the values of their companies and hopes to the health community.

Emile Rizk, key account manager at Quintile IMS, introduced and explained these services for our students to have ta basic apprehension on different aspects in the pharma business enabling them to adapt and learn fast at work. The seminar was concluded by giving a trophy of gratitude from the SOP to the speaker.





# WHO Health Days 2018

SOP Magazine Summer 2018



Feb 4	World Cancer Day
Feb 15	International Childhood Cancer Day
Mar 1	Colorectal Cancer Awareness Month
8-Mar	World Kidney Day
Mar 24	World Tuberculosis Day
Mar 27	GCC Oral Health Week
Apr 6	World Physical Activity Day
Apr 7	World Health Day
Apr 23	World Immunization Week
Apr 24	World Malaria Day
May 2	World Asthma Day
May 8	World Thalassemia Day
May 17	World Hypertension Day
May 31	World No-Tobacco Day
Jun 1	World Milk Day
Jun 5	World Environment Day
Jun 14	World Blood Donor Day
Jun 19	World Sickle Cell Day
Jun 26	International Day against Drug Abuse and Illicit Trafficking
Jul 28	World Hepatitis Day
Aug 1-7	World Breastfeeding Week (WBW)
Sep 1	Prostate Cancer Awareness Month
Sep 21	World Alzheimer's Day
Sep 29	World Heart Day
Oct 1	Breast Cancer Awareness Month
Oct 1	International Day of Older Persons
Oct 10	World Mental Health Day
Oct 10	World Sight Day
Oct 11	World Anti-Obesity Day
Oct 12	World Arthritis Day
Oct 16	World Food Day
Oct 20	World Osteoporosis Day
Oct 24	World Polio Day
Nov 1	Lung Cancer Awareness Month
Nov 14	World Diabetes Day
Nov 14	World Antibiotic Awareness Week
Nov 16	World Chronic Obstructive Pulmonary Disease Day
Dec 1	World AIDS Day
Dec 3	International Day of Persons with Disabilities



# Academic Year Calendar 2018-2019

October 18

M	Tu	W	Th	F	Sa	Su
1	2	3	4	5	6	7
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22	23	24	25	26	27	28
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November 18

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December 18

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January 19

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February 19

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March 19

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April 19

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May 19

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June 19

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July 19

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August 19

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September 19

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Fall 2018-2019

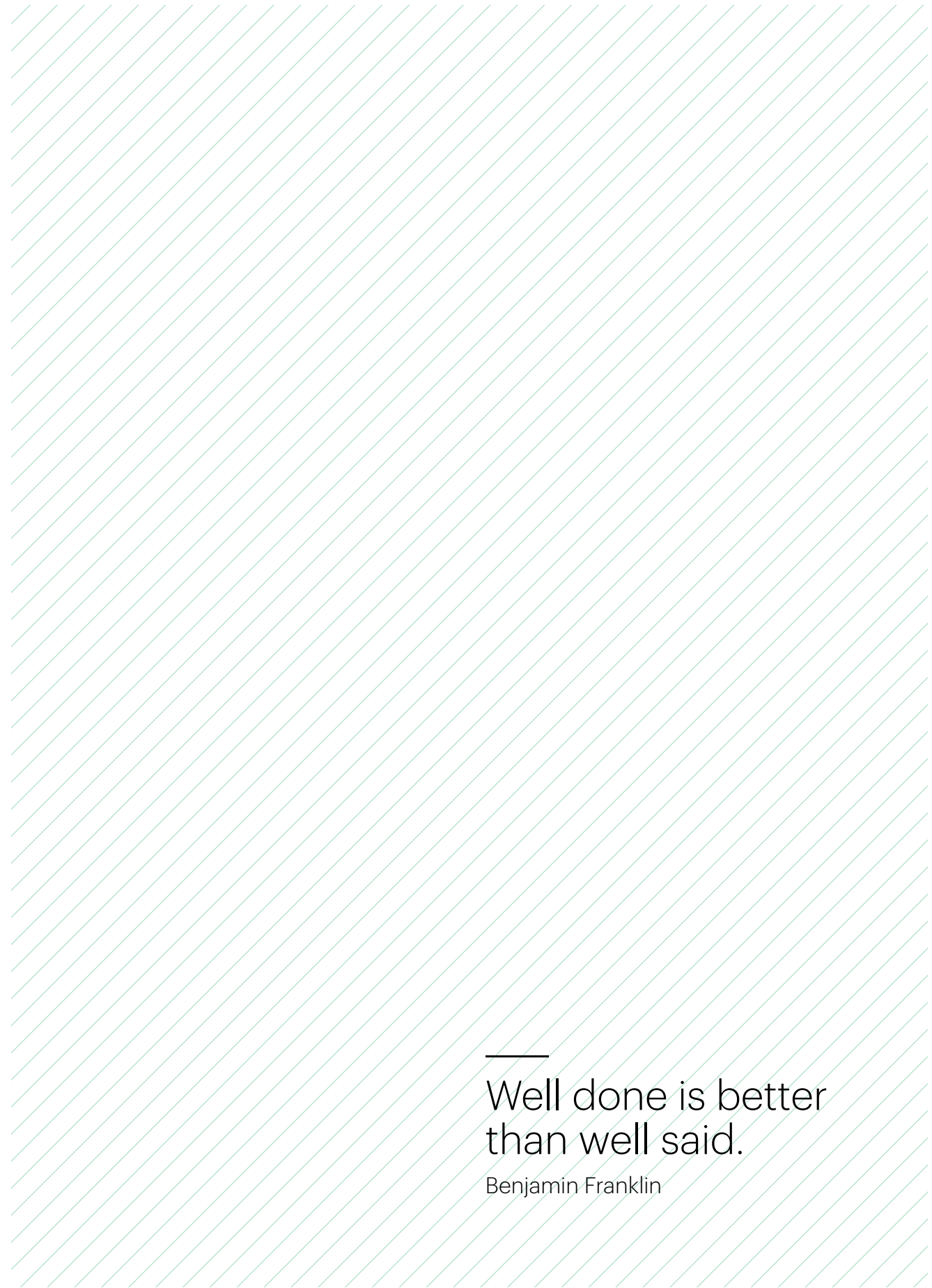
- Oct 1: Fall Begins
- Nov 21: Prophet's Holiday
- Nov 22: Independence Day
- Dec 24-01 Jan: Christmas and New Year Vacation
- Jan 06: Armenian Christmas
- Jan 16: Fall Ends
- Jan 21: Final Exams for Fall Start
- Feb 02: Final Exams for Fall End
- Feb 09: St. Maron's Holiday

Spring 2018-2019

- Feb 18: Spring Starts
- March 25: Annuciation Holiday
- April 19-April 22: Easter Holiday
- April 26-April 29: Easter Holiday
- May 01: Labor Day
- May 25: Liberation Day
- May 29: Spring Semester Ends
- June 04-06: Eid Al-Fitr Holiday
- June 10: Final Exams for Spring Start
- June 22: Final Exams for Spring End

Summer 2018-2019

- July 01: Summer/Extended Summer Starts
- July 31: Summer Ends
- August 05: Final Exams for Summer Start
- August 09: Final Exams for Summer End
- August 12-13: Eid Al-Adha
- August 15: Assumption Day
- Sep 12: Extended Summer Ends
- Sep 16: Final Exams for Extended Summer Start
- Sep 20: Final Exams for Extended Summer End
- September 01: Hijra New Year
- September 10: Ashoura Holiday



Well done is better than well said.

Benjamin Franklin





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