



THE ATHENS INSTITUTE FOR EDUCATION AND RESEARCH

Abstract Book

**9th Annual International Symposium on
Diabetes**

1-4 May 2023 Athens, Greece

**Edited by
Zoe Boutsoli & Olga Gkounta**

2023

Abstracts
9th Annual International
Symposium on Diabetes
1-4 May 2023, Athens, Greece

Edited by
Zoe Boutsoli & Olga Gkounta

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Preface

This book includes the abstracts of all the papers presented at the 9th Annual International Symposium on Diabetes (1-4 May 2023), organized by the Athens Institute for Education and Research (ATINER).

A full conference program can be found before the relevant abstracts. In accordance with ATINER's Publication Policy, the papers presented during this conference will be considered for inclusion in one of ATINER's many publications only after a blind peer review process.

The purpose of this abstract book is to provide members of ATINER and other academics around the world with a resource through which they can discover colleagues and additional research relevant to their own work. This purpose is in congruence with the overall mission of the association. ATINER was established in 1995 as an independent academic organization with the mission to become a forum where academics and researchers from all over the world can meet to exchange ideas on their research and consider the future developments of their fields of study.

To facilitate the communication, a new references section includes all the abstract books published as part of this conference (Table 1). I invite the readers to access these abstract books –these are available for free– and compare how the themes of the conference have evolved over the years. According to ATINER's mission, the presenters in these conferences are coming from many different countries, presenting various topics.

Table 1. *Publication of Books of Abstracts of Proceedings, 2015-2023*

Year	Papers	Countries	References
2023	31	16	Boutsioli and Gkounta (2023)
2022	22	12	Boutsioli and Gkounta (2022)
2021	19	9	Papanikos (2021)
2020	22	12	Papanikos (2020)
2019	42	20	Papanikos (2019)
2018	69	22	Papanikos (2018)
2017	104	29	Papanikos (2017)
2016	49	28	Papanikos (2016)
2015	77	32	Papanikos (2015)

It is our hope that through ATINER's conferences and publications, Athens will become a place where academics and researchers from all over the world can regularly meet to discuss the developments of their disciplines and present their work. Since 1995, ATINER has organized

more than 400 international conferences and has published over 200 books. Academically, the institute is organized into 6 divisions and 37 units. Each unit organizes at least one annual conference and undertakes various small and large research projects.

For each of these events, the involvement of multiple parties is crucial. I would like to thank all the participants, the members of the organizing and academic committees, and most importantly the administration staff of ATINER for putting this conference and its subsequent publications together. Specific individuals are listed on the following page.

Gregory T. Papanikos
President

Editors' Note

These abstracts provide a vital means to the dissemination of scholarly inquiry in the field of Diabetes. The breadth and depth of research approaches and topics represented in this book underscores the diversity of the symposium.

ATINER's mission is to bring together academics from all corners of the world in order to engage with each other, brainstorm, exchange ideas, be inspired by one another, and once they are back in their institutions and countries to implement what they have acquired. The 9th Annual International Symposium on Diabetes accomplished this goal by bringing together academics and scholars from 16 different countries (Albania, Australia, Belgium, Brazil, Bulgaria, Canada, China, Egypt, Finland, Germany, Kuwait, Romania, Saudi Arabia, Spain, Turkey, and USA), which brought in the symposium the perspectives of many different country approaches and realities in the field.

Publishing this book can help that spirit of engaged scholarship continue into the future. With our joint efforts, the next editions of this symposium will be even better. We hope that this abstract book as a whole will be both of interest and of value to the reading audience.

Zoe Boutsoli & Olga Gkounta
Editors

**9th Annual International Symposium on Diabetes, 1-4 May
2023, Athens, Greece**

Organizing & Scientific Committee

All ATINER's conferences are organized by the Academic Council. This conference has been organized with the assistance of the following academic members of ATINER, who contributed by reviewing the submitted abstracts and papers.

1. Gregory T. Papanikos, President, ATINER & Honorary Professor, University of Stirling, U.K.
2. Andriana Margariti, Head, Medicine Unit, ATINER & Professor, Queen's University Belfast, U.K.
3. Vickie Hughes, Director, Health & Medical Sciences Division, ATINER & Assistant Professor, School of Nursing, Johns Hopkins University, USA.

FINAL CONFERENCE PROGRAM

9th Annual International Symposium on Diabetes, 1-4 May 2023, Athens, Greece

PROGRAM

Monday 1 May 2023

08.30-09.00
Registration

09:00-09:30

Opening and Welcoming Remarks:

- o **Gregory T. Papanikos**, President, ATINER.

09:30-11:30 Session 1

Coordinator: Robert Sindelar, Head, Pharmaceutical Unit, ATINER & Professor and Dean Emeritus, University of British Columbia, Canada.

1. **Mohsen Hedaya**, Associate Professor, Kuwait University, Kuwait.
Sally Helmy, Associate Professor, Taiba University, Saudi Arabia.
Soha Al-Masry, Associate Professor, Damanhur University, Egypt.
Title: Formulation and Evaluation of the In Vitro and In Vivo Performance of Different Etamsylate Tablets.
2. **Catalin Pricop**, Head of Urology Department, University of Medicine and Pharmacy 'Grigore T. Popa' Iasi, Romania.
Dragos Puia, Professor, University of Medicine and Pharmacy 'Grigore T. Popa' Iasi, Romania.
Carina Bandac, PhD Student, University of Medicine and Pharmacy 'Grigore T. Popa' Iasi, Romania.
Title: Double J Stent Syndrome: Solifenacin vs. Desloratadine.
3. **Lyubomira Radeva**, Assistant Professor, Medical University of Sofia, Bulgaria.
Title: Development of Polymeric Micelles Loaded with Doxorubicin and Resveratrol.
4. **Fátima Regina Silva**, Professor, Federal University of Santa Catarina, Brazil.
Title: Signal Transduction of Chalcone Derivative (E)-3-(Phenyl)-1-(3,4,5-Trimethoxyphenyl)Prop-2-En-1-One for Insulin Secretion and its Role on Glucose and Lipid Metabolism.

11:30-13:00 Session 2

Coordinator: Fátima Regina Silva, Professor, Federal University of Santa Catarina, Brazil.

1. **Vickie Hughes**, Assistant Professor, Johns Hopkins University, USA.
Hallmon Hughes, Graduate Student, Johns Hopkins, USA.
Title: Nurse Leadership Breaking through Glass Ceiling: Air Force's First Nurse Major General.
2. **Sandra Collins**, Professor & Program Director, Southern Illinois University-Carbondale, USA.
Thomas Shaw, Associate Professor, Southern Illinois University-Carbondale, USA.
Stacey McKinney, Assistant Professor & Program Director, Southern Illinois University Carbondale, USA.
Jennifer McKinnies, Clinical Instructor, Southern Illinois University Carbondale, USA.
Richard McKinnies, Professor & Program Director, Southern Illinois University Carbondale, USA.
Kevin Scott Collins, Professor & School Director, Southern Illinois University Carbondale,

USA.

Title: Emotion Exhaustion A Discussion on Occupational Burnout and Registered Nurses.

3. **Cynthia Brown**, Professor, University of West Georgia, USA.
Title: Graduate Nursing Students: Self-Care in the Online Setting.
4. **Mari Salminen-Tuomaala**, Principal Lecturer, Seinäjoki University of Applied Sciences, Finland.
Title: Nurses' Expectations of Compassionate Leadership.

13:00-14:30 Session 3

Coordinator: Vickie Hughes, Director, Health & Medical Sciences Division, ATINER & Assistant Professor, Johns Hopkins University, USA.

1. **Kevin Scott Collins**, Professor & School Director, Southern Illinois University Carbondale, USA.
Richard McKinnies, Professor & Program Director, Southern Illinois University Carbondale, USA .
Sandra Collins, Professor & Program Director, Southern Illinois University Carbondale, USA.
Title: A Comparison Study Regarding HPV and Cancer Awareness of College Students.
2. **Jean Davison**, Associate Professor, University of North Carolina, USA.
Title: Inter-professional Clinical Education and Practice to Improve Health Equity.
3. **Erica Mendes dos Santos**, PhD Student, KU Leuven, Belgium and University of Campinas, Brazil.
Priscila Gava Mazzola, Professor, University of Campinas, Brazil.
Pedro Fardim, Professor, KU Leuven, Belgium.
Title: Hidden Treasures in Brazilian Biodiversity: Exploring by Products Potential.

14:30-16:00 Lunch

16:00-18:00 Session 4

Coordinator: Ms. Olga Gkounta, Researcher, ATINER.

1. **Aquib Chowdhury**, Critical Care Hosuse Medical Officer, Barwon Health, Australia.
Title: The Economic Cost Burden of Childhood Unintentional Injury: Estimates from the Longitudinal Study of Australian Children.
2. **Ali Alhaqwi**, Professor, King Saud Ben AbdulAziz University, Saudi Arabia.
Taghreed Alhazmi, Consultant, King Saud Ben AbdulAziz University for Health Science, Saudi Arabia.
Title: Patient's Desire and Preference for Provision of Information Toward Greater Involvement in Shared Care.
3. **Huifang Huang**, Zhengzhou University, China.
Title: Effects of Internet-based Cognitive Behavior Therapy on Depression in Patients with Coronary Heart Disease: A Meta-Analysis.
4. **Hannele Laaksonen**, Principal Lecturer, Tampere University of Applied Sciences, Finland.
Pirkko Vartiainen, Professor, University of Vaasa, Finland.
Title: Hybrid Management in Complex Systems in the Social and Health Care Sector.
5. **Almudena Moreno**, PhD Student, Public University of Navarre, Spain.
Enrique Regidor, Professor, Public University of Navarre, Spain.
Title: Trend in Mortality from Chronic Liver Disease and Cirrhosis in Urban and Rural Areas in Spain.
6. **Jacob Marvin**, Assistant Professor, Ohio Northern University, USA.
Title: Financial, Occupational and Physical Challenges and Blood Glucose Monitoring in Type 2 Diabetes.

18:00-20:30 Session 5 – A Round-Table Discussion on The Post Pandemic World: Learning from Country Experiences

Coordinator: Gregory T. Papanikos, President, ATINER.

1. **Domenico Maddaloni**, Professor, University of Salerno, Italy.
Title: A Sociological Perspective on Health and Welfare Policies in Italy During and After the Pandemic.
2. **Vickie Hughes**, Assistant Professor, Johns Hopkins University, USA.
Title: Experiences with the COVID-19 Pandemic – Strategies to Promote Resilience and Wellbeing.
3. **Ian Hyslop**, Senior Lecturer, University of Auckland, New Zealand.
Title: A Distant Land at a Global Crossroad.
4. **Jean Davison**, Associate Professor, University of North Carolina, USA.
Title: Health Inequality.
5. **Philip Candilis**, Professor, George Washington University, USA.
Title: Moral Injury and the US Experience.
6. **Michael Adams**, Professor, University of New England, Australia.
Title: How Australia Returned to a 'New Normal' For Law Schools, With A Strong Familiarity with the Old Normal!
7. **Seppo Poutanen**, Senior Research Fellow, University of Turku, Finland.
Title: Trust and Surveillance of Work During the COVID-19 Pandemic – Some Experiences from Finland.
8. **Bassam Banat**, Associate Professor, Al-Quds University, Palestine.
Title: Psychological Stress among Palestinians during the COVID19 Pandemic.

20:30-22:30
Greek Night

Tuesday 2 May 2023

10:00-11:30 Session 6

Coordinator: Esmralda Hoxhaj, Molecular Biologist, INTERMEDICA Center, Albania.

1. **Eni Bushi**, QA Manager, Profarma Sh.a, Albania.
Ledjan Malaj, Professor, University of Medicine, Albania.
Title: Manufacturing Process Validation-An Essential Tool to Assure Quality.
2. **Paroma Chakravarty**, Scientist, Genentech, Inc., USA.
Title: Solid-State Challenges in Improving Solubility of Active Pharmaceuticals.
3. **Gokce Karaotmarlı Guven**, Lecturer & PhD Student, Istanbul Galata University, Turkey.
Emre Sefik Caglar, Professor, University of Health Sciences, Turkey.
Neslihan ÜUstundag Okur, Associate Professor, University of Health Sciences, Turkey.
Title: Preparation, Characterization, and Textural Analysis of Dexpanthenol Loaded Emulgel Formulations.

11:30-13:00 Session 7

Coordinator: Paroma Chakravarty, Scientist, Genentech, Inc., USA.

1. **Basak Demirtas**, Associate Professor, Ankara University, Turkey.
Madina Bedel, Master Student, Ankara University, Turkey.
Title: Investigation of Ahuska Turkish Women's Attitudes towards Family Planning and Influencing Factors.
2. **Jacqueline Nash**, Assistant Lecturer, Southern Illinois University-Carbondale USA.
Bruce Lazar, Lecturer, Southern Illinois University-Carbondale, USA.

<p><i>Title: Using Community Outreach Interventions to Reduce Maternal Mortality in the United States: A Systematic Literature Review.</i></p> <p>3. Thomas Shaw, Associate Professor, Southern Illinois University-Carbondale, USA. Sandra Collins, Professor & Program Director, Southern Illinois University-Carbondale, USA. Stacey McKinney, Assistant Professor, Southern Illinois University-Carbondale, USA. Debra Penrod, Assistant Professor Southern Illinois University-Carbondale USA. <i>Title: Midwest University Students' Perception of the COVID-19 Pandemic.</i></p> <p>4. Esmralda Hoxhaj, Molecular Biologist, INTERMEDICA Center, Albania. <i>Title: An Evaluation of Vitamin D and Bone Turnover Markers Levels in Postmenopausal Women in Albania.</i></p>

13:00-14:30 Lunch

<p>14:30-16:00 Session 8 Coordinator: Ms. Olga Gkounta, Researcher, ATINER.</p> <p>1. Yelda Komesli, Assistant Professor, Altinbas University, Turkey. <i>Title: Development of Self-nanoemulsified Topical Eye Drop Containing Dexamethasone.</i></p> <p>2. Nisarg Modi, Director, Transdermal Research Pharm Laboratories, LLC, USA. <i>Title: Derisking Transdermal Drug Development Process in the Preclinical Setting: A Case Series.</i></p> <p>3. Selina Schwaabe, PhD Candidate, Technical University of Munich, Germany. <i>Title: The European Pharmacy Market: The Density and its Influencing Factors.</i></p>	<p>14:30-17:30 Old and New-An Educational Urban Walk</p> <p>The urban walk ticket is not included as part of your registration fee. It includes transportation costs and the cost to enter the Parthenon and the other monuments on the Acropolis Hill. The urban walk tour includes the broader area of Athens. Among other sites, it includes: Zappion, Syntagma Square, Temple of Olympian Zeus, Ancient Roman Agora and on Acropolis Hill: the Propylaea, the Temple of Athena Nike, the Erechtheion, and the Parthenon. The program of the tour may be adjusted, if there is a need beyond our control. This is a private event organized by ATINER exclusively for the conference participants.</p>
<p>16:00-18:00 Session 9 Coordinator: Ms. Olga Gkounta, Researcher, ATINER.</p> <p>1. Shuangrong Han, Professor, Zhengzhou University, China. <i>Title: The Mediating Role of Self-Egulatory Fatigue between Perceived Control and Xperienced Avoidance in Lung Cancer Chemotherapy Patients.</i></p> <p>2. Ziyue Hu, Professor, Zhengzhou University, China. <i>Title: Effects of Telehealth on Parents of Children with Congenital Heart Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.</i></p> <p>3. Cheryl Mele, Associate Professor, Drexel University, USA. <i>Title: Managing Acute Oncological Pain Crisis with Intrathecal Pain Pump: Case Report.</i></p> <p>4. Ingrid Brenner, Associate Professor, Trent University, Canada. Alex Jalsevac, Graduated Student, Trent University, Canada. Kirsten Woodend, Associate Professor, Trent University, Canada. <i>Title: Physical Activity and the Treatment of Phantom Limb Pain.</i></p>	

20:30-21:30
Dinner

Wednesday 3 May 2023
An Educational Visit to Selected Islands
Mycenae Visit

Thursday 4 May 2023
Visiting the Oracle of Delphi

Thursday 5 May 2023
Visiting the Ancient Corinth and Cape Sounio

Ali Alhaqwi

Professor, King Saud Ben AbdulAziz University, Saudi Arabia

&

Taghreed Alhazmi

Consultant, King Saud Ben AbdulAziz University for Health Science,
Saudi Arabia

Patient's Desire and Preference for Provision of Information toward Greater Involvement in Shared Care

Objectives: To determine the perceptions of patients on whether they receive sufficient information about their medical problems, their preferences to obtain information, and factors that may influence their preferences.

Design and Settings: Cross-sectional, questionnaire-based study conducted in a primary health-care center affiliated with the National Guard Hospital, Riyadh, Saudi Arabia.

Results: A total of 245 patients participated in the study. The mean (\pm standard deviation) age of the participants was 43 (\pm 16) years. Reported cases of dyslipidemia, diabetes mellitus, and hypertension among participants were 42%, 39%, and 31%, respectively. A minority of the participants indicated that they had a sufficient knowledge of their medical problems. The vast majority of the patients (92%) indicated that their preference to be informed about available treatment options and the plan for their future treatment. However, only 38% indicated that they had been told about the available treatment options, and less than half (48%) were informed about their future treatment plan. The proportion of male patients who preferred to know the treatment plan for their medical problems was significantly more than that of females ($P < 0.001$); nevertheless, female participants perceived that they had been better informed about their treatment plan than the male participants ($P = 0.003$).

Conclusion: This study demonstrates that patients receive information about their medical problems much less than their expectations. Measures to promote patient education and their involvement in shared care process should be considered and implemented to minimize serious health outcomes.

Ingrid Brenner

Associate Professor, Trent University, Canada

Alex Jalsevac

Graduate Student, Trent University, Canada

&

Kirsten Woodend

Associate Professor, Trent University, Canada

Physical Activity and the Treatment of Phantom Limb Pain

Phantom limb pain (PLP) is a complex and multifactorial phenomenon whereby individuals who have undergone an amputation (or lost a limb) feel intermittent pain or discomfort where the limb used to be. Potential mechanisms to explain this phenomenon include peripheral nerve damage, changes to the spinal cord and cortical reconstruction. Although there is no specific treatment for PLP, some research suggests that participation in regular physical activity may reduce phantom limb pain symptoms. This study was designed to examine the relationship between PLP and regular physical activity. Nine lower-limb amputees (aged 18–80 years) volunteered to participate in this study which took place during the COVID-19 pandemic. Participants were recruited from online support groups and were invited to complete a Qualtrics survey. Questions regarding time since amputation, PLP symptoms, prior treatments and involvement in physical activity were asked. Most of the volunteers participated in some form of physical activity but noted they were either unsure or did not have a reduction in either the frequency or duration of their PLP episodes. However, participation in regular physical activity did lead to a reduction in the intensity of PLP episodes. Combining physical activity with other treatments (such as medication) did not alter their experience of PLP. These results indicate that nurses should encourage patients with lower-limb amputations to participate in regular physical activity to maintain and promote physical health and as an intervention to reduce the intensity of PLP. Further research is required to determine the best mode, duration, and frequency of activity for this treatment.

Cynthia Brown

Professor, University of West Georgia, USA

Graduate Nursing Students: Self-Care in the Online Setting

Self-care is important for all and can be a challenge for graduate students who are working, have family commitments, and attend graduate school online to further their nursing education. This paper will describe the importance of self-care, the impact of self-care for graduate students, and how to support self-care for graduate students in the online setting. Specific strategies will be described that have been used for graduate students but could translate easily to any student in any discipline. A self-assessment for self-care, links to websites for self-care support, nursing theory relating to self-care, a literature review related to self-care, and other appropriate resources will be provided. During the conference session, participants can create their own self-care plan, considering their preferred activities, time management, and support systems.

Eni Bushi

QA Manager, Profarma Sh.a, Albania

&

Ledjan Malaj

Head, Department of Pharmacy, University of Medicine Tirana,
Albania

Manufacturing Process Validation - An Essential Tool to Assure Quality

Introduction: The concept of validation is the most recognized and fundamental component of GMPc and an integral part of Quality Assurance. Since its first appearance, validation has been expanded through the years to cover a wide range of activities from the development of the product to the continuous verification of the manufacturing process. However, even after introduction of several guidance and publication of voluminous literature and guidelines, a considerable number of manufacturers still struggle to establish effective and efficient process validation programs.

Objective: This research aims to give a full panorama of the current approaches to process validation in pharmaceutical industry, to explain the differences and common requirements defined by the EUGMP and FDAUS, and to present a model of validation program following the lifecycle approach of the product.

Methodology: A review of the literature and guidelines from 2011 to 2023 on the specific topic was conducted to identify the current GMP requirements of EU and US regarding process validation. Based on the identified requirements a Protocol and Report was designed for process validation of Solid Dosage Forms giving in details the validation of each step of the manufacturing process.

Results: In the pharmaceutical industry, in-process and finished inspections and testing do not guarantee the quality of the product. Unlike EUGMP, FDA does not specify a number of validation batches, and suggest that Validation should cover the entire lifecycle of the product, from Process Design Process, Process Qualification and Continued Process Verification. Also FDA recommends the inclusion of a statistician for planning the data collection and statistical processing.

Some important points that are included and explained in the Validation Protocol of Solid Dosage Forms are: the definition of the CQAs, CPPs and CMAs, establishment of acceptance criteria for these attributes, determination of the parameters to be tested through a risk assessment, design of a sampling plan for evaluation of blend and content uniformity

and initiation of studies to establish control for those parameters that influence the product and process quality.

Conclusion: Quality cannot be inspected into the product but needs to be built into the manufacturing process. One way for pharmaceutical manufacturers to ensure continuity in process validation is to create a strategy that focuses on quality at every stage of manufacturing. In this regard, a state of control over critical parameters during the manufacturing process should be established.

Paroma Chakravarty
Scientist, Genentech, Inc., USA

Solid-State Challenges in Improving Solubility of Active Pharmaceuticals

One of the major challenges of developing pharmaceutically active compounds is overcoming their poor solubility that influences in-vivo exposure and therefore bioavailability. For oral drug delivery of small molecules, opting for crystalline salt forms or developing an amorphous solid dispersion (ASD) are two common approaches for solubility improvement. From a solid-state perspective, both these approaches offer unique challenges in terms of desirable pharmaceutical attributes such as manufacturability, chemical and physical stability. Depending on the pKa of the molecule, salt formation may not always be viable. In addition, a stable polymorphic form needs to be selected with robust solid-state properties for further development. For amorphous solid dispersions, the primary concern is API physical stability in the glassy state and prevention of crystallization during formulation development and storage. This presentation focuses on the different solid-state characterization approaches that are taken into account for salt or ASD selection to ultimately deliver a solid form or drug product intermediate with robust pharmaceutical properties and significantly improved solubility.

Aquib Chowdhury

Critical Care House Medical Officer, Barwon Health, Australia

Kabir Ahmed

PhD Candidate, University of Southern Queensland, Australia

&

Rasheda Khanam

Professor, University of Southern Queensland, Australia

The Economic Cost Burden of Childhood Unintentional Injury: Estimates from the Longitudinal Study of Australian Children

Objective: This study sought to evaluate the excess direct healthcare costs for Australian children associated with unintentional injuries incurred in childhood. The cross-sectional relationship between injuries that required medical attention, with or without hospitalization, and the incurred healthcare cost was investigated within a longitudinally surveyed cohort of children aged 0-1 to 18-19 years. We assessed whether these costs increased over age and with an increase in the duration of the prevalence of injury. Furthermore, we compared our results against cost estimates derived from similar studies assessing other health conditions in Australian children, as well as excess cost figures derived from studies of childhood injury from analogous Western nations.

Data sources and study setting: Study participants are 9224 children of Birth (B) and Kindergarten (K) cohorts from the nationally representative Longitudinal Study of Australian Children for whom the linked Medicare costs data were available. The children were followed in eight and seven consecutive waves for the B and the K cohort respectively, and the pooled number of observations was 56,581.

Study design: The influence of injuries on healthcare costs over 14 years for B cohort (0-14 years) and K cohort (4-18 years) children were estimated using generalized linear models. The regression models are controlled for sociodemographic factors.

Results: From the children of the B and K cohort, the prevalence of the injuries that did not require hospitalisation yielded a bimodal distribution fluctuating from 6.1% to 24.7% across age groups of 0-1 to 18-19 years respectively. Injuries that required hospitalisation ranged from 0.6% to 3.4% with steady increase over age from 0-1 and 18-19 respectively. In both cohorts, the incidence of injuries, with or without hospitalisation had a strong influence on increasing the excess healthcare costs. Among the sampled children, the associated excess

Medicare costs accrued per child across the tenure of 0-1-to-18-19-year of age having at least one injury in two-year duration is A\$1,845 for those who did not require hospitalisation and A\$10,597 for those who needed hospitalisation. At the population level, the estimated total excess Medicare costs associated with injury among 0-16-year-old children are, on average, A\$108.6 million/year for children with injuries who did not require hospitalisation and A\$57.7 million/year for children with injuries who required hospitalisation.

Conclusions: Unintentional childhood injuries, irrespective of hospitalization, incurs a significant financial burden on the Australian public healthcare system approaching a total of A\$332.4 million. The costs per capita were also higher relative to other childhood medical conditions such as mental health disorders and ADHD. In Australia at the population level, these excess healthcare costs are evident for all ages of childhood and increasing with age. International cost estimates on childhood injury from other developed nations such as the United States and Norway dwarf our figures on both total and per capita bases - suggesting that our result is likely an underestimate. The excess healthcare costs provide a further economic justification for promoting preventive efforts to reduce the incidence of injuries among children.

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**A Comparison Study Regarding HPV and Cancer
Awareness of College Students**

A study sought to determine the perspectives of college students regarding their knowledge and understanding of Human Papillomavirus (HPV) as compared to an earlier and similar study. The studies focused on different students at the same mid-major university but were conducted several years apart. Results indicated that college students still are misinformed about HPV and its linkages to cancer; however, interest and willingness were noted regarding HPV immunization when/if available. This emphasizes ongoing need for HPV interventions including more focused health education on how HPV is linked to cancer with the hope that increasing awareness may increase HPV vaccination participation.

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**Emotion Exhaustion - A Discussion on Occupational
Burnout and Registered Nurses**

Never more prevalent is the need for all organizations to place emphasis on the health and wellness of their employees. This is especially true for the healthcare industry since many healthcare professionals may be prone to high levels of occupational burnout. Using the Maslach Burnout Inventory (MBI) and the Areas of Worklife Survey (AWS), a small sample of Registered Nurses in the United States were surveyed regarding their experiences with burnout, specifically related to emotional exhaustion. Survey participants reported feelings of emotional exhaustion ranging from once a month to more and almost half of Registered Nurses responding to the survey had an emotional exhaustion score of 27 or higher. This study provides a discussion of emotional exhaustion as a predictor of occupational burnout and offers recommendations for healthcare employers for creating an environment focused on employee wellness.

Jean Davison

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Inter-professional Clinical Education and Practice to Improve Health Equity

The purpose of this presentation is to highlight innovative interprofessional clinical learning opportunities at a Nurse-led Mobile Health Clinic (MHC) that prepares nursing students and allied health students to care for diverse populations with a focus on screening for the social determinants of health (SDOH) and acting on positive screens. Our Nurse-led MHC provides free health screenings in partnership with food pantries and crisis ministries in urban and rural areas. We also provide self-management support classes for those with hypertension and/or diabetes. Food insecurity is a risk factor for malnutrition, obesity, chronic diseases such as hypertension, coronary heart disease, stroke, cancer, chronic obstructive pulmonary disorder, kidney disorders, and mental health problems (Myers, 2020).

The National Academies of Sciences, Engineering, and Medicine 2019 Report; “Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation’s Health” presents the evidence on how social conditions shape health, and better integration of health care and social care services can improve health outcomes for individuals and populations (NASSEM, 2019). The Centers for Disease Control and Healthy People 2030 have incorporated the SDOH into their population/patient assessment and overarching goals for health and wellbeing (CDC, 2020). Health care providers are encouraged to screen for the SDOH to include food insecurity, housing instability, lack of transportation and interpersonal violence. As faculty, we focus on the SDOH in our undergraduate and graduate advance health assessment courses and thread it through our curriculum with the expectation that nursing students will include the SDOH in their assessment/plan for patient wellbeing and population health equity.

When looking at health equity in America, lower-income individuals, such as those that access food pantries, report their health status at lower levels than high-income earners, yet only 58% of healthcare organizations consider “Health Equity” as a top-three priority, hence a need for education and innovation in healthcare to improve health equity (Raderstorf et al. 2022). Interprofessional education and practice along with experiential learning provides opportunities for students from many disciplines to work together as a collaborative team and provides both service to the community (high

quality healthcare) and learning for the students. Our community partners and across campus students consists of many disciplines that includes social workers, nutritionists, medicine, dentistry, pharmacy, health educators and language interpreters.

At our MHC we screen all patients for key SDOH to include food and housing insecurity, difficulty with transportation and provide immediate referrals to social services, food pantries and community social agencies for positive screens for those desiring assistance. Our undergraduate and graduate students have opportunities to volunteer, do clinical hours, practicums, self-management support classes and quality improvement (QI) projects with our faculty at our inter-professional education and practice free clinic. Overall students' reflections from these practicum experiences support a deeper understanding on how food insecurity, homelessness and other SDOH impact one's physical, mental, and spiritual well-being (Cockroft et al., 2020). Nursing and inter-professional education and practice does have a critical role to play in achieving the goal of health equity, and our MHC provides the opportunity for robust education!

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&

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Investigation of Ahıska Turkish Women's Attitudes towards Family Planning and Influencing Factors

Ahıska Turks are present in different countries as immigrants due to their exile in 1944 from the Akhaltsikhe region, which is located within the borders of Georgia today. Ahıska Turks live in various provinces of Turkey. In the literature, it is stated that there are deficiencies in the access of immigrant women to Family Planning (FP) methods. It was aimed to determine the attitudes of Ahıska Turkish women towards FP and the factors affecting them. It was a descriptive study. The sample consisted of 200 Ahıska Turkish women, registered in a Family Health Center in Bursa province in Turkey. Ethics committee approval and other necessary permissions were obtained. Data was collected using the Personal Data Collection Form and Family Planning Attitude Scale (FPAS). Frequency tables and descriptive statistics Mann-Whitney U, Kruskal-Wallis H test and Spearman correlation were used to analyze the data. It was determined that approximately one fourth of the women did not receive information about FP from the health professionals, 57.1% of those who had communication problems had difficulties in reaching the health professionals, and 42.9% had language-related problems. It was also determined that 34.5% of the participants did not use FP method, and only 14% of women received information about FP before marriage. It was determined that the most used methods were condom with 41.2% and intra uterin device with 36.6% and 41.7% of the women discontinued the method they used due to side effects. It was found in the study that when the education level of the spouses and the participants increased, the FPAS score also increased. It was determined that the average scores of FPAS and all its sub-dimensions were higher for those who were not related to their spouses than those who were related ($p<0.05$), those with a high income level compared to those with a low income level ($p<0.05$), those who received FP service before marriage compared to those who received FP service after marriage ($p<0.05$). A positive and significant relationship was found between the attitude towards pregnancy and the attitude towards society ($r=0.535$; $p<0.05$) and methods ($r=0.368$; $p<0.05$). It was found

that the average FPAS score of the women participating in our study was 130.48. As a result our study revealed that the attitudes of women towards FP were positive, but not at a desired level. The FP service to be provided for this purpose will contribute to the prevention of unwanted pregnancies and the improvement of public health. This study emphasizes that health professionals should take a more active role in the protection and improving of health by evaluating the health of immigrants with a multidisciplinary approach.

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Preparation, Characterization, and Textural Analysis of Dexpanthenol Loaded Emulgel Formulations

The skin is the biggest organ in the body and provides and maintains structural integrity. We are able to perceive our surroundings and the outside world thanks to our skin. Additionally, it shields our bodies from environmental hazards including UV sun rays, dry air, and variations in hot and cold temperatures. These external factors can cause cracking of our skin and skin irritation. People have been using cosmetic products since ancient times to make the skin look beautiful and younger. Panthenol is one of the most used active compounds today for moisturizing the skin and strengthening the damaged skin barrier. Panthenol has two different enantiomers. Of these, only the D form is active. There are many panthenol-containing preparations on the market. Emulgels are semi-solid systems created by mixing emulsions and gels. Emulgels have bioadhesive properties and these properties are proportional to the amount of gel they contain. As the gel concentration increases, the bioadhesive property of the emulgel increases. In addition, this allows the drug release to be adjusted. Our aim in this study was to develop blank and dexpanthenol (DXP) loaded emulgel formulations with different gel concentrations. At first, emulsions were developed and then emulsions were converted to gel by using Carbopol Ultrez as gelling agent. Blank and drug loaded formulations were characterized in terms of pH and viscosity. Results showed that pH and viscosity values of formulations were in between 3.996 ± 0.025 and 4.49 ± 0.062 , 10.706 ± 0.345 and 31.070 ± 1.732 P, respectively. Texture profile analysis (TPA), spreadability and *ex vivo* bioadhesion studies were performed for blank and drug loaded formulations. The formulations' hardness values ranged from -0.145 ± 0.126 to -3.158 ± 0.378 g in the TPA analysis. The findings of the adhesion experiments were between 0.963 ± 0.126 and 0.309 ± 0.047 g, and the work of adhesion was between 0.892 ± 0.277 and 1.184 ± 0.721 g.sec., according to the *ex vivo* study. Studies on *in vitro* release for commercially available products and formulations were also carried

out. All formulations released more drug than the commercial product. To sum up, compared to the commercial product, the new formulations demonstrated superior physicochemical characterization and *in vitro* release.

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The Mediating Role of Self-regulatory Fatigue between Perceived Control and Experienced Avoidance in Lung Cancer Chemotherapy Patients

Objective: Patients undergoing chemotherapy for lung cancer suffer from a high level of psychological distress, which seriously affects their physical and mental health. And they are prone to negative coping behaviors. The current study aims to explore the mediating effects of self-regulatory fatigue on perceived control and experiential avoidance in this population.

Methods: A convenience sampling method was used to recruit 211 patients with chemotherapy lung cancer from a tertiary care hospital in Henan Province from June to August 2022. The perceived control, self-regulatory fatigue and experienced avoidance of these patients were assessed using self-report questionnaires. Descriptive statistics, Pearson's correlation and the structural equation model by Amos were used to analyze the data. The Bootstrap mediation effect test was used to test the effect relationship between variables.

Results: The scores of perceived control, self-regulatory fatigue and experiential avoidance of lung cancer chemotherapy patients were (46.94±5.18), (52.18±4.49) and (27.23±4.55) respectively, with perceived control negatively correlated with self-regulatory fatigue and experiential avoidance and self-regulatory fatigue positively correlated with experiential avoidance ($P<0.01$). Self-regulatory fatigue mediated the effect between perceived control and experiential avoidance in lung cancer chemotherapy patients, with the mediating effect accounting for 29.1% of the total effect.

Conclusion: Lung cancer chemotherapy patients had high self-regulatory fatigue and experiential avoidance levels. Self-regulatory fatigue had a partially mediating effect between perceived control and

experiential avoidance. It is recommended that interventions to increase these factors can be effective strategies to reduce the level of experiential avoidance among lung cancer chemotherapy patients.

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Formulation and Evaluation of the *in Vitro* and *in Vivo* Performance of Different Etamsylate Tablets

Objectives: This study was performed to formulate etamsylate tablets with different rates of release and to investigate their *in vitro* dissolution characteristics and *in vivo* pharmacokinetic behavior.

Methods: Tablets containing 500 mg etamsylate were formulated; immediate release (IR), and two controlled release (CR) matrix tablets with different dissolution rates; CR_{fast} and CR_{slow}. The *in vitro* dissolution of the IR tablets was performed at different pH, while the *in vitro* dissolution of the CR tablets was performed using the buffer transition method with an initial pH of the dissolution medium of 1.2 for 2 hr, then pH 6.8 for 3 hr, and followed by pH 7.4 for additional 7 hr. Eight healthy volunteers received the three products under investigation, in a three-way cross-over experimental design. Etamsylate pharmacokinetic parameters after the three treatments were estimated. A model that utilized the *in vitro* dissolution data and the estimated pharmacokinetic parameters after the IR tablets was developed to establish the IVIVC for the CR tablets.

Results: The *in vitro* dissolution of the IR tablet was complete in less than 1 hr in all pH values. The dissolution rate of the two CR matrix tablets using the buffer transition method was significantly different ($p \leq 0.05$). The Higuchi model was the best model that described the *in vitro* dissolution of the CR matrix tablets with estimated dissolution rates of 39.1%/hr^{0.5} and 30.4%/hr^{0.5} or 195.5 mg/hr^{0.5} and 152 mg/hr^{0.5} for the CR_{fast} and CR_{slow} tablets, respectively. After administration of etamsylate tablets, the C_p_{max} were 7.52±2.1, 3.93±0.96, and 3.13±0.27 mg/L, t_{max} were 5, 8, and 10 hr, and AUC were 80.2±13.73, 69.4±12.97, and 61.1±0.44 mg-hr/L for the IR, CR_{fast} and CR_{slow} tablets, respectively.

The absorption rate constant and the elimination rate constants estimated after administration of the etamsylate IR tablets together with the *in vitro* dissolution rate of the CR tablets and the bioavailability estimated from the *in vitro* MDT, were used to predict etamsylate

absorption rate and etamsylate concentration-time profile after administration of the CR tablets. The model predicted etamsylate plasma concentration-time profiles was in good agreement with the experimentally obtained profiles. The model predicted $C_{p_{max}}$ were 4.31 and 3.13 mg/L while the mean experimentally determined $C_{p_{max}}$ were 3.93 and 2.98 mg/L for the CR_{fast} and CR_{slow} tablets, respectively. Whereas the model predicted AUC were 70.8 and 61.6 mg-hr/L and the mean experimentally determined AUC were 69.4 and 61.1 mg-hr/L for the CR_{fast} and CR_{slow} tablets, respectively. The model predicted $C_{p_{max}}$ and AUC were within 10% of the experimentally observed parameters indicating good model predictability.

Conclusions: The buffer transition method was used to determine the *in vitro* dissolution of the CR matrix tablets and to predict the *in vivo* drug dissolution. The model predicted and experimentally observed $C_{p_{max}}$ and AUC for the two CR tablets were within the acceptable limit, indicating good model predictability. Also, the obtained results showed very good point-to-point correlation between the percent drug absorbed *in vivo* and the percent drug dissolved *in vitro*, again indicating validity of the model.

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Effects of Telehealth on Parents of Children with Congenital Heart Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Introduction: Congenital heart disease (CHD) is one of the most common congenital defects of infant and is associated with psychological stress for their parents. And there are studies reported that telehealth home support programme for children with CHD is feasible, sustainable and effective. However, the effects of telehealth intervention for parents of children with CHD haven't been explored systematically.

Objective: The aims of this article are to systematically evaluate the effects of telehealth on emotion knowledge of caring and quality of life of parents of children with Congenital Heart Disease (CHD).

Method: We systematically searched 8 electronic databases for randomized controlled trials using telehealth method on parents of children with CHD. Outcomes included anxiety, depression, knowledge of caring and quality of life. Data was analyzed by Review Manager 5.3. The retrieval time was from the database establishment to March 20, 2022.

Results: A total of 9 trials met the inclusion criteria. Interventions included WeChat, DVD of sharing experience and online contact. Three of nine demonstrated that telehealth could relieve anxiety. Four of nine studies reported that efficiency of telehealth on depression level of parents of children with CHD. Four of nine reported that telehealth enriched knowledge of caring. Three of nine reported that telehealth could improve physical, psychological, and social aspect of quality of life. Meta-analysis showed that telehealth was better than usual care on relieving anxiety, depression and improving level of knowledge of caring and quality of life.

Conclusion: Telehealth maybe a useful method for parents of children with CHD to improve psychological situation, knowledge of caring and quality of life. And it should be needed to certify further by more RCTs.

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Effects of Internet-based Cognitive Behavior Therapy on Depression in Patients with Coronary Heart Disease: A Meta-Analysis

The aims of this article are to systematically evaluate the effects of the internet-based cognitive behavioral therapy (iCBT) on depression, anxiety and quality of life of patients with Coronary Heart Disease (CHD). The Cochrane Central Register of Controlled Trials, PsycINFO, PubMed, Embase, Web of science, CKNI, VIP, WanFang data, SinoMed were searched to April 2022. Retrieved papers, systematic reviews and trial registries were hand-searched. We included RCTs with comparing the direct effects of iCBT with each other or with any type of control condition (routine treatment, waiting list) for patients following myocardial infarction or revascularisation or with a diagnosis of angina pectoris or CHD defined by angiography. Two authors screened titles for inclusion, extracted data and assessed risk of bias. The 11 studies with 1,598 participants were included. The iCBT showed greater improvement in the depression (MD = -1.47, 95% CI: -2.04, 0.89, $P = 0.0001$, $I^2 = 60\%$) and anxiety (MD = -1.08, 95% CI: -2.26, 0.09, $P = 0.07$, $I^2 = 86\%$). However, iCBT had no difference in improving the quality of life of patients (MD = -0.48, 95% CI: -7.70, 6.74, $P = 0.90$, $I^2 = 65\%$). We found that the internet-based cognitive behavioral therapy can improve psychological symptoms for CHD patients. However, there remains considerable uncertainty regarding the quality of life of CHD patients. And it still needs to be certified further by more RCTs.

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&

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Nurse Leadership Breaking through Glass Ceiling: Air Force's First Nurse Major General

The literature on interprofessional leadership roles in nursing has a gap in describing the significant contributions of executive military nurse leaders in advancing nursing as a profession and exemplifying leadership opportunities in non-traditional roles. By utilizing the oral history method to explore the memories and experiences of executive military nurse leaders, this study aims to identify some of the leadership best practices to improve healthcare delivery through the eyes of Major General Barbara Brannon (Retired Air Force). In compliance with the Oral History Association guidelines, the investigator obtained Institution Review Board permission and informed consent. The investigator fostered deep listening via active listening techniques of exploration, clarifying, and paraphrasing during a four-hour interview. The audiotaped interview was transcribed verbatim. The transcript was then emailed to the participant to assure the accuracy of content. Three independent coders analyzed the transcript to identify prevalent themes. Principal themes included "courage," "figuring it out," and "winning others over". Subthemes included optimism, creativity, connectedness, learner, managing change, emotional intelligence, teamwork, role model/mentor, re-writing the narrative, and moving from outsider to insider. An interesting finding from the study is that the leadership strategies of Major General Brannon aligned well with Laura Polk's Nursing Theory of Resilience. She demonstrated courage in envisioning a future reality for nurses that was not yet realized and was willing to take calculated risks and accept career opportunities well outside of her comfort zone. The impact of Major General Brannon's leadership continues to be seen today as nurses break through the glass ceiling to advance into leadership positions not previously considered. This presentation will conclude with describing some of the best practice leadership strategies with implications for the healthcare leaders of today.

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An Evaluation of Vitamin D and Bone Turnover Markers Levels in Postmenopausal Women in Albania

Vitamin D is a lipophilic prohormone that is synthesized in the skin in response to sunlight, although diet may be a source of much lower amounts of Vitamin D. Receptors of the active form of Vitamin D (VDR), have been identified in the cells of the intestinal epithelium, renal tubules, bone and other tissues and organs, which indicates a broad spectrum of 25(OH)D₃. Besides its role in intestinal calcium absorption, calcitriol may also affect bone health directly, as its receptors are expressed by osteoblasts. The consequences of vitamin D deficiency are secondary hyperparathyroidism and bone loss, leading to osteoporosis and fractures, mineralization defects, which may lead to osteomalacia in the long term, and muscle weakness, causing falls and fractures. Therefore, we aimed to investigate the association between serum levels of 25(OH)D and bone turnover markers in postmenopausal women, and their impact on osteoporosis. In this three - years study (2020-2022), we described the epidemiology of vitamin D status across women population in Albania and its potential associations with bone biomarkers (OC, PTH, ALP). Our study showed a clear seasonal variation of bone turnover markers and a negative *Pearson* correlation between serum 25(OH)D and osteocalcin (OC). Osteoporosis leads to decreased hydroxyapatite crystal formation and hence results in increase in serum osteocalcin levels. We found reduced 25(OH)D concentrations in postmenopausal women and showed that a deficient 25(OH)D concentration is associated with significantly increased markers of bone resorption and decreased bone mineral density (BMD) values.

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Development of Self-nanoemulsified Topical Eye Drop Containing Dexamethasone

Lipid-based drug delivery systems are promising systems for hydrophobic drug delivery. A lipid-based self-nano-emulsified ocular drug release system has been synthesized for improving the topical ocular delivery of hydrophobic drugs. The aim is to develop preformulation that reaches the vitreal fluid, bypassing the ocular barriers, without requiring intravitreal injection. To eliminate the complications, dexamethasone (Dex) is applied in the lipid-based system called the self-nano-emulsified drug release system (DexSNEDDS). DexSNEDDS was synthesized via different oils, surfactants, and cosurfactants suitable for ophthalmic use. The resulting system was characterized by Raman, UV, FTIR Spectra, DSC, and SEM. Dex was loaded into lipids in ratios of 31.35% Labrasol/Span 80 (1:1), 31.35% transcutool, and 17.64% oleic acid. DexSNEDDS was applied to HUVEC cells, and MTT cell viability experiments were performed to determine the cytotoxicity. The size of the prepared lipid spheres was approximately 50–200 nm according to SEM images. Zeta sizer results confirm the SEM image evaluations. Differential scanning calorimeter measurements of Dex and DexSNEDDS show characteristic peaks between 221 and 261 °C. The fingerprint region of Dex is seen in peaks between 1700 and 1600 cm^{-1} in Raman spectra and at 1740, 1640, 1350, 1070, and 887 cm^{-1} in FTIR spectra, and the regions emerged in the spectra of DexSNEDDS. The viability results revealed that the difference between DexSNEDDS in treated and untreated cells was not statistically significant, and DexSNEDDS is safe for in vivo testing.

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&

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Hybrid Management in Complex Systems in the Social and Health Care Sector

The aim of this presentation is to consider the challenges related to remote management and the most effective ways of meeting them. At the outset, we have defined remote management as a part of hybrid management, in which superiors must be capable of acting in multi-location organizations and to manage personnel both remotely and in-person, using various channels and types of communication. This research examines hybrid management in the field of various problems of social and health management. The research questions are as follows: 1) How do the participants in the research separate management work into face-to-face and remote management when the theme is viewed through tame, messy and wicked problems? 2) How can hybrid management be structured through tame, messy and wicked challenges?

The research is part of the EU-funded project More Remotely (2019-2022). Qualitative research material was collected in the spring of 2022 from professionals in the social and health sector (n=32), more than a third of whom had experience working as a supervisor. The data (f=313) contained 36% tame challenges, 37% messy challenges and 27% wicked challenges. In tame management challenges, the challenges of resource management, well-being at work and work community problems were emphasized. In the messy challenges of management, the challenges of productivity, well-being at work and operational development emerge more strongly. The wicked challenges, on the other hand, emphasize work community problems and operational development challenges. 40% of all challenges were placed in face-to-face meetings, 26% in video meetings and 34% in other meetings (anywhere). With inductive content analysis, two main categories were abstracted from the material: Ethical management challenges (49%) and Operational development challenges (51%).

Recommendation based on the results: Ethical management challenges should be addressed in face-to-face meetings or video conference. The challenges of operational development do not require face-to-face meetings, but can be dealt with in video meetings, on the

phone, by e-mail or text messages. The results of this Finnish study show that 60% hybrid management is possible in the social and health sector.

Jacob Marvin

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Financial, Occupational and Physical Challenges and Blood Glucose Monitoring in Type 2 Diabetes

Blood glucose monitoring effects are changing for people living with type 2 diabetes. However, there is a lack of recent data surrounding financial, occupational, or physical stressors that affect the adherence of diabetes self-management practices. This article looks to examine specific financial, physical, and occupational challenges in adherence to blood glucose monitoring in type 2 diabetes.

Data from the National Health and Nutrition Examination Survey (NHANES) 2017–2020 Pre-Pandemic data of adults 18+ were analyzed. These data were used to examine the relationships between insurance coverage, health status, occupation, and self-monitoring of blood glucose levels in the United States.

This study found that respondents had a statistically significant association with five variables: prescription drug coverage (in-part or full), occupation status, gender, age, and three race subcategories (non-Hispanic White, Black, and Other-Multiracial) with blood glucose monitoring.

This study may help certified health education specialists (CHES) and diabetes care and educator specialists (DCES) to better identify which groups of individuals are at highest risk for poor adherence to specific blood glucose monitoring in type 2 diabetes.

Cheryl Mele

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Managing Acute Oncological Pain Crisis with Intrathecal Pain Pump: Case Report

Managing intractable pain in pediatric cancer who are in palliative care patient poses a challenge. Most of the cancer pain is neuropathic and does not respond well to traditional pharmacological therapies. Also, many pharmacological therapies have undesirable side effects such as nausea, constipation and drowsiness. Furthermore, cancer pain that is not well controlled in children impacts their psychological and social development. The presentation reviews a case report of a teenage female with pelvic sarcoma, unresponsive to conventional pain therapies and the exploration of utilizing regional anesthesia (intrathecal pain pump) to control her pain symptoms. The overall effect was a positive impact on her quality of life.

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Hidden Treasures in Brazilian Biodiversity: Exploring by Products Potential

Spondias mombin L., also called cajá, cajazeira, cajá verdadeiro, cajá-mirim, and taperebá, is a fruit belonging to the Anacardiceae family and is native to Brazil. It can be found in all regions of Brazil, but it is more common in the North and Northeast. Cajá has been associated with various benefits, including antioxidant, anti-inflammatory, antimicrobial, hypoglycemic, anti-edematogenic, antiviral, and healing effects. In addition, it is used by local populations to treat cold sores, prostatitis, conjunctivitis, cystitis, and urethritis. The presence of bioactive compounds such as rutin, quercetin, chlorogenic acid, ellagic acid, and isoquercetrin may explain these properties. Despite being sold as fresh fruit or frozen pulp, cajá's seed is typically discarded. However, this seed could be better utilized. Therefore, the objective of this study was to investigate the antioxidant activity and compounds present in cajá seed.

To extract the sample, it was macerated using 70% ethanol, followed by rotary evaporation and lyophilization. The sample's antioxidant activity was assessed through DPPH and FRAP assays. In addition, the presence of tannins, flavonoids, and total phenolics was also characterized. The results of the DPPH assay showed that the sample had an antioxidant activity of 89.55 ± 3.82 and an IC₅₀ of 2.42 mg/mL, while in the FRAP assay, it had an antioxidant activity of 8.01 ± 0.12 mg GAE/g of sample and an IC₅₀ of 6.78 mg/mL. The sample also had 19.70 ± 0.36 mg GAE/g of sample in the total phenolics test, 79.61 ± 6.73 mg QE/g of sample in the flavonoids test, and 57.33 ± 0.67 mg TAE/L in the tannins test.

Comparing these results with those obtained in a study analyzing the stem bark of cajá extracted by water, it is important to note that even though they belong to the same species, they are different plant parts that will present varying amounts of active compounds. The stem bark analysis found an IC₅₀ of 0.01 ± 1.09 mg/mL, 183.5 ± 1.89 mg GAE/g of sample for total phenolics, and 15.64 ± 1.04 mg QE/g of

sample for flavonoids. Therefore, the extraction method and reagent used may interfere with the results. Nonetheless, these findings suggest that cajá seed extract can be a valuable source of antioxidants and phenolic compounds, and its utilization as a by-product can be explored for future use in pharmaceutical and cosmetic formulations.

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Derisking Transdermal Drug Development Process in the Preclinical Setting: A Case Series

The FDA has approved approximately 2,000 New Chemical Entities since 1980, and only 1% are approved for transdermal drug delivery systems (TDS), demonstrating the difficulty of developing TDS for a drug molecule. One of the major challenges in developing TDS technology is selecting a suitable preclinical model to transition in-vitro permeability test data to in-vivo data. The animal safety and toxicology studies are mandatory before conducting the first-in-human (FIH) study. The first in-vivo animal study is essential to determine if further drug development is plausible. The FDA recommends mini pigs as a preclinical model for TDS due to the similarity of the skin structure with humans. It is common practice to perform the pharmacokinetic evaluation in parallel to those studies to better understand the maximum starting dose for the FIH study. The current presentation provides a case study performing drug development using different preclinical models. Clinical data are presented to assist in understanding the selection of preclinical models. The case-based discussion will help scientists select a suitable pre-clinical model for a drug molecule and better understand the development pathway.

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Trend in Mortality from Chronic Liver Disease and Cirrhosis in Urban and Rural Areas in Spain

Objectives: To estimate the trend in mortality from chronic liver disease and cirrhosis in rural and urban areas between 2003 and 2019 in Spain.

Methods: We selected deaths from alcoholic liver disease, chronic hepatitis, fibrosis and cirrhosis of the liver that correspond with codes K70, K73 and K74, respectively from the International Classification of Diseases (ICD-10). The population and the number of deaths according to the age, sex and population size of the municipality of residence have been obtained from the National Institute of Statistics. The size of the municipality of residence has been grouped into three categories: less than 10,000 inhabitants (rural areas), between 10,000 and 100,000 inhabitants (small urban areas) and more than 100,000 inhabitants (large urban areas). In each area we have calculated the average annual percentage change in mortality rate using linear regression. The logarithm of the rate has been used as a dependent variable.

Results: Between 2003 and 2019 the APCM in mortality rate from chronic liver disease and cirrhosis in large urban, small urban and rural areas was respectively -3.1%, -3.0% and -1.8% in men, and -4.1%, -3.8% and -2.5% in women.

Conclusion: Rural areas showed less decrease in mortality from chronic liver diseases and cirrhosis than urban areas.

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Using Community Outreach Interventions to Reduce Maternal Mortality in the United States: A Systematic Literature Review

The United States has battled maternal mortality unsuccessfully for decades. With maternal mortality rates continuing to rise, especially in rural or low-income communities, new strategies are needed to increase education, awareness, access, and equity. This systematic literature review aimed to determine if the use of community outreach interventions, targeting education and awareness, could lower maternal mortality in rural or low-income communities in the United States. A search was conducted using PubMed (including MEDLINE), CINAHL, and Web of Science academic databases following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. 18 articles were analyzed and categorized using established screening criteria. Five common themes emerged, which included (1) improvements in maternal health or maternal mortality rates; (2) increased education and/or awareness; (3) increased use/acceptance of preventative care; (4) positive impact on health equity; and (5) applicability in rural or low-income settings in the United States. The findings and results indicate that the use of community outreach interventions can reduce maternal mortality in rural or low-income areas. A multimodal health promotion tactic, community outreach can simultaneously address MMR reduction and improve maternal health through in-person, group, and virtual delivery settings, as supported by the systematic literature review results. Further research should be conducted on the topic of community outreach interventions as a method for maternal mortality reduction to build upon the evidence gathered in this review.

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Double J Stent Syndrome: Solifenacin vs. Desloratadine

Introduction & Objectives: It is well known that 7 out of 10 patients after a double J stent insertion may present symptoms such as discomfort or abdominal pain, urgency, painful urination, hematuria, or urinary tract infections. These symptoms are usually caused by the stent irritating the ureter or bladder or by the stent encrustations after weeks or months, with mineral deposits that can irritate after weeks or months. The purpose of this study is to evaluate the benefits of solifenacin and desloratadine treatment in the relief of double J stent syndrome.

Materials & Methods: We conducted a single-institutional observational study from January 1st, 2022, to January 1st, 2023, at the Department of Urology, University of Medicine and Pharmacy in Iasi. The study evaluated the discomfort caused by the double J stent by analyzing data from patients with double-J ureteral stent insertion for different reasons (mainly for obstructive ureteric stones). In this study, the patients were evaluated three days after insertion and during the admission for stent removal using the Double J Stent Discomfort Questionnaire created in our department. In addition, we randomly assigned the patients into three therapeutic groups: S (solifenacin), D (desloratadine), and C (control).

Results: Out of the 160 included patients, we excluded 12 for lack of treatment adherence. In the end, we analyzed data from 148 patients. We divided the patients into groups S: 50, D: 47, and C: 51. There were 65% women and 35% men. 52% of patients were from urban and 48% from rural areas. The predominant age category was 40-59 years (44%), followed by 60-79 years (38%). The mean score for urinary symptoms was: S:9.5 vs. D:10.56 vs. C:11.36 (p=0.254). We used the VAS with the following results to evaluate pain: S:2.34 vs. D:2.32 vs. C:2.43 (p=0.956). Regarding general health, the mean scores obtained were: S:4.35 vs.

D:5.2 vs. C:5.89 (p=0.213). For evaluation of work capacity: S:5.88 vs. D:6.81 vs. C:6.17 (p=0.666) and the mean scores for other problems were: S:1.86 vs. D:2.48 vs. C:3.33 (p=0.036).

Conclusions: Solifenacin is effective and well tolerated for treating stent-related symptoms of the double J stent syndrome. Antihistamine had a more modest contribution to this goal. According to our data, Solifenacin was more effective in controlling urinary symptoms than desloratadine. Preventing the Double J stent syndrome remains a challenge for the urologist, mainly for patients who need to keep the stent for three months or more. Therefore, finding the optimal length of the stent should be a constant preoccupation for urologists.

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Development of Polymeric Micelles Loaded with Doxorubicin and Resveratrol

One of the most well-known anticancer drugs nowadays is the anthracycline antibiotic doxorubicin, produced by *Streptomyces* bacteria. It is applied for treatment of several different types of cancer and the mechanism of its action is well-studied. However, the therapeutic administration of doxorubicin is associated with low selectivity and vastly pronounced cardiotoxicity. On the other hand, natural polyphenol resveratrol has very well-established antioxidant and strongly expressed cardioprotective effect. In this study we aim to reduce the problematic issues of doxorubicin by its simultaneous encapsulating with resveratrol in nanomicelles. The nanosystem was obtained by film hydration method using a mixture of two copolymers, in particular Pluronic P123 and F127. These copolymers were selected because of their ability to form stable micellar dispersions and safety profile. Dynamic light scattering, infrared spectroscopy, X-ray diffraction and transmission electron microscopy were used for the physicochemical characterization of the prepared micelles. We observed high encapsulation efficiency and drug loading, narrow size distribution, small mean diameter (26 nm) and zeta potential of +4.15 mV. In vitro release tests in two different media showed burst effect in the beginning followed by sustained release. Higher amount of the drugs was released in the slightly acidic medium, which is a prerequisite for their specific delivery in tumor tissue. In vitro cytotoxicity studies on rat cardioblasts (H9c2 cells) confirmed the cardioprotective effect of resveratrol and the precedence of the double-loaded nanomicelles. In conclusion, the obtained micelles are promising

drug delivery system because the simultaneous delivery of both drugs may significantly decrease the undesired cardiotoxicity, which is advantageous for the therapy.

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Nurses' Expectations of Compassionate Leadership

Compassion is a core value in the Code of Ethics for Nurses of the International Council of Nurses. It has been defined as awareness of another person's suffering, feeling for it and motivation to act to share or alleviate the universal experience of suffering. Compassion has been viewed as a fundamental element of nursing care. Compassionate leadership may require emotional intelligence, which has been defined as knowledge about emotions, ability to apply the knowledge in emotional situations and the tendency to use emotional skills. These skills call for both cognitive and affective empathy, or conscious reading of other individuals' perspectives and appropriate emotional responses to their emotions.

Intensive care and emergency unit nurses work under significant pressure. Nurses caring for critically ill patients experience physical fatigue and discomfort. They may experience anxiety, frustration and helplessness too. Nurse leaders are morally responsible for ensuring that nurses are provided empathy, compassion and concrete support interventions to promote their well-being and coping. This study seeks to provide a trustworthy description of nurses' experiences and expectations of compassionate leadership and compassion. The knowledge can be used to promote nurses' coping and wellbeing and to develop compassionate leadership in healthcare organizations. The knowledge can also be used to develop education for nurse leaders.

Nurses caring for critically ill patients need compassionate attention and support. The aim of this study was to provide a trustworthy description of nurses' experiences and expectations for compassionate leadership and compassion at a central hospital in Finland.

The participants were 50 intensive care and emergency unit nurses of a central hospital. Webropol, an online survey tool with open questions, was used to collect data on the meaning of compassion and on nurses' experiences and expectations of compassion and compassionate leadership. Inductive content analysis was used to analyze the data.

The nurses reported a great variety of positive experiences of compassion, although the emphasis in this study seemed to be on the absence of compassion, especially in regards to leadership. The nurses expected individual attention and genuine physical and psychological

presence from their immediate supervisors. A compassionate leader, according to the participants, was “aware of what was going on at the workplace”, assumed responsibility for sharing and forwarding information, and expressed interest in employees’ competence and coping. Personal feedback and encouragement in stressful situations was considered important. The nurses would have appreciated a greater amount of positive and constructive feedback, mutual listening and genuine dialogue.

Compassion was seen as a seedbed for empathy, mutual appreciation, respect and sense of community. Other elements associated with a compassionate workplace included multiprofessional teamwork, positive learning experiences and constructive feedback.

Leaders have a crucial role in promoting a compassionate atmosphere. Their work starts with awareness of how important psychological safety and self-expression are for collaboration, commitment and quality care. Immediate supervisors express compassion by being physically present and by fostering an open dialogue.

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The European Pharmacy Market: The Density and its Influencing Factors

Community pharmacies deliver high-quality health care and are responsible for medication safety. During the pandemic, accessibility to the nearest pharmacy became more important to get vaccinated against COVID-19 and to get medical aid. The government's goal is to ensure nationwide, reachable, and affordable medical healthcare services by pharmacies. Therefore, the density of community pharmacies matters. Overall, the density of community pharmacies is fluctuating, with slightly decreasing tendencies in some countries. The research question is: upon which conditions depends the variance in the density of community pharmacies in Europe? So far, the literature has shown that changes in the system affect prices and density. However, a European overview of the development of the density of community pharmacies and their triggers is still missing. This research is essential to counteract decreasing density consulting in a lack of professional health care through pharmacies. I focus on liberal versus regulated market structures, mail-order prescription drug (RX) regulation, and 3rd party ownership consequences. In a panel analysis, the relative influence of the measures is examined across 27 European countries over the last 21 years. The results show that regulated pharmacy markets have a positive effect on density. They tend to have over 10.75 pharmacies/100.000 inhabitants more than liberal markets. Further, allowing RX mail-order has a negative effect on density. The density dropped by -17.98 pharmacies/100.000 inhabitants. However, 3rd party ownership structures have a positive effect on density. Countries with 3rd party ownership have 7.67 pharmacies/100.000 inhabitants more than countries restricted to pharmacists as owners. The results are statistically significant at 0.001 level. My analysis recommends regulated pharmacy markets, with a ban on mail-order prescription drugs allowing 3rd party ownership to support nationwide medical health care through community pharmacies.

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**Midwest University Students' Perception of the COVID-19
Pandemic**

The purpose of this study is to measure the attitude and perception of university students regarding potential vaccine hesitancy toward the COVID-19 vaccine and determine if identified hesitancy can be associated with influence factors such as contextual, individual/group, or vaccine/vaccination specific issues. Participants were asked to complete a 23 question self-reported survey that asked questions related to their perception of the COVID-19 pandemic, and the safety of the COVID-19 vaccine. Respondents N= 11,548 consisted of students, faculty, administrative staff, and civil service employees of a mid-major university. Of the sent emails, 40 (.04) individuals opted out of the survey, 4,370 (44%) opened the survey; and of that group 151(3.5%) did not sufficiently complete; creating an N of 1,465 (34%) who completed the survey. ANOVA analyses were conducted yielding statistically significant differences among the subgroup's perception of "vaccine is threat to health", "right to decide" and "refuse to be vaccinated". Understanding the rationale of individuals who are vaccine hesitant will provide a better understanding to provide the needed information, tools, and activities to reduce individual hesitancy.

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Signal Transduction of Chalcone Derivative (E)-3-(Phenyl)-1-(3,4,5-Trimethoxyphenyl)Prop-2-En-1-One for Insulin Secretion and its Role on Glucose and Lipid Metabolism

Chalcone derivative, synthesized using classic base catalysis and Claisen-Schmidt condensation, was developed, and screened for its antidiabetic properties. Compound was assayed on glucose and lipid metabolism in rats treated acutely and chronically with a chalcone derivative to elucidate its mechanism of action. Glucose tolerance and lactate dehydrogenase activity was evaluated in response to chalcone-derivative administration. The chalcone ((E)-3-(phenyl)-1-(3,4,5-trimethoxyphenyl)prop-2-en-1-one) was investigated on glycogen, glucose, lipid and lipolysis *in vitro* and *ex vivo*, as well as to look at its mechanism on insulin secretion triggered by $^{45}\text{Ca}^{2+}$ influx. This chalcone derivative (10 mg/ kg), diminished glycemia without exhibits acute cell damage, increased glycogen content in skeletal muscle and reduced serum triacylglycerol and total cholesterol but did not alter high-density lipoprotein or low-density lipoprotein. Chalcone (10 μM) stimulated glucose uptake in the soleus muscle and did not change *in vitro* and *ex vivo* lipolysis. This derivative also increased insulin secretion by triggering calcium influx, blocking ATP-sensitive K^+ channels and voltage-dependent calcium channels, and modulated stored calcium via sarco/endoplasmic reticulum calcium ATPase (SERCA) and ryanodine receptor (RYR) activity. In addition, these

findings indicate that chalcone may achieve cellular repolarization via a mechanism mediated by calcium-dependent potassium channels. Financial support: CNPq and CAPES-Brazil; HEIF programme-UK).

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