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Faculdade Israelita de Ciências da Saúde  
Albert Einstein  
October 16, 2021

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Juliana Magdalon  
Mariana Lucas da Rocha Cunha  
Ramon Antonio Oliveira



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**3ª JORNADA  
DE INICIAÇÃO CIENTÍFICA**  
OUTUBRO de 2021

**FICSAE** Faculdade Israelita de Ciências  
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3rd Scientific Initiation Journey

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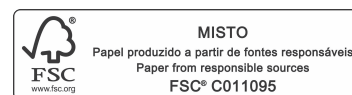
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# Welcome Address

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## **The COVID-19 Pandemic**

### **3rd Scientific Initiation Journey**

#### **Faculdade Israelita de Ciências da Saúde Albert Einstein**

#### **October 16, 2021**

Two years can fly by – and drag along all the same. We are honored to look back on the scientific progress brought forth by our students and professors during the past two years since our last opportunity to hold a conference like this, the JIC - *Jornada de Iniciação Científica*. The methodical work done synthesized in theses pages, all of the discoveries, wonderment and negative results alike, events like these are a deep source of inspiration. Each presenter, advisor and participant on this JIC's proceedings makes our service in its organization worthier for it. It's invigorating to read the abstracts, hear from the students on their work and see their experience happen. Our Journey can either be a proving ground for what may

well turn out to be a lifelong commitment to research, or the closest some of its participants will come to it in a long time. And that's how it should be: no matter who you are, no matter what you are up for, we hope there is something here for you.

For the first time, we, students and professors alike, have come together to make the most out of this presentation. In the pages that follow lays the series of abstracts of the research developed by Einstein's finest. It was inspiring to pour through them for us, and perhaps it will be so as well for you. Read on and you might find yourself feeling proud of the institution you belong to. We know we are.

The Organizing Committee



# Editorial

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## Scientific Initiation Program

Claudio Schvartsman<sup>1</sup>, Sérgio Podgaec<sup>1</sup>, Nelson Wolosker<sup>1</sup>

<sup>1</sup> Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

**DOI: 10.31744/einstein\_journal/2021S1**

The classic training of health professionals consists of teaching technical knowledge based on solid scientific foundations. With high level faculty, adequate physical structure, and good teaching hospitals under leadership and management, we have the formula for institutions to instruct good professionals with established knowledge.<sup>(1)</sup>

To go further, to become an even higher-level faculty and produce even more qualified professionals, one of the formulas is not only to be a good consumer of established scientific knowledge but to participate in its development through scientific research. Producing relevant knowledge based on solid scientific methodology may enable to take the results into real-world scenarios, and generate outcomes and practical actions for the institution and the entire society.<sup>(2)</sup>

Major medical institutions, such as Harvard, Johns Hopkins, and others, have balanced care and research activities, in which the combination of both at a high level is responsible for their excellent worldwide reputation.

Indirectly, but not less important, research has resulted in the creation of differentiated work positions. Young professionals can evolve, be engaged more and in a better way, and increase their credibility in the market.

*Faculdade Israelita de Ciências da Saúde Albert Einstein* has an innovative structure, with a course that allows students to actively participate in their learning by having group discussions as a predominant part of the teaching methodology. In addition, it offers the opportunity for students to engage in institutional scientific research through the Scientific Initiation Program, which aims to develop scientific thinking and research initiation. This program enables students who had their projects approved at our institution to do research with the guidance of researchers and faculty at Einstein.

It is a research modality made for undergraduate students that has the goal to create interest in the academic environment. Students participate in a project being developed by a researcher and help with research and article production. This is an opportunity to contact more in-depth course content that would not always be explained in a classroom environment.

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In scientific initiation, students learn all steps of a scientific project: how to do an ethical research project, how to interact with the research object, how to assemble and apply questionnaires, how to archive data and documents, how to choose the applicable types of statistical tests for the study, how to write the article, and finally how to submit it to scientific journals.

During this process, students dive into scientific topics both by reading scientific articles and by direct contact with experienced advisors both in the subject of study and in teaching learners. At the end of the process, students should have developed unique knowledge, improved their perception of critical sense, and be inserted into a world where science and merit represent the best mechanics of evolution.

To start a scientific initiation, the faculty make available their research interest, and offer positions for students to enroll. Upon joining the group, the student can apply for a scholarship and receive monthly funding. These grants last for one year and at the end of this period, students must write an activity report and delivery an oral presentation at a scientific initiation event.

This can be, in fact, the student's first contact with this universe of information and is ideal for any student who wants to develop their in scientific methodology knowledge or have more information on any topic of interest. A unique form of intellectual evolution.

The results are already clear, illustrated by our third Scientific Initiation Journey, which had received

72 works registered, and currently 198 students are involved in the two undergraduate courses (Medicine and Nursing). They were awarded funding grants from various sources, including institutional, *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP), *Programa Institucional de Bolsas de Iniciação Científica* (PIBIC), *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq), among others.

For Nursing and Medical students, participating in a scientific initiation program, in addition to awakening a scientific vocation and encouraging new talents, is a way to develop their critical thinking. Participating in research from the beginning of their training will make them even better professionals.<sup>(3)</sup>

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# Editorial

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## The Right Time

Carlos Augusto Rossetti<sup>1,2</sup>, Luana Perrone Camilo<sup>1,2</sup>, Adriano Martins Pereira<sup>3</sup>

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There is no such thing as a Right Time to get involved with science. Current students, teachers, and advisors may recognize and remember how challenging is the period of undergraduate studies that often consume as many hours as a day can hold. Tasks tend to pile up no matter the number of hours we devote to them. At times it is quite hard to keep to the schedule whereas take part in many extracurricular activities required from those who participated in scientific initiation programs. Despite all the hard work and efforts needed, somehow each of us end-up figuring out that combining undergraduate studies - including strenuous activities such as taking notes on concepts of holistic caring, and asthma pathophysiology - with research work is possible and, perhaps, even desirable.

Scientific initiation program is an excellent opportunity to develop and deepen valuable technical skills for patient care, health management, and health care policy-making. The chance during these programs of making direct contact with professional from different specialties, and also the opportunity to learn what has inspired them to pursue their career, may help students who are seeking to find their niche professionally.

Few relationships have the potential to be life changing such as the one between mentor and mentee. The learning opportunity from this relationship may inspire and open mentee's eyes. This may also benefit the entire research group at personal level by promoting engagement between its members, and also by developing the sense of belonging to something bigger.

The Albert Einstein Scientific Directory (DCAE) was founded by students truly interested in making science. The bridge between science and practice is one of the cornerstones promoted by our medical school – *Faculdade Israelita de Ciências da Saúde Albert Einstein*, which is also endorsed by our teaching hospital - *Hospital Israelita Albert Einstein*. At our DCAE there is an attempt to mediate the relationship of students with possible mentors that goes beyond the simply searching for curriculum vitae and research lines.

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The activities organized by our DCAE such as journal club meetings and clinical cases discussions, as well as the effective partnership of our directory with our Research Institute have contributed to help students become gradually familiar with science. The success of these actions has resulted in production of knowledge and advances that are made available by our institution to the world.

One cannot deny the social impact of science within our societies. The mission of science and researchers includes the development of creative solutions to issues faced by patients and healthcare providers. Our scientific initiation program offers the opportunity for students to develop and improve their critical thinking skills that are essential characteristics for health professionals, and in-demand skill to master for the job market. Clinical decision making at the bedside has been increasingly based on the best evidence available at the time, for this reason, those doing science should be in advantage when making such decisions. To be in direct contact with science activities may help medical students applying for residency programs, post-graduate trainings, or job support programs.

The studies presented in this special issue may probably reach far and beyond into places that we will never know and see. We believe that somehow these studies will impact or help future developments. Perhaps, these will be little by little advances, but they will still be beneficial.

We were honored to have the opportunity to organize, with the support of our professors, the 3rd edition of the Scientific Initiation Journey of *Faculdade Israelita de Ciências da Saúde Albert Einstein*, namely JIC. We hope that this special issue could inspire and enrich the reader as the previous editions of JIC have motivated us to pursue research. Science is universal, and it is closer to you than you might think.

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## 3rd Scientific Initiation Journey

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Nurse and Senior Researcher at the Instituto Israelita de Ensino e Pesquisa Albert Einstein. Post-doctorate at March Bloch University - France.



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# Scientific Program

<b>The COVID-19 Pandemic</b> <b>October 16, 2021</b>	
9:00 – 9:15	Welcome and opening
9:15 – 9:45	The career of nurses in science <i>Eliseth Ribeiro Leão</i>
9:45 – 10:45	1st Poster viewing
10:45 – 11:15	Clinical trials in the pandemic and the COVID coalition project <i>Remo Holanda de Mendonça Furtado</i>
11:15 – 12:15	2nd Poster viewing
12:15 – 13:15	Break
13:15 – 14:30	1st Oral presentations
14:30 – 15:00	Bioinformatics in the pandemic <i>Helder Takashi Imoto Nakaya</i>
15:00 – 16:15	2nd Oral presentations
16:15 – 16:45	Evidence-based medicine vs Experience-based medicine <i>Luiz Vicente Rizzo</i>
16:45 – 17:00	Closing





# Presentation Abstracts

001

## Frequency of antibodies for arboviruses in patients with autoimmune encephalitis: data from Brazilian Autoimmune Encephalitis Network - BrAIN cohort

**Category:** Neurosciences.

**Bruna De Freitas Dias<sup>1</sup>, Fabio Fieni<sup>2</sup>, René Gleizer<sup>2</sup>, Alessandra Dellavance<sup>3</sup>, Andressa Rodrigues Maldonado<sup>3</sup>, Luis Eduardo Coelho Andrade<sup>3</sup>, Romana Hoftberger<sup>4</sup>, Livia Almeida Dutra<sup>1,2</sup>; Rede BrAIN**

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<sup>3</sup> Laboratorio Fleury, São Paulo, SP, Brazil.

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**Introduction:** Autoimmune encephalitis (AIE) is the main cause of non-infectious encephalitis and results of peripheral immune response against antigens of cellular surface of central nervous system. These clinical presentations may vary, and they are associated to tumors and herpetic infections. Preliminary data from China, Israel, showed that AIE can present seasonality. Arboviruses such as Zika (ZIKV), Dengue (DENV) and Chikungunya (CHIKV) are neurotropic infections that present neurologic changes of unknown mechanism. **Objective:** To verify frequency of antibodies for arboviruses in patients with AIE in a Brazilian cohort. **Methods:** We included patients who met criteria for probable AIE (2016 degrees), and evaluated in 18 centers of BrAIN network. Clinical, epidemiological, and laboratorial diseases were collected. Antineuronal antibodies were detected using TBA, CBA and immunoblot in serum and LCR, antibodies against ZIKV, DENV and CHIKV were detected by ELISA. Cohort was divided into 2 groups: seropositive encephalitis (SPE) and non-encephalitis

(NE) and frequency of viral serologies were compared. **Results:** Among 591 patients included in BrAIN cohort, serology for arboviruses of 526 patients were available. We found 89 SPE and 110 NE. Seropositive encephalitis showed the following antibodies: 57.3% anti-NMDA; 7.6% anti-LGI1; 5.6% anti-Caspr-2; 3.4% anti-GABA-B; 1.1% anti-GABA-A; 4.5% anti-AMPA; 1.1% anti-AQ4; 9% anti-MOG; 1.1% anti-IgLON5; 6.7% anti-GlyR and 4.5% others. We observed that patients with SPE had higher frequency of IgG CHIK (SPE 15.7% x NE 3.7%,  $p=0.003$ ). No differences were observed concerning the IgG frequency of DENG (SPE 44.3% x NE 41.8%,  $p=0.77$ ) and IgG ZIKV (SPE 32.6% x NE 27.3%,  $p=0.41$ ). In addition, frequency of triple-positive serology (IgG DENG, ZIKV and, CHIK) was higher among patients with AIE (SPE 11.2% x NE 2.7%,  $p=0.009$ ). **Conclusion:** Patients with AIE had higher frequency of IgG CHIKV antibodies compared with non-AIE. In addition, patients with AIE had higher frequency of IgG with no AIE. In addition, patients had higher frequency of IgG CHIKV, ZIKV and DENV, simultaneously. Because of seasonability of AIE, future studies should evaluate possible role of arbovirus in physiopathology of AIE.

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**Research funding:** Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP); University of Vienna, Fleury Medicina e Saúde.

002

## Should we test anti-mog in probable AIE? Results from a large Brazilian cohort

**Category:** Neurosciences.

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**Introduction:** Autoimmune encephalitis (AIE) is characterized by acute/subacute memory disorders, behavioral and cognitive changes, epileptic crisis and movement disorders, epileptic crisis, and movement disorders. The diagnosis requires an autoimmune panel against antineuronal antigens. Clinical manifestation anti-MOG include NMOSD, ADEM, myelitis, optic neuritis and encephalitis. Clinical findings of AIE and anti-MOG are similar, but treatment and prognosis are different. Anti-MOG is not often tested in probable AIE. **Objective:** This study determines incidence of anti-MOG seropositivity in patients with probable AIE. We also compare anti-MOG patients and clinical features of seropositive AIE. **Methods:** This was a retrospective study of of BrAIN cohort. Patients with probable AIE and samples of available serum were tested for anti-MOG using CBA. In addition, we compared patients with anti-MOG encephalitis and seropositive AIE. We considered a  $p < 0.05$  as significant. **Results:** Among 473 probable AIE, 251 for anti-MOG were tested. We observed 34 (13.54%) seropositive for AIE (24 anti-NMDAR; 3 anti-LGI1; CASPR-2; 2 GABA-BR; 4 GlyR and 3 others) and 13 patients with anti-MOG (5.1%). A patient presented antibodies anti-NMDAR and anti-MOG and they were excluded from the comparative analysis. Seven anti-MOG patient had criteria for ADEM and 2 had normal results in the brain magnetic resonance (BMR). One 42-year-old male patient previously considered as probable AIE with negative results was diagnosed retrospectively with anti-MOG (RNM showed Demyelinating disorders). We observed that patients with anti-MOG were younger (anti-MOG  $11.25 \pm 11.78$  years vs AIE  $26.06 \pm 23.35$  years,  $p = 0.042$ ) and patients with AIE had more often cognitive and psychiatry disorders (AIE 96.6% x anti-MOG 50%,  $p = 0.008$ ), reduction of level of conscience (AIE 62.1% x anti-MOG 97.7%;  $p = 0.027$ ), movement disorders (AIE 86.2% x anti-MOG 33.3%;  $p = 0.005$ ), and autonomic instability (EAO 34.5% x anti-MOG 0%;  $p = 0.027$ ). No differences were seen among groups concerning pleocytosis and finding in EEG. Brain magnetic resonance was more often abnormal in anti-MOG patients. **Conclusion:** We observed that 5% of patients with probable AIE had antibodies anti-MOG and 2% of them had normal BMR. Although anti-MOG and AIE patients had differences in clinical and imaging characteristics due to the high prevalence of anti-MOG antibodies in this cohort, we suggest that

these patients with probable AIE should be tested frequently for anti-MOR, mainly child patients.

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**Research funding:** Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP); University of Vienna, Fleury Medicina e Saúde.

## 003

# Effects of antiretroviral therapy in metabolism of adipose tissue

**Category:** Endocrinology and Metabolism.

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**Introduction:** White adipose tissue is of considerable relevance for metabolic homeostasis. Naturally, conditions that affect this cells may potentially lead to diseases, such as dyslipidemia and insulin resistance. In individuals living with HIV, lipodystrophy (loss and redistribution of body fat) is highly prevalent and this is associated with the use of antiretrovirals (ART). Concerning the new medications used for antiretroviral therapy ART, already provided by the Brazilian Public Health System, the association with lipodystrophy is still unclear. For medications that this association is confirmed, mechanisms in which adipocyte functions are changed and they and they are also not fully understood. This study sought to clarify effects of two antiretroviral therapies on metabolism of human fat tissue. **Objective:** To evaluate effects of antiretroviral in proliferation of mesenchymal stem cells, adipogenesis, browning, and lipolysis. **Methods:** Visceral white adipose tissue and subcutaneous of human were obtained from elective bariatric surgery. Part of fragments were placed in laboratory plaques and separated into three groups in which they will be treated for 7 days with vehicle, ART 1 (Dolutegravir, lamivudine, tenofovir) and ART 2 (Zidovudine, Lamivudine, Dolutegravir) for assessment of browning through expression of beige adipocytes by qPCR, and lipolysis by quantification of sobrenadant glycerol. The remaining tissue had mesenchymal stem cells isolated, placed on laboratory plaques and

separated into the same three groups for assessment of their proliferation after 3 days through the MTT assay. Adipogenesis were evaluated after 21 days through coloration with Oil Red and by marking expression of white adipocytes per qPCR. Results were analyzed statistically using ANOVA with repeated measures and post-test of Tukey type with significance level of 5%. **Results:** From MTT assays, both combination of antiretroviral reduced the proliferation of mesenchymal stem cells obtained in visceral adipocyte tissue deposits (n=7) and subcutaneous (n=7) compared with their respective control groups. Other methods are still under conditions and expectation is that ARTs promote higher lipolysis and greater adipogenesis of visceral adipose tissue due to the process of redistribution of body fat associated with the treatment. **Conclusion:** So far, we could observe reduction in proliferation of mesenchymal stem cells from visceral adipose tissue and subcutaneous. Therefore, showing one of the possible contributing mechanisms for lipodystrophy in patients treated for HIV. This study aims to continue identifying, at molecular and cellular level, effects of ARTs provided by Brazilian Public Health System to contribute to therapeutic strategies and improve quality of life and survival of patients.

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004

## Effects of FGF19 on metabolism: a review of the literature

**Category:** Endocrinology and Metabolism.

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**Introduction:** Obesity is gaining momentum given the increase of this condition around the world and high developmental risk of type II *diabetes mellitus*, cardiovascular disease among others. Currently, possible treatments may include bariatric surgery as an option that brings positive results. One of the mechanisms involved in relation of adiposity and improve of glycemic standard is related with hormone changes. Evidences suggest the involvement of Fibroblast

Growth Factor 19 (FGF19), a hormone produced in enterocytes that presents broad spectrum of functions, such as modulation of liver acid synthesis and metabolism. Obese individuals have lower serum concentration of FGF19 compared with eutrophic individuals, and in up to 7 days after bariatric surgery, the concentration of this hormone increases and is associated to diabetes remission. For this reason, this hormone increase can indicate a important involvement of FGF19 in the weight loss and improve of metabolic profile of these individuals. A better understanding of these hormones effect in the metabolism may contribute to their use as a therapeutic target in the future. **Objective:** To conduct a literature review to discuss the effect of FGF19 in metabolism, and mainly on their actions in adipose tissue and central nervous system (CNS). **Methods:** A search was conducted in published literature to collect original articles related to effects of FGF19 in metabolism, adipose tissue, and CNS in animal models. Relevant articles were selected, read, interpreted, and discussed to identify major studies already conducted on this topic. **Results:** FGF19 is a hormone that acts in different areas of the body. In this review, we observed that this hormone acts mainly in adipose tissue and CNS. Obese mice induced by hyperlipidemia or genetic diet (ob/ob) and treated with FGF19 or super-expressing this hormone presented weight loss, lower adiposity, increase of energetic waste, improve of glicemic profile, and increase of sensibility to insulin. Such approaches prevented and reverted diabetes of obese mice. In adipose tissue its actions is not completely clear, however, there are studies suggesting that this tissue stimulate the uptaking of glucose and UCP1 expression. This stimulation is characterized by browning in this tissue that could be explained the greater energy and reduced adiposity. A recent study suggested that antiobesogenic effects of FGF19 seem to occur regardless of UCP1 expression. However, in CNS, studies using intracerebroventricular injection of FGF19 suggest that this acts as an important mediator of homeostasis of glucose and body weight. This mediation effect is particularly observed because FGF19 promotes reduction of food intake and weight loss, increase uptaking of glucose and sensibility to insulin, and revert the diabetes of obese mice induced either by diet or genetically. **Conclusion:** FGF19 has an important hormonal action to several areas of the body and it acts as mediator in metabolism, especially in maintenance of body weight and glucose homeostasis. Therefore, FGF19 can be a hormone that is directly related with metabolic disorders resulting from obesity, such as diabetes, and it is a potential candidate for development of new therapies against these diseases.

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**Research funding:** Not applicable.



005

## Evaluation of impact of cell interactions with niches of bone marrow cells in regulation of proliferation and apoptosis of leukemic cells

**Category:** Hematology and Onco-Hematology.

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**Introduction:** Acute myeloid leukemia (AML) is one of the most common blood cancer in adults. This is characterized by expansion of abnormal blasts in bone marrow. The progressive expansion of these cells interfere and compromise the hematopoiesis process, as well as immunologic system. Regardless of the adequate treatment, part of the patients suffer relapse even after long periods of remission, and only 24% of patients achieve a five-year survival. The microenvironment of bone marrow is formed by heterogenous population of cells, blood veins, and molecules that are distributed into niches, and these endosteal and vascular niches are the most described in the published literature. We know that neoplastic cells can induce a remodeling of niches of bone marrow. However, how these interactions may occur and whether they collaborate for resistance of the treatment are unknown. **Objective:** This study investigated whether any cell migration and/or adhesion to standard exists among leukemic cells, endosteal niche cells, and bone marrow vascular cells, and whether these interactions change leukemic cells proliferation or apoptosis. **Methods:** We conducted triplicate experiments of co-culture of THP1 (leukemic lineage) with EA-Hy 926 (vascular niche lineage), and U2OS (endosteal niche lineage). In one of the analyses we obtained pictures by microscopy of co-culture in specific intervals of time for approximately 4 hours, which enabled to quantify migratory standard, and interaction of these cells. In posterior analysis we conducted Phosflow of ERK and AKT pathways, assessment of proliferation rate of fluorescence decaying of CFSE-APC Kit, and assessment of apoptosis rate through the exposition of serine fosfatidil (annexin V-FITC). **Results:** From

the microscopy pictures we could generate a video showing leukemic cells migration to niches, therefore, suggesting a chemo-attractive effect of niche cells in relation to leukemic cells. In Phosflow we observed a significant increase of AKT pathway in THP1 + EA-HY 926 and THP1 + U2OS triplicates *versus* THP1 control triplicate. In the assessment of cell proliferation, we did not identify statistically significant differences. We did not identify statistically significant differences in the assessment of apoptosis rate. **Conclusion:** Part of our results showed that there is migration standard of leukemic cells for the evaluated niches. However, we could not determine whether there is a change of cell proliferation and apoptosis rate in co-culture cells.

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**CAAE number:** Not applicable.

**Research funding:** *Amigos da Oncologia e Hematologia Einstein* (AmigoH) and *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) scholarship.

006

## Google Trends correlation and sensitivity for outbreaks of dengue and yellow fever in the State of São Paulo

**Category:** Preventive and Social Medicine.

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**Introduction:** Communicable diseases, such as dengue and yellow fever, are infections with great impact on the health of Brazilian population. Early identification of communicable disease outbreaks increases the possibility of spread control with the eventual use of prevention, isolation, and treatment interventions. The heterogeneity in efficacy of structures of epidemiological surveillance among the Brazilian states is a possible contributing factor for underreporting and inaccuracy of epidemiological reports. Considering these challenges, online tools have been suggested as complementary methods for identifying possible communicable diseases outbreaks. The National Contingency Plan for Dengue Epidemics, prepared by the Ministry of Health, also guides the use of the relative trend of rumors on Twitter, as indicators for specific actions in response. In this

sense, Google Trends could be useful in surveillance of dengue cases and yellow fever. This tool analyzes the popularity of topics to Google search, for a given term that is displayed on a scale from zero to one hundred, in which on hundred represents the largest search volume for the term, at a given location and period. Recent studies in a number of countries showed correlation between trends of topics and cases of dengue. **Objective:** To assess Google Trends accuracy for epidemiological surveillance of dengue and yellow fever, and to compare the incidence of these diseases with the popularity of its terms in the state of São Paulo. **Methods:** Results of Google Trends using the keywords “yellow fever” and “dengue” were compared with real incidence of these diseases from the Epidemiological Surveillance Center (ESC) “Prof. Alexandre Vranjac”, State of São Paulo, between 2017 and 2019. The correlation was calculated using the Pearson coefficient and crossed correlation. The accuracy of this tool for detecting epidemics was assessed by classifying epidemiological weeks, by the presence or absence of outbreaks, and trends in terms of Google Trends, by the presence or absence of warning signs. Based on ESC data, considered gold standard, we established as epidemic thresholds for the number of cases with the diseases. **Results:** There was significant statistically correlation between studied variables for both diseases, with Pearson coefficient of 0.91 for dengue and 0.86 for yellow fever. We identified correlation for up to 4 weeks of anticipating for temporal series. A sensitivity of 87% and 90%, and a specificity of 69% and 78% were identified for dengue and for yellow fever, respectively. **Conclusion:** The study showed a significant correlation between the data generated by the Google Trends tool and the incidence of dengue and yellow fever in the state of São Paulo. in the weekly period evaluation. **SGPP number:** Not applicable. **CAAE number:** Not applicable. **Research funding:** Not applicable.

007

## Assessment of cytotoxic/cytostatic activity in poison of *Ctenus medius* and *Enoploctenus sp* on neoplastic cell lineages

**Category:** Pharmacy.

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**Introduction:** Chronic myeloid leukemia corresponding to 15-20% of leukemia in adults. This condition manifests early in childhood and affects patients with mean age of 10 years. This disease prevalence in occidental world has growth. Acute lymphoblastic leukemia (ALL), other neoplasia evaluated in the study, corresponding to approximately one fourth of malignancy in pediatric age group, and the most common cause of childhood cancers. The incidence of ALL has growth approximately 1% per year, with 5-year survival rate in 85-90% of cases. In this way, to seek for new therapeutic changes is essential. This study aimed to identify the presence of cytotoxic/cytostatic activity in poison of *Ctenus medius* and *Enoploctenus sp* species on the K562 neoplastic cells lineages (chronic myeloid leukemia) and NALM-6 (acute lymphoblastic leukemia) cultured *in vitro* and treated with isolated toxins. Species were chosen for belonging to *Ctenidae* subfamilies that poison present proteolytic proprieties, hyaluronidase and phospholipase action, and pro-inflammatory. Antineoplastic activities were already reported in poison of other position, however, never to ctenidia family. **Objective:** To evaluate the presence of cytotoxic /cytostatic activity in poison of *Ctenus medius* and *Enoploctenus sp* species. To purify and characterize toxins of poison regarding the possible cytotoxic or cytostatic action. To identify presence of apoptosis or necrosis in neoplastic cell lineages cultured *in vitro* and treated with isolated toxins. **Methods:** NALM-6 and K-62 cell lineages were thawed and cultured. After reliability validation higher than 95% using the exclusion method by Trypan blue, cells were distributed in cell cultured plaques (96 or 24 wells) in density (number of cells/mL) according to the need of each essay. The position of the *Ctenus medius* e *Enoploctenus sp* spiders were extracted by electrostimulation. After extraction, poisons were centrifugated and storage. For sterilized use, toxins are filtrated. Cells were incubated with toxins in µg/mL concentrations during 24 and 48 hours. Cytotoxic potential of toxins is measured through tests of cell reliability based on reduction of 3-4.5-dimethylthiazol-2-yl-2.5 diphenyltetrazolium bromide (MTT) with reading conducted in spectrophotometer (Varioskan). The calculus is conducted based on curve values of absorbance of each one of cell lineages in polynomial regression. Confirmed the activity in one of the fractions, a series of liquid chromatography will be conducted to identify fractions with antineoplastic activity. **Results:** We identified activities in three most titled concentrations (0.16mL, 0.18mL, 0.20mL and 0.18mL, 0.20mL, 0.22mL) for both NALM-6 and K562 cell lineages, respectively. The study continues and the next stage consist in identifying fraction with

antineoplastic activity. **Conclusion:** So far, this study presented promising results for antineoplastic activity in most of concentrations. Further experiences must be conducted to understand which fraction of involved toxin and type of cell death provoked.

**SGPP number:** 3946-1.

**CAAE number:** Ethics committee waived consent for this study given the use of commercialized cell lineages and no participation of human beings.

**Research funding:** Scientific scholarship by *Instituto Israelita de Ensino e Pesquisa Albert Einstein*; *Associação Brasileira Gerenciadora de Projetos* (ABGP) scholarship funding.

008

## Molecular signatures and response to lung cancer therapies

**Category:** Oncology.

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**Introduction:** Small Cell Lung Cancer (SCLC) is a prevalent disease among smokers, and this is responsible for high number of deaths. Nicotine acts as a mutagenic agent, increasing the mutation agent, the load of mutation in pneumocytes, and may result in neoplasia. In this project the mutations of profile will be analyzed in SCLC samples and from this initial assessment we will discuss the effects of molecular signatures on the responses of patients receiving treatment. **Objective:** This project will analyze molecular signatures of SCLC and their association with response to treatment with radiotherapy combined with immunotherapy in SCLC. **Methods:** This was a cohort study conducted with samples of patients with SCLC who received combination of immunotherapy and radiotherapy. We selected tumoral regions preserved in paraffin, followed by obtaining of sample with scalpel following by cleavage of tissues identified as tumor. The subsequent extraction of DNA will be done using AllPrep DNA/RNA mini kit (Qiagen, Brazil) and a qualitative assessment will be conducted with Nanodrop spectrophotometer (Thermo Fisher Scientific, Massachusetts). To study mutation in tumoral samples we used a panel covering genomic regions chosen according with the literature and database

of Catalogue of Somatic Mutations (COSMIC: <https://cancer.sanger.ac.uk/cosmic>). To design the evaluated panel, the frequency of each mutation, type of mutation, region of gene, as well as chromosomal position, namely hotspot region, were those selected. For sequencing of DNA the Ion Torrent technology will be used and analysis of results of sequencing will be using the Ion Reporter platform (Thermo Fisher Scientific, Massachusetts). **Results:** We expect to find a relationship between presence of genetic changes and efficacy of treatment of SCLC with association between immunotherapy and radiotherapy. So far, we already acquired paraffin samples of lung collected from the biopsies, and these samples include between 30% and 90% of tissue identified such as tumor. A focused panel was designed based on our interest, we evaluated hotspots of 11 target genes. Because this is small panel this will allow to analyze samples with small input of DNA, allowing sequencing of higher depth. From the beginning, DNA extraction technique was standardized of preserved samples in paraffin and extracted genetic material in adequate concentration. However, we will include more subjects in the study and analyses of mutation in tumoral tissue will begin in the end of the period of inclusion. **Conclusion:** DNA extraction technique of tumoral material preserved in paraffin was evaluated and results were satisfactory. A panel for target genes sequencing, relevant for SCLC, was built by group and analyses will occur when a greater number of patients will be included in the study. **SGPP number:** 3820-19.

**CAAE number:** 19905419.6.0000.0071.

**Research funding:** Not applicable.

009

## Assessment of relationship between score of lower limbs and surgical endpoints of lower limbs revascularization

**Category:** Surgery.

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**Introduction:** Calcium score (CS) of coronary arteries is a form of measure that aim to stratify risk of patients with cardiovascular disease, already proved the direct relation proportionally between vascular calcification



(VC) of coronary, and endpoints such as mortality and future cardiovascular events. The specific analysis of VC in lower limbs was conducted in few studies. One of these studies observed the amount of calcification in lower limbs in computed angiotomography (angioCT) of patients of peripheral obstructive arterial disease, (POAD) that has direct relation with progression of critical ischemia. We observed that this group of patients, when association with VC, present severity of symptoms. Other studies observed that patients with CS in lower limb presented more number of coronary events and deaths. Individuals with POAD are within the population of patients that have VC in lower limbs and had tendency to chronic arterial occlusive disease and need of revascularization of limbs. There are no studies that evaluate the association between CS of lower limb and endpoints of revascularizations of limbs individuals with POAD. **Objective:** This study evaluates the association between the presence and quantity of vascular calcifications in lower limbs, through CS of lower limb, and surgical endpoints of patients with POAD who underwent revascularization or revascularization attempt to lower limbs by open and endovascular technique. **Methods:** Patients who underwent revascularization or attempted to lower limbs revascularization were studied retrospectively (open and endovascular technique) at the *Hospital Municipal Vila Santa Catarina* and *Hospital Israelita Albert Einstein* between 2021 and 2018. Participants conducted angioCT of lower limb before revascularization. Data on demographics, comorbidities, use of medications, surgery conducted, and endpoints after the surgery were collected from medical records. Surgery endpoints were analyzed: 1- possibility of revascularization of target artery; 2-patency of revascularization until discharge; 3-amputation within the first 30 days; 4-occurrence of surgical, and clinical complications after the surgeries. **Results:** Mean age of treated patients was 66 years, most of them were men and had hypertension and diabetes. We conducted surgeries by endovascular pathways, open, and hybrid. We observed higher occurrence of VC in the aorta, followed by the iliac segment, whereas the lower was in infrapopliteal disease. There were no deaths after surgery. During the follow-up period of 1 year occurred 10 deaths and 37 amputations. There was immediate technical success in 95% of interventions, and revascularizations by open technical presented higher rates of technical success in relation to endovascular. The patency in 30 days was 73%, in 6 months (52%) and in 1 year (33%). There was no statistically relationship between CS of analyzed segments and endpoints of IAM, amputation, patency, and technical success during the period of follow-up. A tendency was found in total CS to be higher in patients who had amputation after surgical

procedures. **Conclusion:** Calcium score, measure that stratifies vascular calcification, was quantified in this study using angioCT, obtained through data collection of this retrospective and single centered study. The CS of operated on limb has relevant relationship with clinical severity of patient, in such a way that, the greater the value the higher chance of death in post-operative period.

**SGPP number:** 3402-18.

**CAAE number:** 94178818.5.0000.0071.

**Research fundig:** Not applicable.

010

## Brazilian autoimmune encephalitis network (BrAIN)

**Category:** Neurosciences.

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**Introduction:** Autoimmune encephalitis (AIE) constitutes a group of inflammatory diseases characterized by prominent neuropsychiatric symptoms and it is associated with antibodies against proteins of neuronal cell surface. Patient with AIE develop a variety of acute/subacute clinical manifestations including behavior/psychiatric symptoms, convulsions, memory deficits, reduction of level of conscience, autonomic disorders, and movement disorders. In countries with high income, the incidence ranges from 5 to 10 cases/100,000 inhabitants and this disease affects patients from all ages and represents significant load for patients, families, and society. No reliable data exist on incidence and clinical features of encephalitis in developing countries. **Objective:** To determine clinical and epidemiological profile of AIE in the Brazilian population. **Methods:** This study is part of the Brazilian autoimmune encephalitis network (BrAIN) that is a prospective study on AIE involving 17 centers from different regions of Brazil and the Medical University of Vienna. Inclusion criteria are possible AIE based on degrees and the agreement with consent term. Demographic data, clinical presentation, presence of neoplasia and treatments were collected by the assistant physician using the survey management platform, namely REDCap. Analysis of CSF, PCR



viral panels, EEG, and head MRI were conducted. CSF and serum samples were tested using TBA for intraneuronal and surface antigens, followed by CBA or immunoblot. **Results:** A total of 592 patients were included throughout 36 months of study (mean age  $37.5 \pm 24.96$  years; 54.4% were women). Those who met the inclusion criteria for AIE were 468. Of these 126 (26.7%) were seropositive (SP) (mean age  $27.0 \pm 21.24$  years; 62.2% were women) and 52 (9.1%) were seronegative (SN). The most common antibodies were Anti-NMDAR (64, 46.7%), anti-GAD (17, 12.4%), anti-MOG (11, 8.0%), anti-LGI1 (10, 7.3%), anti-GlyR (8, 5.8%) anti-Caspr2 (8, 5.8%), anti-AMPA (4, 2.9%, and anti-GABA-BR (3, 2%). No differences were found between SP and SN in relation to sex (62.5% vs 41.7%,  $p=0.1$ ) and age ( $27.3 \pm 21.04$  vs  $34.5 \pm 26.09$ ,  $p=0.55$ ). Clinical manifestations were behavior/cognition (SP 85.2% vs SN 76.6%,  $p=0.07$ ), movement disorders (SP 73.4% vs SN 29.8%,  $p=0.02^*$ ), and epilepsy (SP 68.8% vs SN 51.1%,  $p=0.31$ ). MNR abnormalities were found in 48% of SP patients and in all SN individuals. They were mesial temporal hyperintensities (SP 21.2% vs SN 38.3%,  $p=0.99$ ), cortical (SP 15.9% vs SN 46.8%,  $p=0.02^*$ ), white substance (SP 13.3% vs SN 29.8%,  $p=0.051$ ). The pleocytosis was most frequent in SN patients (47.88% vs 78.7%,  $p=0.01^*$ ). No differences were found in the incidence of neoplasia (SP 10.4% vs SN 15.2%,  $p=0.99$ ). **Conclusion:** In Brazil, anti-NMDAR is the most common AIE, followed by anti-GAD, anti-Lgl1, and anti-Caspr-2. We observed an unexpected higher incidence of anti-GlyR. In this study population, SP patients have more movement disorders than SN individuals, and frequency of malignancy was low.

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**Research funding:** Fleury Medicina e Saúde; Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP); University of Vienna.

011

## Modulation of PD-L1 and PD-L2 co-receptors in HL-60 acute myeloid leukemia due to BRD4 and mTOR inhibitor

**Category:** Hematology and Onco-Hematology.

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**Introduction:** Acute myeloid leukemia (AML) is an aggressive hematologic cancer that patients often do not respond well to the chemotherapy. For this reason, it is important to develop new therapeutic options for these patients. The appearance of BRD4 inhibitors as a treatment option for AML was a remarkable discovery, however, treatment resistance among patients has been observed. Previously, our group have seen that inhibition of the mTOR pathway is able to break down BRD4 inhibitor resistance. In addition to this ability, in recent years, there is the central role that immune checkpoint co-receptors have been gaining as new therapeutic targets. This study investigates the modulation of immune checkpoint co-receptors in AML, from the combined treatment with BRD4 and mTOR inhibition. This research sought to contribute to broaden the therapeutic options for AML and to improve the understanding of the mechanisms of regulation of immune checkpoint co-receptors.

**Objective:** To investigate the modulation of immune checkpoint co-receptors in strains of AML using mTOR and BRD4 inhibition. **Methods:** We used HL-60 strains, grown in RPMI 1640 medium supplemented with 10% fetal bovine serum, and maintained at 37°C and 5% CO<sub>2</sub>. The JQ1 (200nM) was adopted for treatment as a BRD4 inhibitor and Rapamycin (50nM) as an mTOR pathway inhibitor. Some patients were treated with both JQ1 and Rapamycin, and this treatment was named as Combo. To evaluate gene expression, both qPCR and flow cytometry were conducted using samples that were labeled with anti-PD-L1 and anti-PD-L2 to test protein expression. **Results:** We analyzed PD-L1 and PD-L2 gene expression from experiments with DMSO (vehicle), JQ1, Rapamycin, and the combo treatments. Each of these treatment conditions were quadruplicated. A modulation in PD-L1 expression was observed, those treated with JQ1- and the combo had a decrease in the expression compared with those who underwent treatment with DMSO. This modulation was confirmed in protein expression using flow cytometry with each condition triplicated and labeled with anti-PD-L1. We performed qPCR for the four treatments, each one of them quadruplicated, and there was no amplification of the PD-L2 gene in any of treatments. This result was confirmed using flow cytometry with anti-PD-L2 labeling. **Conclusion:** Although there was no statistically significant difference between treatments, we noticed a tendency of modification in PD-L1. This trend was confirmed by the protein analysis, which had a large statistical difference among other treatments compared with DMSO. This result is promising for new

therapeutic options, because it shows a new possibility to modulate the expression of PD-L1 and turns the tumor more susceptible to the actions of the immune system. As for the results of PD-L2 expression, it is also important to know that there is no expression of this gene in AML cell lines, because this eliminates a possible target for ICB (immune checkpoint blockade) in this type of cancer.

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**CAAE Number:** Not applicable.

**Research funding:** *Scientific Initiation Scholarships, Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP).*

012

## Major psychotherapy approaches for the treatment of post-traumatic stress disorder (PTSD): a systematic review

**Category:** Psychiatry.

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**Introduction:** Post-traumatic stress disorder (PTSD) is a chronic psychiatric condition that may occur after an experience of an event that threatens life or physical integrity of an individual, which may also affect those who witnessed the event. The diagnosis of the condition is based on the criteria established by the American Classification of Psychiatry (DSM-5) and this is established within a minimum period of thirty days after the event. The following symptoms may be presented: re-experiencing or reliving the event, which can be in the form of flashbacks, intrusive thoughts, and real nightmares, as well as avoidance behavior towards specific elements, people, or places that the individual associates with the traumatic event. In addition, this condition is also associated with negative changes in mood or cognition, the feeling of being guilt or having shame over the event that is cultivated by a negative self-concept or view of the world. These symptoms may lead to significant emotional desensitization, hypervigilance,

and may also cause sleep disturbances and irritability. These symptoms may cause functional loss or represent suffering to individuals, and these features may be reported by the patient or they can be identified by health professionals during the treatment for PTSD. The psychotherapies available for the treatment of this disorder may include: cognitive behavioral therapy, procedural cognitive therapy, cognitive therapy, interpersonal therapy adapted for PTSD, Eye Movement Desensitization and Reprocessing (EMDR), brief eclectic psychotherapy, and narrative exposure therapy. Despite the growing consensus on the use of trauma-focused therapies, the existing guidelines to treat the condition recommend a variety of different types of psychotherapies. There are no consensus in the comparison of NICE (UK's National Institute for Health and Care Excellence), the American Psychological Association, the American Psychiatric Association's Australian Guidelines for Treatment of ASD and PTSD with other guidelines in the field of psychiatry. **Objective:** To conduct a systematic review of the literature to compare and determine the existence of psychotherapeutic treatments that are more effective in the control of post-traumatic stress disorder. The adherence for each type of treatment will be also evaluated. **Methods:** A search in PubMed, Lilacs, Cochrane, EMBASE, Web of Science and Psycinfo was conducted using the following keywords "posttraumatic stress disorder OR post-traumatic stress disorder OR PTSD OR stress disorder AND (psychotherapy OR therapy OR psychological treatment)". Inclusion and exclusion criteria were applied to the retrieved articles. The following criteria, developed by the University of Oxford, England, the PRISMA (Transparent Reporting of Systematic Reviews and Meta-Analyses) and the CASP (Critical Appraisal Skills Programme) will be considered to select articles. The selected papers will be critical read and relevant data will be searched to respond to the questions of the objective of this study. **Results:** A total of 4,383 articles were retrieved. After applying the inclusion criteria, 465 papers were included. Of these, 75 articles were selected after applies the PRISMA and the CASP. Articles selected will be read and reviewed by researchers. **Conclusion:** This is an ongoing study.

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**CAAE Number:** *Universidade Federal de São Paulo (UNIFESP): 43283058830.*

**Research funding:** Not applicable.

013

## Fat transplantation leads to restoration of fertility in BTBR<sup>ob/ob</sup> mice

**Category:** Nephrology and Solid Organ Transplantation.

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**Introduction:** BTBR<sup>ob/ob</sup> mice are knockout animals for the leptin gene and they are characterized by being overweight, hyperphagic, hyperglycemic and subfertile animals. These mice represent a robust model to study diabetic kidney disease. The phenotype can be reversed through leptin hormone replacement or fat transplantation, however, the adequate procedures to ensure the effectiveness of the procedure are still lacking in the published literature. **Objective:** To describe safety and efficacy of a fat transplantation protocol and its impact on metabolism and improvement of functional and histological parameters, such as pancreas, kidney, ovary in an animal model. In addition, to evaluate the impact of the protocol on the restoration of fertility and the increase of the BTBR<sup>ob/ob</sup> mouse population. **Methods:** Female and male BTBR<sup>ob/ob</sup> mice with 4-6 weeks of age were injected with inguinal white fat and brown fat collected from lean mice. Once the fat was removed, a fat pool was created until a concentration of 95 mg of fat was reached per gram of animal's weight. Animals were followed-up to assess weight, blood glucose, leptin concentration, as well as histological parameters up to the age of 24 weeks. **Results:** Fat transplantation was effective in reducing weight gain in ob/ob females ( $p < 0.001$ ) and in controlling blood glucose in both males and females ob/ob mice. In addition, albumin-to-creatinine ratio (ACR) levels potentially decreased and leptin levels potentially increased. A reduction was observed of the area of the pancreatic islets ( $p = 0.0087$ ). The levels of total caspase-3 and cleaved caspase-3 in ovarian tissue showed a significant decrease. When mice were crossbred with heterozygous animals, there was a 93% increase in the number of ob/obs mice in the vivarium. **Conclusion:** Fat transplantation is an effective and safe procedure for BTBR<sup>ob/ob</sup> mice, and it contributes to the reduction of weight gain and restoration of glycemia in these animals. The procedure restores fertility in BTBR<sup>ob/ob</sup> mice and led to a 93% increase in the number of ob/obs in the vivarium.

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**CAAE Number:** Not applicable.

**Research funding:** The *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP).

014

## Cost of treating bladder cancer treatment based on stage in the Brazilian Public Health System

**Category:** Urology.

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**Introduction:** Bladder cancer is the 9th most frequent neoplasia in the world. The estimated annual cost to treat cancer disease in Brazil is almost 20 billion (R\$). However, so far there is a scarcity of data on health-related costs in the country. **Objective:** This study determines the cost of treating bladder cancer based on the stage of the disease in patients who underwent treatment in the Brazilian Public Health System (SUS – *Sistema Único de Saúde*). **Methods:** To evaluate the costs associated with bladder cancer treatment, data from patients treated for urothelial carcinoma of the bladder from 2019 to 2020 in a public health service were collected. The health facility's finance department calculated costs related to outpatient evaluation, hospitalization, complementary exams, materials, medications, and professional fees. Treatment protocols followed international standards and TNM classification for staging. **Results:** A total of 107 patients with bladder cancer were analyzed. Their treatment had a total cost of R\$ 5.671.042,70 and a median cost of R\$ 53.000,04 per patient in the studied period. The median costs were progressively higher for bladder cancer stage I, II, III and IV. Of patients, 65% had stage I disease while 35% had more advanced disease. In stage I, each patient costs to the public health system about R\$ 40.000.00 per year. In case of complications and additional procedures, the annual cost is around R\$ 83.360,40. Treatment of the more advanced stages (II, III, and IV) tends to be more expensive from the start. **Conclusion:** Considerable high costs associated with bladder cancer treatment have been observed. These values are about 4 to 12 times higher than those reported for the treatment of other frequent cancers. The knowledge of costs in the SUS is fundamental in the formulation of coherent public health policies.

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**Research funding:** Not applicable.



015

## Accuracy of Teledermatology for skin neoplasms

**Category:** Dermatology.

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**Introduction:** Teledermatology has been highly relevant to health care, especially during the SARS-CoV-2 pandemic. This approach has the potential to improve access to specialists, reduce health care costs, and improve the quality of care. For this reason, to evaluate the accuracy of this medical modality for diagnosing skin diseases is crucial, as this knowledge may contribute to the dermatologist's decision to adhere or not to Teledermatology. Most studies in Teledermatology have found accuracy of 75% to 80% compared with face-to-face consultations. The present study seeks to determine the accuracy of this modality for the diagnosis of skin neoplasms, based on data collected from a number of patients. **Objective:** To determine the accuracy of Teledermatology to diagnose the 10 most frequent skin neoplasms by evaluating the agreement among the histopathological report, the diagnoses of dermatologists in face-to-face consultations, and Teledermatologists. To analyze the differential diagnoses of the lesions. **Methods:** The study was a retrospective cohort conducted in São Paulo where a project to use Teledermatology in primary care was developed between July 2017 and July 2018. This project is a partnership between the municipal government of the city and the *Hospital Israelita Albert Einstein*. Patients who were referred by the Teledermatologists to in-person dermatologist consultation (12,874 patients/16,777 lesions – Group 1) or lesions that required a biopsy (1,292 patients/1,912 lesions – Group 2) were selected. Subsequently, records with the 10 most frequent skin neoplasms within the population were selected. Of these, 803 were from the group 1 and 289 were from group 2. Diagnostic agreement among in-person dermatologists, Teledermatologists and biopsies was classified as complete (same ICD), partial (same neoplasm group, benign or malignant) and non-agreement. Result of agreements was expressed as percentages, and for complete agreement and complete plus partial agreement, Kappa coefficient was calculated. Since histopathological diagnosis is the

gold standard, the accuracy of Teledermatology in this study was determined based on the agreement with this diagnosis. **Results:** Comparing Teledermatology with the histopathological report, the mean total agreement was 54% (157/289; Kappa = 0.087). Agreement was higher in cases of malignant neoplasms, particularly in the value for Melanoma, 88% (Kappa = 0.060). The comparison between Teledermatology and the in-person dermatologist showed an agreement of 61% (487/803; Kappa = 0.213) and the agreement was higher for benign lesions. Considering complete and partial agreement, the comparisons among Teledermatologists with biopsy and in-person dermatologists, the mean values were 70% (Kappa = 0.529) and 81% (Kappa = 0.582), respectively. **Conclusion:** This study showed a moderate accuracy of Teledermatology, and fair agreement between Teledermatologists and in-person dermatologists. The accuracy differed among skin neoplasms. This result reaffirms that Teledermatology, by storing and forwarding skin images, can be an option for primary health care, particularly when the goal is to differentiate benign from malignant lesions in order to choose from an expectant or active management.

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**CAAE Number:** 97126618.6.0000.0071

**Research funding:** Not applicable.

016

## Clinical evaluation and laboratorial analysis of newborns with ABO blood incompatibility reactions

**Category:** Pediatrics.

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**Introduction:** Newborns with blood groups A or B children of mothers with blood group O have an ABO incompatibility reaction. The diagnosis of ABO incompatibility in newborns is made by detecting red

blood cells sensitized by maternal immunoglobulins. The Coombs test identifies the presence of maternal immunoglobulin, however, they do not determine the specificity of this antibody. This specificity can be done by using the Eluate test that is more sensitive compared with the Coombs test. Determination of blood group of mother and child is performed universally, as is the Coombs test when it is indicated. In some services, the Eluate test is performed even when the result for the Coombs test is negative. Despite the high incidence of ABO incompatibility system (20% of newborns), the incidence of hemolytic disease of newborn (HDN) due to the ABO incompatibility affects from 0.3 to 0.8% White individuals compared with 5% in Black and Asian people. The prevalence of clinically significant hemolysis is low and clinical picture is mild. The HDN is the leading cause of neonatal jaundice and this is identified by measuring total and fractional bilirubin, hemoglobin, hematocrit, and reticulocytes. The early identification of hyperbilirubinemia is of profound importance for the initiation of treatment with phototherapy, as indicated according to Bhutani nomogram. The HDN due to the ABO incompatibility is common in hospital clinical practice and there are still controversies in published literature regarding the positivity of immunological tests and their correlation with hemolysis in newborns. To understand the clinical-laboratorial evolution of patients with positive Eluate test and the management of patients with HDN for ABO incompatibility system may enable to optimize therapies and rationalization of the need for tests during hospitalization in maternity hospitals. This may turn hospitalization safe for the patient and may improve cost-effectiveness in the health system. **Objective:** To describe clinical, laboratory, treatment, and outcomes of newborns with ABO incompatibility and with positive Eluate test. **Methods:** This retrospective cohort will evaluate medical records of newborns with a minimum gestational age of 35 weeks and positive Eluate test of those who were admitted to the maternity ward of a public hospital in the city of São Paulo. **Results:** Expected results include favorable clinical course for most patients with low incidence of hemolytic disease, low bilirubin levels, mild clinical jaundice, little need for phototherapy, and no negative outcomes. **Conclusion:** It is expected that, after evaluation of the data, it can be concluded that most patients with ABO incompatibility and positive Eluate test do not have hemolytic disease and present low bilirubin elevations. In addition, the majority of patients is expected to not present indication for phototherapy. This would explain why the Eluate test does not need to be used routinely for all patients with ABO incompatibility, which restricts the

use of clarifying the diagnosis of jaundice in the first days of life. The appropriate use of the Eluate test brings benefits to the patient, due to the reduced need for test collection, shorter hospitalization time, and lower cost to the health system through the rational use of resources.

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**Research funding:** Not applicable.

017

## Microbiome test as diagnostic tool for fibromyalgia

**Category:** Rheumatology.

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**Introduction:** Fibromyalgia is an extremely prevalent syndrome characterized by chronic widespread pain that is typically accompanied by other manifestations such as fatigue, cognitive symptoms, and insomnia. Despite recent advances that have highlighted changes in the central nervous system, peripheral nervous system, inflammation, autoimmunity, and genetics that lead to an imbalance in pain control mechanisms. To date, this syndrome has diverse pathophysiological aspects that are not fully understood. The role of the central nervous system has gained greater prominence due to the evidence derived from functional neuroimaging tests. However, so far there is no imaging or laboratory test to help in the diagnosis of the disease. Recent studies demonstrating specific alterations of the intestinal microbiome in patients with the disease represent a possible advance to clarify in details about this condition pathophysiology and, eventually, its diagnosis. The gut-brain axis has been proposed as a bidirectional communication system that involves neuronal, endocrine and humoral mechanisms. This system allows the development of theoretical hypotheses on the influence of the gut microbiota on the central nervous system and, consequently, on the pathophysiology of fibromyalgia. Given the great diversity in the profile of microorganisms in different populations, it is essential to evaluate if changes in the microbiome are also observed in the

Brazilian population and to investigate the correlation of these changes with clinical aspects of the disease, and their role in the diagnosis of fibromyalgia. **Objective:** To evaluate the stool microbiome profile of Brazilian patients diagnosed with fibromyalgia and compare this profile with patients with chronic osteoarthritis-related pain, and with healthy individuals. **Methods:** This pilot study includes 150 women divided into three groups. The first group includes those diagnosed with fibromyalgia and who completed the Widespread Pain Index and Severity Score questionnaires, the second group those with knee or hip osteoarthritis and who completed the WOMAC questionnaire, and third group composed by healthy controls. All patients will be questioned about their medical conditions and eating habits. Subsequently, they will receive a kit to collect stools. From the material, a microbiota analysis will be performed with DNA research and taxonomic classification of the microorganisms present, which is a process that will be carried out in partnership with the company Neoprospecta (Florianópolis, SC, Brazil). Data obtained about the microbiome will be used to establish correlations with the intensity of symptoms and other concomitant clinical manifestations of fibromyalgia. **Results:** We expect results that are compatible with those reported by previous studies in other countries, that is, to find a characteristic change in the microbiota of patients with fibromyalgia. Similarly, a reduction in the diversity of bacteria found in the microbiota of patients is expected compared with finding from controls, as well as results associated with depletion of certain species such as *F. prausnitzii* and *B. uniformis*, depending on the studied group. Finally, from the different composition of the microbiota we expect to establish a relationship with the level of symptoms reported by patients, as well as their concomitant clinical conditions. **Conclusion:** The study will enable to provide some clarifications about the pathophysiology of an extremely prevalent disease and may add to the efforts to improve the quality of life in patients affected by the syndrome. In addition, this investigation may contribute in some extent to obtain future perspectives for development of diagnostic support tools, medical conduct guidance, and prospections for new treatments. **SGPP Number:** 4088-20.

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**Research funding:** Funded by ERETZ (Innovation Department at *Sociedade Beneficente Israelita Brasileira Albert Einstein*).

018

## Association between meconium ileus occurrence and health outcomes among individuals with cystic fibrosis

**Category:** Pneumology.

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**Introduction:** Cystic fibrosis (CF) is a genetic exocrinopathy of autosomal recessive inheritance with multisystemic involvement. Meconium ileus is one of the earliest manifestations of CF that appears in the perinatal period and may affect about 15-20% of individuals with the disease. The impact on health outcomes of CF is still uncertain, and this probably distinct in different health care resource settings. This study seeks to compile data from the Brazilian's reality for a better understanding of the impact of meconium ileus in individuals with CF. **Objective:** To evaluate the impact of the occurrence of meconium ileus on clinical outcomes of Brazilians with CF. **Methods:** This was a retrospective cohort study including information from patients with CF who were treated in Brazil. Data available in the database were collected from the Brazilian Cystic Fibrosis Registry. This database includes data from 5,128 patients from 53 referral centers throughout Brazil. We evaluated demographic information (gender, age, race, region of origin), data on diagnosis and occurrence of meconium ileus (clinical or surgical treatment), spirometry data (forced expiratory volume in one second - FEV1), anthropometric, microbiological, and survival data. The impact of meconium ileus diagnosis on spirometry and anthropometric data was evaluated using age-adjusted mixed-effects models. Patient survival rate was analyzed using Kaplan-Meier curves, Log-Rank test, and Cox proportional hazards models. **Results:** Of 5,128 patients included in the Brazilian Cystic Fibrosis Registry, 369 (7.2%) were diagnosed with meconium ileus in the

neonatal period. The occurrence of meconium ileus was associated with lower Z-score means for weight (-0.28,  $p=0.002$ ), and height (-0.26,  $p=0.002$ ) in childhood and adolescence. Among patients <18 years old, the percent predicted FEV1 values were on average 10% lower in those with a history of meconium ileus ( $p=0.003$ ). A higher prevalence of *P. aeruginosa* colonization was observed in the group with a history of meconium ileus (272 [79.1%] vs 2,818 [64.5%];  $p<0.001$ ), including higher frequency of mucoid phenotype of *P. aeruginosa*, and even before 5 years of age. Survival was significantly shorter in the group with a history of meconium ileus ( $p<0.001$ ). The Cox regression model revealed that the impact remained significant when controlled for age at diagnosis, region of origin, genotype outcome, and mucoid *P. aeruginosa* colonization (HR=1.55 CI 1.05, 2.28,  $p=0.027$ ). **Conclusion:** The occurrence of meconium ileus in the neonatal period is associated with worse health outcomes in individuals with CF including anthropometric, microbiological and pulmonary function aspects, with significant impact on survival.

**SGPP Number:** 4332-20.

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**Research funding:** The Brazilian Cystic Fibrosis Registry is funding by the *Grupo Brasileiro de Estudos de Fibrose Cística*.

019

## e-NaturezaST: a study on connection and engagement with nature by medical and nursing students

**Category:** Health Education.

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**Introduction:** The intimate interaction of the human species with nature has been marked throughout history, and it has been changed over the centuries. The first industrial revolution and the urbanization process represented a major change in the relationship of human with the environment, and this has presented significant impacts on the quality of life, and a series of negative results. These impacts and results bring the need to search ways to mitigate harmful effects that have arisen.

In addition, there is the need to create approaches to improve the relationship of humans with nature, given that human have improving the perception of urban green areas as spaces to live and relate with, not only due to the natural determinants, but also because of cultural, economic, and social aspects. In this scenario a greater concern of the population with health and well-being is also evident. There is an exponential increase in the demand for green areas in cities both for nature contemplation and leisure activities. The debate on the interface of health and environment is becoming essential and this is accompanied with the assimilation of environmental care as a promotional approach for individual and collective health. **Objective:** To determine the connection and engagement with nature of medical and nursing students from a higher education institution located in the city of São Paulo, Brazil. To investigate how students, in their urban context, perceive their engagement with nature. **Methods:** This is a descriptive-exploratory study with a quantitative approach. The investigation will be conducted in a private higher education institution located in the city of São Paulo, SP, Brazil. Data on sociodemographic data will be collected using the following instruments, Nature Connection Scale, Nature Kinship Scale, Nature Engagement Questionnaire. **Results:** The expected result is that nursing and medical students express concern about the environment and understand the importance of nature to human well-being. However, we believe that students will not show strong engagement to deepen their perceptions of nature as a tool for care and health. **Conclusion:** This is an ongoing study.

**SGPP Number:** 4355-20.

**CAAE Number:** 40111220.4.0000.0071.

**Research funding:** Not applicable.

020

## Regulatory actions of mesenchymal cell therapy and the use of empagliflozin on the expression of ckit+ cell population derived from mice kidneys

**Category:** Nephrology and Solid Organ Transplantation.

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**Introduction:** The prevalence of *Diabetes Mellitus* is epidemic and this condition affects about 9.3% of the global population. Diabetic kidney disease (DKD), however, affects about 30%-40% of individuals with diabetes and it is the main etiology of chronic kidney disease (CKD) worldwide. Besides the fact that DKD is an important contributor to the increase of the global disease burden, cardiovascular morbidity and mortality are higher in case of DKD that progresses to CKD. The DKD is characterized by glomerular hyperfiltration, progressive albuminuria, reduced glomerular filtration rate, and CKD. Metabolic changes such as glomerular hypertrophy, glomerulosclerosis, tubulointerstitial inflammation, and fibrosis are also part of the DKD onset and progression. Among the available treatments, the use of empagliflozin, a kidney sodium-glucose cotransporter 2 inhibitor, may promotes glycemic control. This inhibitor reduces the tubular reabsorption of glucose, increases its excretion, and promotes an environment of less oxidative stress, inflammation, and fibrosis. Based on the premise of the reparative potential of mesenchymal stem cells, their use is already a reality in gold standard protocols of complementary cell therapy. The cellular immunomodulatory and reparative behavior allied to anti-oxidative, anti-fibrotic, and anti-apoptotic effects has been studied and their application in animal models of CKD shows promising results. At the molecular level, the c-kit+ proto-oncogene is a transmembrane receptor tyrosine kinase whose extracellular portion is able to bind to the stem cell factor. The clonogenic, multipotent, and self-renewal capacity of these cells has already been proven in other investigations. Studies in animal models indicate that c-kit+ cells represent a population of stem cells and their potential for action in the recovery of injured renal tissues is under establishment. **Objective:** To determine whether mesenchymal cell therapy or the use of empagliflozin promotes any regulation on the expression of multipotent ckit+ cell populations in the kidney of BTBR ob/ob mice with DKD dysfunctions. **Methods:** BTBR ob/ob leptin knockout mouse is the most robust model of progressive DKD. Therefore, this animal use is necessary for experimental evaluation of the treatment modalities of this study. Four groups will be created, including male BTBR ob/ob mice, (n=6 animals/group). Each group will have a different treatment approach: (a) BTBR ob/ob will receive no treatment, (b) wild-type BTBR will receive no treatment, (c) BTBR ob/ob will receive treatment with empagliflozin, and (d) BTBR ob/ob will receive treatment with mesenchymal stem cell. At 10, 14 and 20

weeks, animals from each group will be euthanized and tissue samples will be obtained. Immunohistochemical (IHC) analysis and IHC quantification will be done using CellSens Software (Olympus). In addition, to have more subsidies to support quantitatively the analysis of the expression of ckit+ cell populations, we will employ quantitative PCR (qPCR) technique. Using the quantifications and statistical analyses two-way ANOVA test will be performed considering the variables time and treatment. **Results:** The use of therapies is expected to generate an increase in renal tissue-specific c-Kit+ stem cells in tubules and glomerulus (podocytes, mesangial cells, and endothelial cells). **Conclusion:** The empagliflozin and mesenchymal cell therapies may provide a regulation for *in vivo* cell function expression of ckit+ stem cell derived from mice kidneys.

**SGPP Number:** 4450-20.

**CAAE Number:** Not applicable.

**Research funding:** Not applicable.

021

## The involvement of adrenergic system progress in the activation of brown adipose human tissue and browning

**Category:** Endocrinology and Metabolism.

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**Introduction:** Obesity is a chronic condition characterized by excessive body fat resulted from an imbalance of caloric intake and energy expenditure. Given the inherent limitations of surgical interventions and difficulties associated with lifestyle changes, the pharmacological manipulation is currently one of the main resources for treatment of metabolic diseases. Approaches aimed at promoting energy expenditure by inducing thermogenesis have been explored. In this context, activation of brown adipose tissue (BAT), as well as recruitment of beige adipocytes into white adipose tissue, which is a phenomenon known as browning, have shown to be promising strategies. Although these processes are physiologically stimulated by the sympathetic nervous system, not all situations in humans that have an increased adrenergic signaling have concomitant increases in BAT activity or browning.



Therefore, a better understanding of the factors involved in thermogenesis attributed to these tissues is necessary in order to enable the development of future treatments against obesity. **Objective:** To review and discuss what conditions that trigger adrenergic responses are associated with higher activation of BAT and with browning processes in humans. **Methods:** This was a narrative literature review including original articles indexed in PubMed between 2019 and 2021 that evaluated BAT activity or browning in humans under the following conditions: cold, catecholamine-secreting tumor (pheochromocytoma and paraganglioma), burn, and adrenergic agonists. Data obtained were described and discussed along the text and they were summarized in tables. These tables compared percentage of individuals with increased BAT activity as well as whether there were increase, decrease or lack of change in markers of browning after adrenergic exposure in the different situations. A comparison was conducted regarding the sample size, the methodology used or the depot analyzed by each study. **Results:** A total of 76 articles were selected, 27 on effects after exposure to cold, 14 related to patients with catecholamine-secreting tumor, 13 on patients exposure to after burns, and 23 on post-treatment with adrenergic agonists. After comparison among the studies, we observed emphasis of BAT activation in individuals exposed to cold and treated with high doses of mirabegron a  $\beta$ 3-adrenergic agonist. Browning was induced in patients after burns or in the presence of catecholamine-secreting tumors, as well as in individuals treated with mirabegron for at least 10 weeks. Although mirabegron induced browning at an FDA-approved dose, this has increased BAT activity only at a higher than approved dosage known to trigger undesirable cardiovascular side effects. **Conclusion:** The adrenergic response is definitely involved in stimulating BAT activity and browning, particularly depending on the intensity and duration of stimulus signaling, age, adiposity, inflammatory factors, and other variables not yet fully understood. Given the potential effect on increasing energy expenditure, adrenergic stimuli seem to be promising pathways in the treatment of metabolic diseases such as obesity and diabetes. Further studies are needed to perform therapies in which undesirable side effects, such as unintended cardiovascular stimulation, could be avoided.

**SGPP Number:** Not applicable.

**CAAE Number:** Not applicable.

**Research funding:** Not applicable.

022

## Profile of users of health primary care and screening for breast and cervical cancer

**Category:** Health and Family Medicine.

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**Introduction:** Breast and cervical cancer are among the most common cancers among women in Brazil, according to the National Cancer Institute. There are other Brazilian surveys on incidence, access, and profile of women to screening actions, such as the National Health Survey, which detected barriers to access these exams. Primary Health Care (PHC) plays a key role in the early detection of these diseases, through the initial reception of patients and the identification of patients at lower or higher risk of developing them. **Objective:** To describe the profile of women users of Basic Health Units (BHU) located in the southern region of the city of São Paulo, and to analyze the cancer screening in these health services, focusing on cervical and breast cancer. **Methods:** This was a cross-sectional study conducted from data collection via interviews with users of BHUs located in the districts of Vila Andrade and Campo Limpo, São Paulo, regions of extreme social vulnerability. A sociodemographic and socioeconomic questionnaire and the PCATool-Brazil tool were applied. This study is part of the research project "Health Regulation: Factors associated with resolutivity in Primary Care". The profile of users and the performance of screening tests and referrals to specialized services were analyzed. For the screening analysis, women aged 57-years or older were not considered. **Results:** The analysis included 454 women, 12.4% under 25 years old, 32% between 25 and 40 years old, 29.8% between 41 and 55 years old, 20.5% between 56 and 70 years old, and 5.3% 71 years old or older. Overall, 3.6% of the women did not have formal education. The remaining, 1.3% attended pre-school, 36.4% attended elementary school, 45.7% attended high school, 13% attended university or college. The vast majority of women were public health service-dependent: 90.7% reported having no private health insurance, 37.9% of women had no morbidities, 25.6% had 1 morbidity, and 36.6% had 2 or more comorbidities. Of participants, 56% receive some type of referral for

specialized services. Those referred to mammography were 44% who were aged between 41 and 55 years, 44% between the age of 56 and 70 years, and 12% between the age of 25 and 40 years. The age group between 25 to 40 years old was the one that performed Pap smears the most (50%), followed by the age group 41 to 55 years old (34%). **Conclusion:** The knowledge of the profile of women users of health units located in vulnerable regions, such as the one where this study was performed, is necessary to monitor the population that needs care and has not accessed the health service. The active search for women who have not been screened in BHU is required; this search will also promote an increase in screening coverage for these tests. The present study can open space for positive changes in the health service, with a view to increase the adherence and impact of screening, as well as the early detection of diseases.

**SGPP Number:** 3656-19.

**CAAE Number:** 06807019.2.0000.0071.

**Research funding:** Funding provided by *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq), Process: 100782/2021-3. Project: 409134/2018-0.

**023**

## Comparison between D2R methods and learning simulation of enzyme kinetics

**Category:** Health Education.

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**Introduction:** Active teaching methods have gained great popularity in academia in recent years. The use of these methods is a direct response to the barriers encountered by traditional teaching that focus on more efficient education of better trained and engaged professionals. To this end, new methodologies seek to improve the depth of knowledge and its long-term retention by involving the students in the learning process. Among the active methods, there is the D2R, which is a Brazilian Portuguese abbreviation for the *Discussão* (Discussion), *Desafio* (Challenge), *Resposta* (Response). Using this simulation method consists in reproducing a model for the characteristics required for comprehension or training during learning process. **Objective:** This study compares teaching methods - D2R and Simulation – during enzyme kinetics classroom to evaluate quantitatively the objective assessment of performance using the two teaching method, and

to evaluate qualitatively the students' perception of the methods. **Methods:** A total of 60 students will be included, and they will be randomized into two groups: the control group that will have classes using the D2R method, and the intervention group that will use the Simulation method. Both methods will be applied during class teach by the same instructor. Students in both groups will have access to the same pre-class material, and they will take a checking test. Total time of each class and number of questions made by students will be measured. In addition, classes will be evaluated qualitatively by a perception test to measure learning and methods used. Fifteen days after classes, students will take a test including objective questions that will be scored from 0 to 10 points. This test will be prepared by a different teacher who did not know the instructors who taught the classes. Finding of the check and a post-class test will be presented using descriptive and analytical statistical analysis, while the participants' perception will be presented using bar graphs, pie charts, and a compilation of personal impressions. **Results:** Two actions to standardize the Simulation method were carried out, one face-to-face and other online using Zoom and Google Drive. The need of adjustments in both classroom formats will be made. **Conclusion:** The simulation method is standardized. Institutional Review Board approval for this study is still pending.

**SGPP Number:** 4679-21.

**CAAE Number:** 47812721.7.0000.0071.

**Research funding:** Not applicable.

**024**

## Evaluation of gender impact of dolutegravir use against the HIV/AIDS epidemic in Brazil: the analysis of monitoring data

**Category:** Infectious Disease.

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**Introduction:** The distribution of HIV infection is influenced by individual, social, and programmatic

factors. Health policies may influence the response to this epidemic and, ultimately, to the health outcomes of people living with HIV (PLHIV). In this time-series study, we will describe the impact of the dolutegravir use as a component of the preferred regimen for antiretroviral treatment (ART). Data will be based on the temporal evolution of clinical indicators of care for PLHIV by using monitoring nationwide available at the [indicadoresclinicos.aids.gov.br](http://indicadoresclinicos.aids.gov.br) platform. **Objective:** To evaluate gender impact of the policy of dolutegravir use as a component for preferred regimen for ART in a clinical protocol and therapeutic guidelines for HIV/AIDS in Brazil (2017) by comparing pre- (2009-2016) and post-intervention (2018-2020) periods. **Methods:** Time-series analysis using data from the Brazilian Ministry of Health on PLHIV within the period between 2009 and 2020, divided into pre- (2009-2016) and post-intervention (2018-2020) periods of the studied policy. Data were analyzed using comparisons of percentages, confidence intervals to each selected clinical indicator, and chi-squared tests. The clinical indicators considered in the analysis were the percentages of PLHIV with viral suppression (viral load <50 copies/mL), adherence to treatment, and loss to follow-up. **Results:** To include dolutegravir as a component of preferred regimen for ART was associated with statistically significant increase in percentages of PLHIV with viral suppression and adherence to treatment. There were also statistically significant reductions in the percentage of PLHIV with loss to follow-up. An impact of the policy was observed in gender, and no major differences related to sex were seen. **Conclusion:** The use of dolutegravir for preferred regimen for HIV/AIDS treatment had positive impacts on viral suppression, treatment adherence, and loss to follow-up in PLHIV of both genders. The record of the clinical impact of health policies is essential to support the inclusion of new programmatic guidance for interventions to benefit of users of the Brazilian Public Health System.

**SGPP Number:** 4617-21.

**CAAE Number:** Not applicable.

**Research funding:** Not applicable.

025

## Does empagliflozin intervention promote a protective effect in rhabdomyolysis model? Analysis of functional and structural parameters in the kidney

**Category:** Nephrology and Solid Organ Transplantation.

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**Introduction:** Rhabdomyolysis is a term used to describe rapid striated muscle damage characterized by rupture and/or necrosis of muscle fibers, which is commonly associated with acute traumatic events. Although the knowledge of this condition pathophysiology, treatments are still lacking, and the currently approaches available are intense fluid replacement and medical follow-up. In addition, rhabdomyolysis results in the release of cellular degradation products into the bloodstream and extracellular space - especially myoglobin, which is a nephrotoxic product. As a result of its nephrotoxicity, obstruction of the renal tubules, particularly the proximal tubules, occurs due to the protein solidification in the region that may cause a sudden decline in renal function. Consequently, there is an increase in oxidative stress, inflammation, cell death by tissue necroptosis, and renal vasoconstriction that lead to acute kidney injury (AKI). Recent evidences have suggested that empagliflozin, an inhibitor of sodium-glucose co-transporter-2 (iSGLT2), has a protective effect for microalbuminuria, reduces the progression of chronic kidney disease (CKD), and even decreases the risk of end-stage CKD. However, such evidences were reported by cardiovascular trials, and studies focusing on AKI are scarce. This study aims at determining the feasibility of empagliflozin to accelerate the recovery of renal tissue after the process of rhabdomyolysis or even to mitigate its effects. **Objective:** To study the potential of renal protective effect of empagliflozin by analyzing functional and structural parameters in kidneys. To determine the safety of this intervention. **Methods:** This study includes 3 groups of transgenic mice of the c-KitCre lineage: control with rhabdomyolysis insult, animals with rhabdomyolysis insult + empagliflozin, and control without drug. Each group will be followed for

up to 7 days and divided according to their assessment time-point (1, 3 or 7 days) for renal tissue collection. After hydric restriction of 24 hours, a dose of glycerol in sterile saline solution will be given intramuscularly to mice to induce the process of rhabdomyolysis. The empagliflozin will be administered by gavage technique. After this process, mice will be followed for a period of up to 7 days to check the following biomarkers by venous route: CPK, NGAL, KIM-1, BUN, IL-18, IL-1 $\beta$ , TNF-alpha. In addition, the following will be evaluated: mRNA and protein of markers of necroptosis (RIP1-RIP3-MLKL) and oxidative stress (4-HNE) and the evaluation of the preservation of the pool of c-Kit positive stem cells in the renal tissue. Quantification of AKI score by renal histological analysis will also be conducted. **Results:** We expect to determine the efficacy of empagliflozin treatment in attenuating the acute kidney injury induced by the rhabdomyolysis insult in structural improvement, *i.e.*, decrease in acute tubular necrosis of the proximal renal tubules, fibrosis, oxidative stress and necroptosis, and also in functional improvement by the rates of CPK, urea and creatinine levels and preservation of the pool of c-Kit positive stem cells in the kidney. **Conclusion:** This is an ongoing study.

**SGPP Number:** 4748-21.

**CEUA Number:** 4748-21.

**Research funding:** Not applicable.

026

## The study of synthetic analogous of VvTX-2 toxin in neoplastic cell culture

**Category:** Cellular and Molecular Biology.

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**Introduction:** New sources of natural origin are still under study to determine molecules with potential clinical use for chemotherapeutic treatment. In this perspective, the study of animal venoms and toxins is gaining space. Although Brazil has a great biodiversity, little has been explored to study animal venoms and toxins. Studies of the venom of the tarantula, *Vitalius Wacketi*, have found that the VvTx2 toxin, of 364Da, with cytostatic effect on neoplastic lineages. The toxin

consists of a polyamine whose synthesis was performed by collaborators at the *Instituto Butantan* (São Paulo), considering also other analog sub-products of the process. **Objective:** To investigate the action of synthetic analogs of the VvTX2 toxin, in Nalm-6 and K562 cells culture, to seek new molecules for cancer treatment. **Methods:** Analogs were synthesized, purified and characterized by liquid chromatography and mass spectrometry. K562 and Nalm-6 leukemia cells were chosen because they are more and less chemotherapy resistant, respectively, and due to exposure to various concentrations of the analogs. Cellular viability was assessed using the methods trypan blue staining and 3-(4,5- dimethylthiazolyl)-2,5- diphenyltetrazolium (MTT). **Results:** Cell culture training was complete, including thawing, maintenance, counting, and experiment initiation. Cell counting at the beginning of the experiment was 4.60,106 K562 cells, and 9.61,106 Nalm-6 cells, both with cell viability above 95%. The synthetics selected for testing were named P2, P3 and P6, with the first peaks showing no activity but a promising result for the last peak (P6) over Nalm-6 cells. After confirming the activity, the composition of P6 was analyzed and resulted in proof that fraction 6 is mainly composed of molecules with mass 364 and 728Da. **Conclusion:** The synthesis of experiment was a success, the analogs analyzed showed the expected cytotoxicity in cell culture that enabled to continue with the study.

**SGPP Number:** 2946-19.

**CAAE Number:** Not applicable.

**Research funding:** Funded by Institutional Sponsorship.

027

## Evaluation of viral etiologic agents of acute respiratory infections in pediatric emergency units: frequency and clinical correlation

**Category:** Pediatrics.

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**Introduction:** Respiratory infections are the leading cause of pediatric hospital admission in Brazil. The severity of clinical pictures vary and morbidity may be a direct result of the etiologic agent, due to exacerbation



of underlying conditions or possible complications. The impact of these hospitalizations to the public health system is significant. The knowledge of the main pathogens involved in respiratory infections may constitute important tools to better understand these diseases and propose the intervention of preventive measures. **Objective:** To evaluate frequency and distribution of respiratory viruses among children aged 0-5 years with acute symptoms suggestive of respiratory infection in pediatric emergency units. To correlate agents found with time, symptom severity, and clinical evolution. **Methods:** This is a retrospective observational study of results of nasopharyngeal swab PCR testing for respiratory virus of children aged up to 5 years old. Tests were collected in the emergency services of the *Hospital Israelita Albert Einstein*, a private facility, between 2017 and 2020. We included medical records of those who had positive results for the test. **Results:** Results indicated that from the 589 samples collected of PCR positive testing, the main etiologic agent found was rhinovirus/enterovirus (45.5%), followed by RSV (16.5%) and adenovirus (15.3%). So far, a total of 259 medical records were analyzed. Preliminary results suggest that 35.3% of these patients had tachycardia and 24.5% had dyspnea and tachypnea. Most reported symptoms were fever (78.4%), cough (78.4%), and running nose (44%). Most of patients (87.3%) were discharged after emergency care, and 6.5% of patients required ICU admission. **Conclusion:** Main agent of infections was rhinovirus/enterovirus. At the conclusion of data collection and correlations we should be able to determine whether there are correlations among symptoms, outcomes, and etiologic agents involved in the most severe infections.

**SGPP Number:** 4098-20.

**CAAE Number:** 33502720.0.0000.0071.

**Research funding:** Institutional Program for Scientific Initiation Scholarships (PIBIC) of the *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq). Process # 138629/2020-0.

028

## Correlation between viral etiologic agents of acute respiratory infections and clinical evolution

**Category:** Pediatrics.

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**Introduction:** Respiratory tract infections in childhood are one of the leading causes for individuals seek for emergency care. Infections of the upper and lower airways present different clinical manifestations and severity of symptoms. The clinical evolution, severity and treatment given may vary according to the etiology.

**Objective:** To evaluate the correlation between viral etiologic agents in children admitted in pediatric units and/or emergency units, their treatment, and the need for hospitalization. **Methods:** This is a retrospective observational study of results of nasopharyngeal swab PCR testing for respiratory virus of children aged up to 5 years old. Tests were collected in the emergency services of the *Hospital Israelita Albert Einstein*, a private facility, between 2017 and 2020. We included medical records of those who had positive results for the test. **Results:** So far, a total of 259 medical records of 589 patients with PCR positive testing have been reviewed. The main etiologic agents found were rhinovirus/enterovirus (45.5%), followed by RSV (16.5%) and adenovirus (15.3%). The most commonly administered medication in the emergency department were symptomatic (56.8%), followed by bronchodilators (BD-35.9%), and systemic corticosteroids (20.8%). The majority of patients (87.3%) were discharged from the hospital. After discharge from the emergency unit, 37.7% of patients prescribed the use of BD and 35.5% systemic antibiotics. **Conclusion:** Main agent of infections was rhinovirus/enterovirus, followed by RSV. Over 35% of patients received bronchodilators in the emergency unit and more than 35% were discharged with prescription for antibiotics, although these were viral infections. At the conclusion of data collection and correlations we should be able to assess whether there are etiologic agents associated with more severe conditions and/or changes in medical prescription patterns.

**SGPP Number:** 4098-20.

**CAAE Number:** 33502720.0.0000.0071.

**Research funding:** Scientific Initiation Scholarship Program at *Instituto Israelita Ensino e Pesquisa Albert Einstein*, *Faculdade Israelita de Ciências da Saúde Albert Einstein*.

029

## Application of PCATool-Brazil by nursing and medical students of Faculdade Israelita de Ciências da Saúde Albert Einstein

**Category:** Public Health Nursing.

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**Introduction:** The activities conducted during the scientific initiation program provide the opportunity for students to be in contact with the different stages of research projects development. This is opportunity for students to learn more about scientific methods, have new experiences, and exchange knowledge with colleagues, groups, and researchers. In addition, this contributes for development of new talents and to enrich academic education. We report the experience of five scientific initiation scholarship students during data collection from a survey conducted with users registered in basic health units (BHU) of Brazilian Public Health System (SUS – *Sistema Único de Saúde*). **Objective:** To describe the experience of nursing and medical undergraduate students in applying the PCATool-Brazil instrument. **Methods:** This report describes the experience of a group of five students of nursing (n=2) and medicine (n=3) undergraduate programs during data collection stage of the research project titled “Access Regulation to Healthcare: factors associated with resolution of primary healthcare”, which is funded by *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) and approved by our Institutional Ethics and Research Committee. The goal of the experience was to apply the adult and child versions of the PCATool-Brazil (an instrument that seeks to assess the attributes of primary healthcare). The application contributed to the training of students, and also enabled them to

help to identify the objectives of the research project, to determine points that needed improvements. Initially, the group of undergraduate students participated in a training session from January to July 2021 that were held at eight BHU located in the southern region of the city of São Paulo. Finally, a meeting was held and students were asked to share their experiences and discuss learning points, and challenges faced. **Results:** A total 696 users who were part of 58 family health care teams (n= 472 adult version and n= 224 child version) were approached. Students evaluated positively the experience at BHUs, and indicated that the experience facilitated their understanding of the flow of healthcare, actions and services offered to the community. In addition, the importance of role of health professional teams were observed by students. To meet and be direct contact with patients with different profiles and opinions, who sometimes shared experiences beyond the issues addressed in the data collection instrument, allowed students to recognize the socioeconomic context of these patients. The experience also contributed to the development/improvement of soft skills such as empathy, active listening, and resilience. Students mentioned a concern in promoting an environment that users would feel comfortable and safe to conduct the interview. Among challenges identified, major observations were related to how to approach users, what language to use, the users’ resistance to participate in data collection, and how to deal with feelings of frustration in cases of refusal of participation. Other challenges included excessive noise in the waiting room, the existence of renovations works at the unit, and administrative tasks required by the health units that reduced demand of users. **Conclusion:** The experience allowed students to understand the organization of BHUs and the profile and socioeconomic status of users. In addition, they learned about the importance of listening to patients mainly on their perceptions to help to improve the service. Students also emphasized the development of their interpersonal communication skills, and the important experience with initial stages of data collection for scientific research.

**SGPP Number:** 3656-19.

**CAAE Number:** 06807019.2.0000.0071.

**Research funding:** Funding provided by *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) (Process # 409134/2018-0).

030

## Does empagliflozin have an attenuating effect on kidney injury induced by adriamycin administration?

**Category:** Nephrology and Solid Organ Transplantation.

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**Introduction:** Glomerular syndromes are the cause that lead to acute kidney injury (AKI) and chronic kidney disease (CKD). These syndromes represent the impairment of the glomerular filtration barrier (podocytes, glomerular basement membrane, and endothelial cells). The nephrotic syndrome is caused by hypoalbuminemia and massive proteinuria. Identification of therapeutic strategies to reduce inflammation, oxidative stress, fibrosis and cell death, particularly necroptosis and modulation of the renal tissue-specific c-Kit stem cell pool are crucial to prevent the progression of nephrotic syndrome to CKD.

**Objective:** This study determined whether empagliflozin, an inhibitor of the sodium-glucose co-transporter-2 (iSGLT2), has an attenuating effect on acute kidney injury induced by adriamycin administration. **Methods:** This experimental study comprise of four analysis groups using c-KitCre mice: (1) control with empagliflozin, (2) control without any drug, (3) mice with adriamycin, and (4) mice receiving empagliflozin after adriamycin. Animals in the group receiving adriamycin will start diet with iSGLT2 when an elevation in proteinuria will be confirmed (approximately 3 days after adriamycin injection). They will be followed for up to 4 weeks, depending on the follow-up time-point (1, 2, and 4 weeks). A metabolic cage will be used to collect urine and measure proteinuria during the study. In addition the following will be performed: plasma dosage of renal injury makers (NGAL, KIM 1, Creatinine, IL-1 $\beta$ , IL-8), quantification of oxidative stress (4 HNE) and necroptosis (inflammasome RIP1-3-MLKL) in renal tissue, and assessment of renal injury score using histological analysis. This study will analyze whether empagliflozin is able to decrease the amount of oxidative stress and necroptosis markers, as well as improve proteinuria, renal structural damage, and contribute to the maintenance of the pool of renal tissue-specific c-Kit stem cells. **Results:** The experiment

has not started yet. Expected results may include: If empagliflozin can reduce the amount of oxidative stress markers, there will be evidence to affirm that it contributes to attenuate the effects of AKI and to the preservation of the pool of c-Kit positive renal stem cells. **Conclusion:** This is an ongoing study.

**SGPP Number:** 4747-21.

**CEUA Number:** 4747-21.

**Research funding:** Not applicable.

031

## Evaluation of impact of treatment for all policy against HIV/AIDS epidemic in Brazil per macroregion: the analysis of monitoring data

**Category:** Infectious Disease.

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**Introduction:** HIV infection has an occurrence and distribution determined by individual, social, and programmatic factors. Factors in the structural, social, and political environment may influence the responsiveness to the epidemic and, ultimately, to the clinical outcome of people living with HIV (PLHIV). In this time-series study, we will assess the impact of the treatment for all policy, which extended antiretroviral treatment to every individual living with HIV regardless of the immune status or presence or not of opportunistic diseases, National monitoring data on clinical indicators of care for PLHIV available at [indicadoresclnicos.aids.gov.br](http://indicadoresclnicos.aids.gov.br) platform will be used. **Objective:** To evaluate the difference on the impact of treatment for all (2013) policy in Brazil and within its macroregions by comparing the following periods, 2009-2012 and 2014-2020. **Methods:** Time-series used data from the Brazilian Ministry of Health of PLHIV from 2009 to 2020. Data were divided into pre- and post-implementation of the treatment for all policy. Statistical analyses were performed using comparisons of percentages, confidence intervals for each selected clinical indicator, and  $\chi^2$  tests. **Results:** The intervention was associated with statistically significant



increases in the percentages of PLHIV with timely initiation of treatment (introduction to therapy with CD4>500/mm<sup>3</sup> and introduction to therapy within 1 month after the first CD4 test), viral suppression (viral load <50 copies/mL), adherence of antiretroviral therapy, and reduction in the percentages of loss of follow-up. We observed heterogeneous distribution on the impact of the treatment for all policy in different macroregions, however, there was no clear predominance of benefit of the policy in any specific macroregion. **Conclusion:** The treatment for all policy had positive impacts on the percentages of PLHIV who initiated timely treatment, as well as in viral suppression, adherence to antiretroviral therapy, and loss to follow-up among PLHIV in Brazil. Effects were observed at all macroregions of the country. Information on the impact of health policies may inform the inclusion of similar actions in other countries, and support the implementation of new interventions to improve health outcomes.

**SGPP Number:** 4617-21.

**CAAE Number:** Not applicable.

**Research funding:** Not applicable.

032

## Knowledge, perception, and use of hookahs and electronic cigarettes among medical students and medical residents

**Category:** Pneumology.

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**Introduction:** Despite the growing evidence of potential deleterious health effects associated with e-cigarette and hookahs smoking, their use have growth worldwide.

Globally, from 2011 to 2018, the number of e-cigarettes smoking user globally has risen from 5 to 41 million. Of even more concern is the fact that small studies conducted at single centers in countries such as Brazil, the U.S., and England have shown a high frequency of e-cigarette and hookahs smoking among medical students, although medical societies and organization are clearly positioned against the use of these products. The future perspectives of medical students and medical residents on this topic are fundamental towards efforts for smoking cessation and vaping cessation. However, multicenter studies with larger sample and wider representativeness of medical students and medical residents from different countries are lacking in published literature. Such investigation is needed as an attempt to better understand this population consumption patterns and knowledge of hookahs and electronic cigarettes use. **Objective:** This study aims at i) mapping the consumption pattern of e-cigarettes and hookahs, and ii) assessing the knowledge, attitudes, and perceptions towards the use of these products among medical students and medical residents. **Methods:** This is a cross-sectional, multicenter, international study. We will include current medical students and residents from public and private institutions in Brazil, the United States, India, Canada, and the United Kingdom. An electronic questionnaire, adapted from previous studies, was developed to be sent to participants using the REDCap platform. This questionnaire contains 44 questions divided into 4 sections was sent to participants of all countries included in the study. The questionnaire was adapted for cultural and translated to local languages. The part A of questionnaire included data on demographic profile and mental health, in addition a screening instrument (PHQ-4 and Burnout Syndrome) was included. Part B (experience) included questions about smoking patterns of regular cigarettes, cigars marijuana, and alcohol. The part C (Knowledge and Attitudes) assessed general knowledge of participants about electronic cigarettes and hookahs, including their harmful effects and health agencies regulations. The part D (Education) included questions on sources of information used to learn on the effects of electronic cigarettes and hookahs use. Questionnaires were sent to participants via social media channels (Facebook, Instagram, Telegram, and WhatsApp) with the help of medical and medical education societies and organizations. **Results:** So far, 5,093 responses were collected (Brazil: 2,094, US: 2,890, UK: 230, India: 249, Canada: 230). In Brazil we received responses from all States: Southeast (1,430, 68%) South (256, 12%) North (123, 6%) Northeast (213, 10%) Center West (72, 4%). Brazilian respondents were from 320 different



institutions among which 35% were public and 65% private. Data collection for this study will be conducted by the end of September, 2021. **Conclusion:** This is an ongoing study.

**SGPP Number:** 4008-19.

**CAAE Number:** 27901320.7.1001.0071.

**Research funding:** Einstein Scientific Initiation Scholarship – PROUNIEMP.

033

## The role of IL-32 on T lymphocyte signaling

**Category:** Cellular and Molecular Biology.

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**Introduction:** IL-32 is a cytokine observed during inflammatory processes that has 9 isoforms. This cytokine different isoforms have a variety of roles that can be pro-inflammatory and may act as monocyte differentiation, and also to control inflammation. Although IL-32 is considered a cytokine, its receptor has not yet been described. In this study, the isoform of interest is the IL-32 $\alpha$ . In published literature this isoform is related with migration, proliferation and cell survival, given that it can interact with intracellular proteins involved in the integrin pathway and intercellular adhesion. In addition, this protein can also act in the modulation of cell homeostasis through the focal adhesion kinase - FAK. **Objective:** To investigate action of cytokine IL-32 $\alpha$  on T-lymphocytes. **Methods:** Lymphomononuclear cells were obtained from peripheral blood of healthy volunteer donors who agreed and signed an informed consent form. Samples were processed using Ficoll-Paque<sup>®</sup> Plus gradient separation. After gradient separation, T lymphocytes were isolated by a selection column (Miltenyi Biotec,) for CD3+ T lymphocytes. Subsequently, the lymphocytes were cultured for 18 hours in the presence of IL-32 $\alpha$  (1, 10 and 50ng) or its absence (Control). After, RNA was extracted using RNeasy<sup>®</sup> Mini kit (Qiagen) for evaluation of gene expression. Lymphocyte samples treated with 1ng of IL-32 $\alpha$  (n=3) were also analyzed for global gene expression using Human Clariom S Arrays (Thermo Fisher Scientific, Massachusetts). The signals generated by hybridization were detected using GeneChip Scanner

3000 7G (Thermo Fisher Scientific) and Affymetrix GeneChip Command Console software (Thermo Fisher Scientific). Lymphocytes were also used to perform proliferation assays by labeling with cell trace violet (Invitrogen) stimulated with phytohemagglutinin (PHA) or anti-CD3:CD28 beads along with IL-32 $\alpha$  (1, 10 and 50ng) or absence (Control). After 5 days, an analysis was conducted using flow cytometry. **Results:** IL-32 treated lymphocytes showed increased expression of integrin-mediated cell adhesion pathway (p=0.009), general cell adhesion pathway (p=0.08), activation of protein kinase B (PKB) pathway p=0.05, and positive regulation of immune response (p=0.09). We observed that IL-32 $\alpha$  was able to induce NOTCH1 expression, however, this expression was only significant from 10ng of IL-32 $\alpha$  (p= 0.04) in non-activated lymphocytes. After activation with phytohemagglutinin (PHA), IL-32 $\alpha$  at the concentration of 1ng was enough to the increase to be significant in NOTCH-1 expression (p=0.05). Because IL-32 $\alpha$  induced the expression of genes involved in cell cycle progression and proliferation, such as NOTCH-1 and PKB/AKT, T-lymphocyte proliferation assays were also performed. For proliferation induction we used PHA or anti-CD3:CD28 alone (control) or in combination with two doses of IL-32 $\alpha$  (1ng and 10ng). We observed that the presence of IL-32 $\alpha$  favored lymphocyte proliferation (p=0.001). **Conclusion:** IL-32 $\alpha$  was able to induce protein kinase B (PKB) pathway expression, to increase NOTCH-1 expression and proliferation in both mitogen-activated and CD3:CD28-activated T lymphocytes.

**SGPP Number:** 3458-18.

**CAAE Number:** 93808318.6.0000.0071.

**Research funding:** This project is part of the *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP) project # 2018/00094-9. Funding was already approved to the main research Project entitled “Evaluate the influence of CXCL8 and CCL20 chemokines individually or in combination with cytokines on the immune and migratory profile of human dendritic cells and lymphocytes.”, the present investigation is also funded by the Scientific Initiation Scholarship - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq).

034

## Evaluation of therapeutic process of magnetic hyperthermia technique using a new technology of open coil for treatment of glioblastoma in an animal model

**Category:** Oncology.

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**Introduction:** According to the Central Brain Tumor Registry of The United States (CBTRUS), glioblastoma (GBM) is the most common and aggressive malignant tumor affecting the central nervous system. Among malignant brain tumors, GBM accounts for 47.6% of cases. Glioblastoma offers an average survival rate from 12 to 18 months, and only 5.6% of patients survive five years. Conventional therapeutic protocols is unlikely to guarantee the cure of the disease, and patient survival remains low. Given the complexity and difficulty management, it is fundamental to implement new therapeutic alternatives such as magnetic hyperthermia (MHT) therapy, which is based on the application of an alternating magnetic field with magnetic nanoparticles in the tumor. **Objective:** To evaluate the therapeutic process of the MHT technique using the new technology of open coil in the treatment of glioblastoma tumor in an animal model. **Methods:** The project was divided into three parts. In the first part, the values of the specific absorption rate (SAR) of suspended iron oxide nanoparticles (SION) were determined, using emphasis on the low frequencies of alternating magnetic field oscillation. This procedure was adopted the new technology of open coil developed by our research group. In the second part, tumor induction was performed for subsequent evaluation of tumor growth by applying the bioluminescence technique. In the third part, the MHT process was tested in an animal model, and the efficiency of the MHT technique was subsequently evaluated (1, 3, 5 days after application) by using bioluminescence and macroscopic evaluation. **Results:** Specific absorption rate for the parameters

magnetic field (200Gauss) and oscillation frequency (551 KHz) were obtained. The SAR was 450W/g that is an adequate value to generate heating in the tumor tissue. In *in vivo* study the tumor growth can be evaluated and in our study within 14 days the tumor size was 25mm<sup>2</sup>. After the administration of SION to the tumor, the MHT therapy was performed on days 15, 17 and 19. Subsequently, the evaluation of tumor regression by adopting the bioluminescence technique, observed a decrease in 70% of the tumor tissue compared with the size of the tumor pre-application of MHT. **Conclusion:** The results found using the MHT technique, with the new strategy of using open coil allowed an efficiency reduced glioblastoma tumor growth. This type of coil emerges as a possibility to be applied in future studies with humans in comparison with close coil which often presents challenges in translational research.

**SGPP Number:** 3126-17.

**CAAE Number:** Not applicable.

**Research funding:** Einstein Scientific Initiation Scholarship - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) (145506/2020-7) and project of the *Instituto Nacional de Ciência e Tecnologia de Fluidos Complexos* (INCT-FCX), process # 2014/50983-3 - *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP). SINANO v.2

035

## Analysis of accuracy and usability of a smartphone application for integrated diagnosis in acute myeloid leukemia

**Category:** Hematology and Onco-Hematology.

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**Introduction:** The diagnosis of Acute Myeloid Leukemia (AML) is currently complex and involves several clinical and laboratory findings such as: clinical information, peripheral blood test, bone marrow morphology, and cytogenetic and molecular findings. A challenging exists for the hematologist to make accurate diagnoses of AML. The smartphone application for diagnosis of AML under reviewing in this study has the goal to guide the physician on information needed

to make a complete AML diagnosis, and to create a report with an integrated AML diagnosis. The current AML classification considers clinical, morphological, immunophenotypic, cytogenetic, and molecular variables. The smartphone application's decision tree evaluates and covers all these variables. By using the questionnaires responses of the participants, we will compare responses of those who used the smartphone application with responses of those who did not use it. This evaluation will evaluate both accuracy and usability.

**Objective:** To evaluate the usability and accuracy of a prototype integrated diagnostic smartphone application for AML. **Methods:** We will invite 10 to 20 hematologists or hematology medical residents to participate in the project of this study. Participants will test and evaluate the smartphone application in terms of usability and accuracy. Physicians will respond a total of four electronic questionnaires. The first and the fourth questionnaire will be related to usability analysis, while the second and the third questionnaire will evaluate the application's accuracy. The accuracy will be evaluated by comparing the results obtained from physicians before and after the use of the smartphone application regarding the 5 items that compose the diagnosis for AML (which will be tested through the analysis of 4 blinded clinical cases). Gold standard responses will be defined by the two experts who will serve as parameters and answer sheet for the correction and quantification of the participants' responses. The application's usability will be measured by comparing responses from the first (before the App use) and the fourth (after the App use) questionnaire. These comparisons will analyze the physicians' expectations regarding the smartphone application, as well as several parameters related to the app's usability. **Results:** Expected results for this project are: 1) users' evaluation on usability, such as navigability and efficiency of the tool; 2) users evaluation on accuracy given that the App will help the participants in the analysis and diagnosis of AML clinical cases. We expected a positive result in terms of improvement of physicians' performance after comparing responses before and after using the App with the pre-established gold standard. **Conclusion:** We expect to conclude the analyzed prototype smartphone application to be validated as a tool that will possibly help and guide physicians on data needed to perform a complete diagnosis for AML. In addition, we believe that the App will enable the creation of an integrated report for diagnosis of AML.

**SGPP Number:** 4539-20.

**CAAE Number:** 48272721.0.0000.0071.

**Research funding:** Not applicable.

036

## Attributes related factors in primary health care for children

**Category:** Health and Family Medicine.

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**Introduction:** Primary Health Care (PHC) is the main entrance to access Brazilian Public Health System (SUS – *Sistema Único de Saúde*). Primary Health Care is also the major management system for patients to access Primary Health Network (PHN). This system is guided by the principles of accessibility, care coordination, bounding, continuity and integrality. Primary Health Care has attributes that favor the care quality in relation to children health. This system has the goal of careful follow-up of children's growth and development by the health team that should have a biopsychosocial approach not only for the child, but also for the conditions of the health, and life of their mother and family. This approach also includes intersectoral articulations that might be needed for the therapeutic project of each child/family.

**Objective:** To evaluate attributes in primary health care for children care and their association with demographic profile, and health indicators. **Methods:** This was a cross-sectional study with a quantitative approach that was conducted in 2021. The study was developed at 5 Basic Health Units (BHU) located in the South region of São Paulo. The extended version of the Evaluation of Primary Care (PCATool Child) was applied to caregivers of children registered in BHUs. Questionnaires were created using the survey builder RedCap platform. The platform was used for data collection and storage.

**Results:** A total of 132 children with mean age of 3.32 years were included in the study. Most of them were boys (52.3%), white (53.8%) and 87.8% did not have health insurance. The essential score for PHC showed a value of 6.78 whereas the overall score was 6.46. The attributes with the highest score on evaluations were "Access to first contact - use" had a score of 7.81; "Coordination - information system" showed a score of 7.70; "Longitudinality" presented a score of 6.82, and "Completeness - Services available" had a score of 6.81. The attributes "Community orientation" (5.09) and "First contact access - Accessibility" (5.42) had the worst score in the evaluation. **Conclusion:** Overall, the scores of the attributes in PHC attributes for the child population were favorable. However, there are still

aspects that need to be improved to enhance health care.

**SGPP Number:** 3656-19.

**CAAE Number:** 06807019.2.0000.0071.

**Research funding:** Scientific Initiation Scholarship - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) (Process # 115004/2020-1). Funding for Health Regulatory Research (Process # 409134/2018-0).

037

## Education manual for vaginal stenosis prevention in patients submitted to pelvic radiotherapy

**Category:** Oncology.

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**Introduction:** Pelvic radiotherapy is a common treatment for gynecological cancer and this approach may cause long-term vaginal changes, such as decreased lubrication, dyspareunia, and vaginal stenosis. The quality of life of patients affected by this type of cancer and treated with radiotherapy requires attention. These patients well-being should be a concern for professionals involved in delivering care for them, especially concerning sexuality and self-esteem. Due to the risk of patients developing vaginal stenosis resulting from radiotherapy, it is a common practice in several services worldwide to recommend the use of vaginal dilators to prevent or reduce the consequences of the treatment. This study aims at developing an educational manual for patients undergoing pelvic radiotherapy to help patients understand the need of adopting preventive measures. **Objective:** To design an educational manual based on the Brazilian Consensus for vaginal stenosis prevention in women undergoing pelvic radiotherapy. **Methods:** This is a methodological study. The aim of methodological studies is to investigate methods for data collection and organization, such as: development, validation and evaluation of research tools and methods. Our study will be conducted in three stages, *i.e.*, design of the manual, validation of manual's content by expert judges, and validation of manual's content by general public. The first stage includes the searching

of articles indexed within the last 5 years in PubMed and Scientific Electronic Library Online (SciELO) using the following keywords dilatation, radiotherapy, radiation effects, vaginal stenosis, patient education. **Results:** Articles on guidelines and examples on how to prepare an educational manual for patients were found. These articles were published by *Hospital Israelita Albert Einstein* and MD Anderson Cancer Center. The manual is under preparation and it will include the topic in question format: What is vaginal stenosis? How to prevent it? Why do I need a vaginal dilator? How to use a vaginal dilator? Do the dilator need any special care? What are the possible complications?, and Why is the maintenance of the sexual life so important?. **Conclusion:** We expected that the design of educational manual will increase the knowledge of women undergoing pelvic radiotherapy on the negative effects of treatment and its impact on their quality of life. In addition, the use of the manual may increase the use of vaginal dilators, and reduce the occurrence of vaginal stenosis. Studies approaching the issue of vaginal stenosis have recommended the provision of education and support for patients undergoing pelvic radiotherapy. Nurses play a key role in patients' health education.

**SGPP Number:** 3973-19.

**CAAE Number:** 62612616.2.0000.0071.

**Research funding:** Einstein Scientific Initiation Scholarship – PROUNIEMP.

038

## Associated stress factors in women in leadership positions

**Category:** Psychiatry.

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**Introduction:** The changes in social and job market paradigm have enabled women to achieve leadership positions in different fields, activities that often involve high levels of stress. **Objective:** This study compared psychological and behavioral factors in stressed and unstressed women in management positions in a multinational organization. **Methods:** This study included 76 women aged between 30 and 76 years who had university degree, were managers of a



multinational cosmetics company, and reported stress complaints. After participants agreed and signed the consent form, they were divided into unstressed (n=45) and stressed (n=31) based on the Lipp's Inventory of Stress Symptoms for Adults (ISSL). **Results:** Stressed women have higher scores for mental disorders such as anxiety, depression, poor sleep quality, lower quality of life concerning physical, psychological, social and environmental aspects. In addition, stressed women showed higher scores on negative affections, lower scores for work-related well-being, and lower self-esteem scores. **Conclusion:** The presence of stress on the ISSL in women in management positions was associated with poor mental health symptoms. Complaints-related stressed is clearly different from present stress.

**SGPP Number:** 2173-14.

**CAAE Number:** 38662314.8.0000.0071.

**Research funding:** Not applicable.

039

## Analysis of immunohistochemical markers related to metastasis and death in papillary thyroid carcinoma

**Category:** Surgery.

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**Introduction:** Differentiated thyroid carcinomas (DTC) present an excellent prognosis in the majority of patients. Five-year survival rates are around 99.8% for localized tumors, and 97% for regional metastasis (to cervical lymph nodes). However, despite the low mortality, there are cases of deaths directly related to DTC in which the main cause is distant metastasis. Although an extremely rare event, death due to progression of papillary carcinoma does occur. The factors related to the difference in behavior in both indolent and aggressive cases are not fully understood. In this sense, some authors highlighting the epithelium-mesenchymal transition (EMT) as one of the causes for the unfavorable outcome. **Objective:** To identify immunohistochemical markers associated with metastasis and death in patients with papillary thyroid carcinoma. Such findings may provide important information to identify patients at higher risk of unfavorable evolution at the time of initial presentation. **Methods:** This is a case-control

study including patients from the *Hospital das Clínicas* and *Instituto do Câncer do Estado de São Paulo*. Patients were divided into two groups: patients with papillary thyroid carcinoma with distant metastasis of indolent evolution (no disease progression for at least two years) and patients with non-metastatic papillary thyroid carcinoma treated for at least five years without current evidence of disease. All patients who died from the disease progression whose paraffin-embedded primary thyroid tumor specimen were included in the "case" group. These groups were paired in a 1:1:1 ratio. The immunohistochemical analyses are under conduction in a partnership with the Anatomic Pathology Division of the *Universidade de São Paulo*. Three antibodies that mark different stages of EMT were selected: ZEB1, which is a transcription factor that induces EMT, E-cadherin, an adhesion molecule, and Vimentin, a cytoskeletal protein found in mesenchymal cells. Participants' demographic, clinical, and follow-up data were obtained by reviewing their medical records. Histopathological data were also collected from the anatomopathological report. **Results:** Epithelium-mesenchymal transition is significantly related to tumor progression in skin, prostate, breast, liver, stomach, colorectal and pancreatic cancers. We expect to find the same correlation in the present study by adopting the 3 markers mentioned. Currently, the first labeling of Vimentin is under conduction. **Conclusion:** This is an ongoing study.

**SGPP Number:** 4494-20.

**CAAE Number:** 44997215.1.0000.0065.

**Research funding:** *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP) (Process: 2020/12459-1).

040

## Applying role-play in pharmacokinetic and pharmacology classroom

**Category:** Health Education.

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**Introduction:** The curriculum of medical, nursing and health programs has been under constant revision. Traditional models are giving way to active methods, especially Team Based Learning and Problem Based



Learning. Pharmacology is still one of the major disciplines of these courses. Although this discipline often has adequate number of hours, the teaching approach has been proven to be a challenge to promote effective learning. Considering this challenge, educators around the world have been proposing a number of alternatives for teaching of this subject in an attempt to improve the performance of health professionals. This study designed a role-play activity to the learning of pharmacokinetics taking into account processes in the body simultaneously. Our approach may improve learning opportunity by promoting better understanding of the pharmacology discipline. **Objective:** To determine whether a role-play activity can impact positively the learning of pharmacokinetics, compared with another active learning method. To suggest an standardized role-play method for teaching and learning pharmacology; and to compare learning results from the role-play activity with those from a dialogical class with the same duration. **Methods:** A realistic simulation of recorded activity will be conducted. Students will play the role of several human body tissues interacting with materials that simulate the actions occurring in the interaction of drugs and such tissues. The activity will be supervised by a trained instructor to apply the method. First, a pilot of the activity was conducted in eight group of students to establish standardized parameters. After this pilot, the method was adjusted. The parameters established (Oral C<sub>ss</sub>/student, IV C<sub>ss</sub>/student, IV<sub>max</sub>, Oral<sub>max</sub>) will be presented as the result of counting of the material with the student during the activity. Students undergoing this activity will be compared with students who had Team Based Learning format lecture. The comparison will be measured using a test. Groups will be randomized and Student's *t*-test will be performed to compare the results of the two groups. **Results:** So far, the role-play activity was validated in eight pilot classes. Different amounts of "drugs" have been tested in the classroom with different numbers of participants. In addition, we also tested different amounts of "drugs" proportionally to the number of participants and in relation to the route of administration. After adjusting the same number of drugs as the number of participants to intravenous route and twice as many to oral route, the results in the last three pilot classes showed uniformity. This was observed when the balanced concentration was normalized with the number of participants (coefficients of 0.71; 0.70 and 0.72 to oral route and 0.78; 0.51; 0.83 to intravenous route), which indicated similar results between them. **Conclusion:** The standardization of the role-play activity was a success and this result allows to continue with randomization that should occur after face-to-

face activities return given the special circumstances imposed by the pandemic of COVID-19.

**SGPP Number:** 4001.

**CAAE Number:** 31907320.2.0000.0071.

**Research funding:** *Sociedade Beneficente Israelita Brasileira Albert Einstein.*

**041**

## Demographic and serological profile of blood donors who choose confidential self-exclusion in blood bank in São Paulo, Brazil

**Category:** Infectious Disease.

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**Introduction:** Screening for blood donors includes clinical interview and laboratory tests to identify risk of transfusion-transmitted infections. However, a possible risk exists of transfusion related infections, and a number of blood banks have also adopted confidential self-exclusion (CSE), which effectiveness and usefulness are controversial. **Objective:** To analyze demographic and serological profile of donors who opted for CSE compared with those who did not choose the CSE. **Methods:** This was a cross-sectional cohort study conducted at the Blood Bank of *Hospital Israelita Albert Einstein* (HIAE) that included the analysis of demographic and serological data of consecutive blood donors. Data were collected from February 2015 to December 2019. Repeat donors, donors of marrow, donors of granulocytes, and donors of platelets by apheresis were excluded. **Results:** A total of 32,261 blood donors were analyzed. Of 32,179 donors who did not choose CSE, 2.16% had positive serological screening (95%CI: 2.00-2.32). Of the 82 donors who choose CSE, 6.10% had positive screening (95%CI: 2.01-13.66). The group that choosed CSE had a higher prevalence of single men, who had positive serology for HBV, syphilis and any positive test in serological screening. Multivariate analysis of factors associated with positive screening showed a statistically significant association with age (OR=1.026, 95%CI: 1.018-1.034; *p*<0.001), lower education (*p*<0.001), and with choose

CSE (OR=3.194, 95%CI: 1.282-7.955; p=0.013). **Conclusion:** Our findings suggest that donors who choose CSE were more often single men. Confidential self-exclusion was statistically significant associated with positive serological screening both in the univariate analysis and analysis adjusted for age, sex, marital status, and formal education. Our findings reflect the population who access our service blood bank. Studies on the effectiveness of CSE should consider the knowledge about the local population and screening format.

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**Research funding:** Funding provided by blood bank at Hospital Israelita Albert Einstein to be published in the *Revista do Instituto de Medicina Tropical de São Paulo*.

042

## Microbiota aspects and immunologic system associated with response to immunotherapy for lung cancer

**Category:** Cellular and Molecular Biology.

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**Introduction:** The human microbiota is the collection of organisms that constitutes the ecosystem of the human body. The gut microbiota relates to the immune system in several ways, including protection of the intestinal mucosa against pathogens and production of anti-inflammatory molecules. Gut dysbiosis is the alteration of the composition of the microbiota, which may cause an imbalance in the intestinal homeostasis. This imbalance compromises mucosal permeability, affects immune system responses, and interferes with the response to treatments for diseases such as cancer. This project seeks to evaluate the composition of the gut microbiota of patients with non-small cell lung cancer (NSCLC) and its association with response to treatment, including immunotherapy by obtaining data from the microbiota of individuals. **Objective:** To determine the

role of the gut microbiota in the response to treatment for lung cancer, including the use of immunotherapy.

**Methods:** Patients recruited for this study have early NSCLC and received a combination of stereotactic ablative radiotherapy with nivolumab as neoadjuvant treatment. Samples for gut microbiota analysis will be collected before the beginning of the treatment and after its end. Tissues will be stored in DNA/RNA Shield - Fecal Collection Tubes (Zymo Research). DNA will be extracted using the ZymoBIOMICS® DNA Miniprep kit (Zymo Research, and DNA the Nanodrop (Thermo Fisher Scientific, Massachusetts). will be used to evaluate the quality and concentration. For 16S rRNA sequencing, libraries will be constructed with the Ion 16S™ Metagenomics Kit (Thermo Fisher Scientific) and sequencing will be performed using the Ion System (Thermo Fisher Scientific) following the manufacturer's protocols. For the analysis of sequencing results, the workflows available in the Ion Reporter Data Analysis (Thermo Fisher Scientific) will be used, which may allow the classification of hypervariable regions of the 16S rRNA, as well as the identification and analysis of the relative amount of each bacterial genus in the studied sample. **Results:** So far, 13 patients were included in the study. Total DNA from a group of samples with finalized pre- and post-treatment collections has been extracted and both concentration and quality of DNA were as expected and necessary to perform sequencing. Ion Reporter Data Analysis was evaluated for the analysis of 16S sequencing results using public 16S sequencing data. Limitations found are related to the presentation of the data with this platform, and regarding the diversity analysis, as we could mainly observe alpha-diversity (diversity within a sample). Such observations require the use of complementary platforms for the analysis of beta-diversity (diversity between samples). Sequencing of the samples will begin when all pre- and post-treatment collections are completed. **Conclusion:** The DNA collection, storage, and extraction procedures were evaluated, and the results so far were what was expected and needed for this study. The platform chosen for the analysis of sequencing data provides quite satisfactory results in terms of primary analysis of the data. Further analysis will be required to improve the quality of the interpretation and presentation of results of the study.

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**CAAE Number:** 19905419.6.0000.0071.

**Research funding:** Not applicable.

043

## Frequency of polymorphism in HBB, HBG1, and BCL11A genes in population of patients with beta-thalassemia

**Category:** Hematology and Onco-Hematology.

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**Introduction:** Beta-thalassemia is an inherited hemoglobin disease that mutations in the beta globin gene (HBB) lead to partial or total loss of its expression. This loss may result in anemia - from mild to severe, with transfusion dependence - and iron hyperuptake. The frequency of mutations associated with this disease varies with the ethnic composition of the population, and this is more prevalent in Mediterranean and Southeast Asian populations. Currently, the only curative therapeutic option is allogeneic stem cell transplantation. However, recently, gene therapy has been projected as a curative alternative. To know the frequency of mutations in the HBB gene in the population of interest is crucial to establish curative strategies using this technology. The persistence of fetal hemoglobin (HbF) is one of the factors that can attenuate the phenotype of the disease, and several polymorphisms related to beta-thalassemia are associated with increased HbF. For these reasons, it is also necessary to know the most prevalent mutations to associate them with the phenotype and contribute to the design of gene therapy strategies for this population. **Objective:** Primary goal: To identify which polymorphisms are most common in the HBB gene by conducting Sanger sequencing or polymerase chain reaction (PCR), in a population of individuals with  $\beta$ -thalassemia major and intermediate. Secondary goal: To identify, within the study population, polymorphisms in the promoter region of the HBG2 gene and in the intron-2 of the BCL11A gene by Sanger sequencing, which are related to increased HbF. To associate

polymorphisms, if they are presented, with baseline levels of HbF on hemoglobin electrophoresis to the diagnosis of the patient, when available. To correlate such mutations to need of patients for transfusion.

**Methods:** This was a cross-sectional study with 25 patients followed at *Hospital Israelita Albert Einstein* and/or *Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo* and with available clinical data. Peripheral blood samples will be submitted to genotyping by using the allele-specific PCR technique for the analysis of the most frequent mutations in the HBB gene (CD39, IVSI-1, IVSI-6 and IVSI-110). In addition, the analysis by applying Sanger sequencing, when PCR is not enough to assess the profile, will be conducted. Polymorphisms of BCL11A and HBG2 genes will be evaluated by PCR and Sanger. Patients' demographic, clinical, and blood transfusion data will be collected from medical records. **Results:** Considering that the frequency of mutations in the HBB gene may change according to ethnic characteristics, we expect to confirm that the population of interest presents a profile similar to other populations in the state of São Paulo. The confirmation of the substitution of codon 39 as the most prevalent mutation in the enrolled region opens the way for the construction of gene therapy strategies for this population. **Conclusion:** To understand the most prevalent beta thalassemia-associated mutations in the city of São Paulo may enable the designing of new gene therapy strategies for specific mutations. Since these therapies still have high costs, which is a clear limitation, to emphasize the importance of developing techniques that can be used in as many patients as possible may also optimize financially the use of these therapies. Given that the frequency of mutations varies by ethnicity, this study will seek to inform the development of new technologies adequate for the population of interest.

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**CAAE Number:** 45618221.2.0000.0071.

**Research funding:** Not applicable.

044

## Different administration routes may result in different responses to placebo in preventive management for chronic migraine: a meta-analysis

**Category:** Neurosciences.

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**Introduction:** Placebo response is an important determinant of health in many diseases. Meta-analyses on pain have shown that placebo response may contribute around 75% for the treatment effect. The understanding is limited on the effect of administration using different routes for placebo response in the preventive management of primary headaches.

**Objective:** This meta-analysis aims at analyzing how different routes of administration may affect the response to placebo in chronic migraine. **Methods:** This was a meta-analysis of 7 double-blind randomized controlled trials including 5,672 patients aged 18 years or older who suffered from chronic migraine and had no associated comorbidities. We compared patients who received preventive treatment subcutaneously, intravenously, or orally with individuals who received multiple injections at points on the head. The primary outcome was the reduction in the numbers of days of migraine within a month at 12, 16, and 24 weeks of treatment compared with baseline. **Results:** Our study showed that the response to placebo was greater with applications of botox injections on the head, followed by the intravenous route of administration of the anti CGRP monoclonal antibodies eptinezumab. The oral route with topiramate and the subcutaneous route of the monoclonal antibodies (Erneumab, Galcanezumab, and Fremanezumab) had no differences, and their results were inferior to head injections. **Conclusion:** Different routes of administration affect the placebo response in the preventive management of chronic migraine. Understanding the mechanisms that constitute the placebo effect are beneficial both for clinical practice

and development of clinical trials in the field. This was particularly interesting when administration of medications using different routes was compared with the placebo response. In our study a better placebo response was observed using head injections. The placebo response accounted for approximately 75% of the therapeutic gain in the management of chronic migraine.

**SGPP Number:** 3945-19.

**CAAE Number:** Not applicable.

**Research funding:** Swerts DB received Scientific Initiation Scholarship from Brazilian Institution.

045

## Correlation between attributes of primary health care and indicators of care resoluteness

**Category:** Public Health Nursing.

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**Introduction:** Primary Health Care (PHC) has as essential attributes to provide the first care contact, guarantee access, longitudinality, integrality and care coordination. In addition, PHC has derived attributes the focus on the family, community orientation, and cultural competence. The existence and enlargement of these attributes define PHC, they also increase its interconnection with users and the community.

**Objective:** To evaluate indicators of resoluteness of the PHC team and correlate them with the essential attributes of PHC. **Methods:** This is an observational, cross-sectional, quantitative study including data from a survey on the resoluteness of PHC teams from public basic health care unit located in the South of São Paulo. The PCAtool Adult and Child instrument will be used to evaluate the attributes from the users' perception. Data collection will include 8 adult volunteers and 4 volunteers responsible for children care. A total of 87 teams, totaling 1,044 users, will be included. Data will be described by means, standard deviation, quartiles, minimum and maximum. Inference will be given by using correlation coefficients between the measurements of each team. Another data description will include the attendance in scientific meetings of resoluteness of PHC research group, searching and reading of scientific



papers in the area of the project. **Results:** This is an ongoing study. **Conclusion:** This is an ongoing study.

**SGPP Number:** 3656-19.

**CAAE Number:** 06807019.2.0000.0071.

**Research funding:** Scientific Initiation Scholarship – *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) (Process # 165023/2020-4) Funding to Research in Health Regulation (Process # 409134/2018-0).

046

## Association between longitudinal care plan and primary health care in patients with chronic diseases

**Category:** Health and Family Medicine.

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**Introduction:** The longitudinality care is the attribute of Primary Health Care (PHC) that is based on the personal relationship over time of the health professional with the patient. This type of care is associated with regular source of care and a deep knowledge of the patient by the professional, and vice-versa. Chronic diseases require prolonged and continuous care. For this reason, a question that remaining is in what extent the longitudinality of care may interfere in the resolution of chronic diseases, since this attribute is associated with the relationship over the time of the health professional with the patient. There is also the need to understand the amount of care that chronic diseases demands.

**Objective:** To measure and describe longitudinality care according to the perception of patients with chronic diseases using the Primary Care Assessment Tool (PCATool). To measure and describe longitudinality during consultations of chronically ill patients using the Usual Provider Continuity Index (UPCI). To determine the association between longitudinality indicators and the indicators of resoluteness of Primary Health Care.

**Methods:** This was an observational, cross-sectional study with a quantitative approach. This study will be conducted in 13 Basic Health Units (BHU) located in the South of the city of São Paulo. Users older than 18 years of age with the following chronic diseases

will be included: hypertension, heart failure, coronary artery disease, *diabetes mellitus*, emphysema, asthma, bronchitis, arthrosis, glaucoma, kidney failure, and cancer. The following instruments will be used: PCATool for evaluation of PHC attributes under the perception of users; usual Provider Continuity Index (UPCI) to measure the proportion of users' appointments with their Family Health Team; a form to identify the socio-demographic and morbidity profile; appointment production data in the UBS and in the reference Outpatient Medical Care (OMC) units, and clinical conditions data in the units' chronic patient follow-up spreadsheet. The resolutivity indicators that will be studied are: rate of medical referrals to specialists, rate and quantity of AMA passages for Conditions Sensitive to Primary Care (CSAP). In addition, for patient with diabetics, the request and control of glycated hemoglobin and, for hypertensives, the control of blood pressure will be also used as resolutivity indicators. The longitudinality measures will be studied using intraclass correlation coefficients and scatter plots. Associations between longitudinality measures and resolutivity indicators will be analyzed by correlations and hypothesis tests. A level of significance of 5% will be considered. **Results:** We expect to determine whether the perception of the user with chronic diseases on the longitudinality of care is consistent with the degree of longitudinality measured by the proportion of consultations with the Family Health Team. In addition, other expectation is to check how the degree of longitudinality perceived by the user and measured by the proportion of consultations with the Family Health Team is related to the indicators of resolutivity of the PHC. This degree seeking to analyze whether a greater degree of longitudinality may be associated with a greater resolutivity of the PHC in relation to chronic diseases. **Conclusion:** This is an ongoing study.

**SGPP Number:** 3656-19.

**CAAE Number:** 06807019.2.0000.0071.

**Research funding:** Scientific Initiation Scholarship - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq): 100239/2021-8. Project #: 409134/2018-0.



047

## Care resolution of patients with diabetes and their perception of attributes of primary health care

**Category:** Health and Family Medicine.

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**Introduction:** In Brazil, Primary Health Care (PHC) is responsible to manage chronic diseases, which is one of these essential attributes. *Diabetes mellitus* is one of major disease that affects 7.4% of the Brazilian population. Given the negative impact of diabetes on morbidity and mortality, high prevalence, and this disease social and economic consequences. There is a need to better investigate the profile of patients with diabetes, the resoluteness of their care, and the provision of PHC attributes for these patients. **Objective:** To evaluate the sociodemographic profile of patients with diabetes followed-up in PHC, their perceptions about the attributes of PHC, and the resoluteness of care. **Methods:** This was a cross-sectional and descriptive study conducted in the municipality of São Paulo in 9 Basic Health Units between July 2019 and March 2021. The study included patients with diabetes registered in the service and who were older than 18 years, and agreed to participate in the study. Data collection was performed using interviews performed in the waiting room. We used an instrument including data on sociodemographic profile, health conditions (use of medication for the referred condition). Primary Care Assessment Tool (PCATool-Brazil) for adults - extended version were used to evaluate attributes. Data were analyzed by percentage and mean  $\pm$  standard deviation. **Results:** Sample included 100 patients with diabetes. Of these, 92% had 40 years of age; 41% were older than 55 years; 70% were women; 42% reported to be mixed race; 12% had college degree; 28% were unemployed, 34% retired, 40% received some benefit; 14% had private health insurance. In terms of profile of morbidities, 17% reported having only diabetes. The most prevalent comorbidities were hypertension (65%), chronic pain (16%) and anxiety (16%). As for PHC attributes, the best evaluated were first contact access -

use ( $8.08 \pm 2.70$ ), care coordination - information systems ( $6.96 \pm 2.01$ ) and longitudinality ( $6.86 \pm 2.16$ ). The others had a mean score below 6.6, which was considered adequate. The essential score was  $6.03 \pm 1.42$ . Regarding resoluteness: 61% were referred to specialized services, mainly ophthalmologists (13%), cardiologists (11%) and endocrinologists (9%). **Conclusion:** Most patients were adults, women, and have multimorbidities, similar finding to study in the published literature. For social aspects we observed that a large portion of patients have social vulnerability and dependence on Brazilian Public Health System, this reinforces the important role of PHC. Access, longitudinality, and care coordination were well evaluated attributes, which are essential for the care of chronic conditions. For resoluteness, we observed that referral to an ophthalmologist is low, particularly for indication of annual eye screening for these patients. The multimorbidity may justify the other referrals to other specialists. Our findings observed that PHC is providing the best care possible for diabetic patients, however, there are still opportunities for improvement in terms of accessibility, integrality, and integration of services.

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**CAAE Number:** 06807019.2.0000.0071.

**Research funding:** Scientific Initiation Scholarship - Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq): 100239/2021-8. Project #: 409134/2018-0.

048

## Influencing factors of team working in COVID-19 pandemic: an integrative review

**Category:** Psychiatry.

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**Introduction:** Teamwork is a fundamental tool for users of health services particularly in the context of the pandemic caused by Sars-CoV-2 virus or COVID-19. The importance of this tool is due to the complex profile of the patients that requires a highly specialized and integrated multidisciplinary team. These team should have the ability to delivery actions required, have the skills and knowledge about different fields to provide an efficient and integral care. An efficient and integrated

multidisciplinary is essential for management of patients during a pandemic. **Objective:** To identify factors that influence teamwork during a healthcare crisis associated with the COVID-19 pandemic. **Methods:** This was an integrative review that included the search for published literature available in Virtual Health Library (VHL) and Cumulative Index to Nursing and Allied Health Literature (CINAHL). This study sought to respond the following question: what are factors that influence teamwork during the healthcare crisis situation caused by COVID-19 pandemic? **Results:** Our search retrieved 5 (100%) articles. Of these, 3 national studies (60%) in VHL and 2 international researches (40%) in CINAHL. Influencing factors observed in the articles included emotional and mental health aspects, work overload, collaboration among peers, leadership, interdisciplinarity, punitive actions instead of educational actions, and communication. **Conclusion:** A number of influencing factors was observed that may affect the efficient and integrated teamwork. Further field studies in health area should be conducted to analyze long-term factors that may influence teamwork, especially for the prolonged pandemic situation caused by COVID-19.

**SGPP Number:** 442120.

**CAAE Number:** 38607020.0.0000.0071.

**Research funding:** Not applicable.

049

## Treatment abandonment in women victims of rape who develop Post-traumatic Stress Disorders (PTSD): a review of the literature

**Category:** Psychiatry.

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**Introduction:** In Brazil, sexual abuse and violence have staggering numbers. In 2018, according to the Brazilian Public Safety Forum, everyday more than 180 episodes of sexual violence occurred, and women are the majority of victims. The number of women who receive assistance and care after sexual violence is lower than the number of cases. Previous studies reported that the

difficult to access these women are the main reason for the low number of assistances and care. At least 31% of women who were raped develop Post-Traumatic Stress Disorder (PTSD) at some point in their life. Despite the advances in the scientific published literature several aspects about sexual violence, a gap exists regarding the causes of abandonment of treatment for PTSD in women victims of sexual abuse and violence.

**Objective:** To understand the main factors of treatment abandonment in rape victim patients with PTSD.

**Methods:** A systematic review of the literature including articles published from August to October, 2020 was conducted in the following databases Medline, PsycInfo, Lilacs, and SciELO using the PRISMA model. **Results:** We observed that treatments that focus on trauma have higher abandonment rates than control therapies. Depression and high levels of anger may raise dropouts. In addition, women from a racial minority, victims of childhood abuse, those living a difficult conjugal relationship, or anger feeling have a higher susceptibility to dropout when these factors were assessed individually.

**Conclusion:** This is an ongoing study.

**SGPP Number:** 4551-21.

**CAAE Number:** Not applicable.

**Research funding:** Not applicable.

050

## Reasons leading to the discard of organs from Brazilian donor: how can we optimize organs using rate?

**Category:** Surgery.

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**Introduction:** The persistent difference between the number of transplants performed and the number of organs needed is worsened by the current using rate of livers from deceased donors. Non-transplanted livers are often from donors who are older, have higher body mass indices, present viral hepatitis (B and C viruses), and more comorbidities. Organs from these non-ideal donors or extended criteria donors have an

increased risk for post-operative complications and even primary graft dysfunction. Although general data on organ transplantation and donation in Brazil are available, data on perception of professionals about the using rate of these organs, the most frequent reasons for these organs to be refused, and the measures to increase the use of these organs with safe are scarce. **Objective:** To determine the perception of professionals on the using rate of deceased donor organs in Brazil, and the reasons for their discard for transplantation. To propose strategies to increase safety of organs use. **Methods:** This was a cross-sectional study using a qualitative approach. Professionals working with liver transplantation in Brazil were invited to respond a self-administered, structured, electronic questionnaire composed of 17 questions. The questionnaire was distributed in 4 sessions that included demographic factors of the participants, their perception about the use of livers from deceased organ donors in Brazil, reasons for disposal, and measures to favor organs use. The questionnaire was applied between February and March 2021. Categorical variables were described and analyzed using absolute number and frequency (percentage). For qualitative data, the results were presented in reports that focused on the respondents' point of view. **Results:** A total of 42 professionals participated in the study. The using rate of livers from deceased donors in Brazil was considered low by 71.43% of respondents (n=30) or very low by 19.05% (n=8) of participants. All respondents agreed that this using rate can be increased. Thirty-one participants (73.81%) believed that expanding the extended criteria donor population impacts this rate negatively. Donor-related conditions (e.g., doubts regarding function, age, obesity) was the most frequent category of reasons for refusing a liver for transplantation. Findings during extraction surgery (steatosis, anatomical abnormalities, injuries during extraction, unsatisfactory organ perfusion, and size) were the most frequent reason in clinical practice. Better training of intensive care teams in organ donor care was the main measure pointed out by respondents that may favor the use of livers from deceased donors, followed by investment in new technologies to optimize preservation/evaluation of organ function before transplantation. **Conclusion:** Strategies to increase the acceptance rate of livers from deceased donors without compromising the safety of recipients are expected. Improvements in intensive donor care and the implementation of new technologies to offer higher preservation of organs from high risk donors should favor their use and increase the number of transplantations.

**SGPP Number:** 4452-20.

**CAAE Number:** 40071220.0.0000.0071.

**Research funding:** Not applicable.

051

## Effects of FGF19 in human adipogenesis

**Category:** Endocrinology and Metabolism.

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**Introduction:** Obesity and type 2 *diabetes mellitus* are chronic diseases of great relevance globally. Bariatric surgery is a treatment option and is it associated with increased plasma concentration of Fibroblast Growth Factor 19 (FGF19), a hormone produced in enterocytes that has a broad spectrum of metabolic functions. Although many studies show that FGF19 has antidiabetic effects and reduces adiposity in rodents, little is known about its effects directly on human adipose tissue, nor whether it contributes to the metabolic benefits promoted by bariatric surgery. The current study aims at analyzing the effects of FGF19 on adipogenesis and browning, allowing the identification of potential metabolic effects of FGF19 on human adipocytes to contribute to the development of therapeutic strategies for the treatment of obesity and diabetes. **Objective:** To investigate the effects of FGF19 on human adipogenesis *in vitro*, more specifically, to study mesenchymal stem cell proliferation and their differentiation into white and beige adipocytes. **Methods:** From elective bariatric surgeries, fragments of adipose tissue (AT) subcutaneous and omentum will be collected for isolation of mesenchymal stem cells and experiments with the tissue explant itself. The mesenchymal stem cells will be treated with vehicle or FGF19 to evaluate proliferation by MTT assay and adipogenesis. These treatments will be conducted 21 days after induction of differentiation through gene expression of white and beige adipocyte markers by qPCR and triacylglycerol (TAG) content using Oil Red O staining. The tissue explants will be mounted on glass slide and treated *in vitro* for 7 days with vehicle or FGF19 to evaluate browning. This will be quantified by gene expression of beige adipocyte markers by qPCR and mitochondrial function by oxygen consumption assessment. **Results:** So far, there are only data from the MTT experiment. Treatment with 0.5ng/mL of FGF19 and a plasma concentration approximating of healthy individuals did



not significantly change the absorbance values obtained in the MTT assay in samples from subcutaneous AT (n=4) or omentum (n=5). However, treatment with 10X higher concentration of FGF19 (5 ng/mL) significantly ( $p = 0.001$ ) reduced these values in samples from subcutaneous AT (n=2), but not from omentum (n=2). These findings suggest that FGF19 promotes a reduction of cell proliferation in subcutaneous AT. Given that the number of samples tested with FGF19 at the concentration of 5ng/mL is small, further experiments and analysis are needed to confirm this result. For the other methods, we expect that FGF19 promotes an inhibition in the differentiation of white adipocytes and that can be showed by lower expression of their markers as well as lower TAG content. In addition, this protein may stimulate browning, indicated by an increase in gene expression of beige adipocyte markers involved in thermogenesis (UCP-1, CIDEA, PGC-1a), as well as increase mitochondrial oxygen consumption.

**Conclusion:** There is still a substantial amount of experimentation to be done, so it is crucial to continue with the project to obtain reliable data to investigate the potential of hormone therapy using FGF19.

**SGPP Number:** 3929-19.

**CAAE Number:** 24594919.0.0000.0071.

**Research funding:** Funding received from Seed Money Grant - *Instituto Israelita de Ensino e Pesquisa Albert Einstein*.

052

## Design of a smartphone application for patients with panic disorders

**Category:** Psychiatry.

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**Intoduction:** Panic disorder (PD) is a prevalent and chronic disease. Treatment is specialized and most patients in the public health system end up not treated for this condition. The lack of access to the treatment is a global problem, however, this is higher in developing countries a fact that led the World Health Organization to create a program as one of the organization's priorities, namely Mental Health Gap Action Programme. Technology is key to be used in the attempt to fill this gap. "E-therapy" has been used for some time now, and it has the potential to help to reduce the existing Mental

Health Gap. A smartphone application (cell phone application) to be used by patients with PD patients could have a positive impact. **Objective:** To develop and evaluate the feasibility of use a smartphone application with content of psychoeducation and management of panic attacks. The App will be applied to patients with PD as an attempt to help those living with the disorder. **Methods:** Planning started by searching IOS (Apple Store) and Android (Play Store) stores for similar Apps for PD and also studies indexed in PubMed. The development of the App was conducted with the technology support by employees at *Hospital Israelita Albert Einstein* (scriptwriter, designer, developer and project manager). Patients under treatment at the outpatient clinic of the Psychiatry Department of the *Escola Paulista de Medicina – Universidade Federal de São Paulo* - and other voluntary patients with PD in psychiatric and psychological follow-up were invited to participate in the study. The final version of the application was then used by 10 patients with PD who were in remission, clinical evaluation, and ambulatory treatment. The score they gave to the application and possible difficulties pointed out were considered. An initial symptom assessment questionnaire was applied for exclusion criteria and a questionnaire to assess the comprehensibility and practicality of using the smartphone application was applied after 1 week of use. This questionnaire was composed by 22 objective questions, and a descriptive analysis was performed. **Results:** Responses to the questionnaire showed that users were comfortable using the App, which is essential when dealing with patients with PD. All volunteers reported that they would indicate the application to others with the disorder or not. Despite certain disagreements on feasibility to use or design of the App. The smartphone application would be considered useful and users reported that they would recommend the App for others. The first version of the App was well-received by users. **Conclusion:** Our findings confirmed the hypothesis that the smartphone application for people with PD was of easy to be applied in patients with PD on treatment in primary care services. Patients reported to feel comfortable and confident by using the App. User considered the App useful and easy to use. The objective of the study was achieved in terms of evaluating feasibility, usability, and applicability of the App. Future efforts should be made to implement the use of online therapy for patients with PD especially those treated in the public health services.

**SGPP Number:** 3975-19.

**CAAE Number:** 29735519.0.1001.0071.

**Research funding:** The *Instituto Solidare* funded the study.

053

## Effects of FGF19 in glucose and lipid metabolism, expression of inflammatory cytokines and adiponectin in white adipocytes

**Category:** Endocrinology and Metabolism.

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**Introduction:** Obesity is a chronic disease that has become one of the world major health problem. This condition is associated with risks of developing cardiovascular disease, type 2 diabetes, some cancers, dyslipidemia, chronic musculoskeletal problems, chronic kidney disease, and psychological problems. Bariatric or metabolic surgery is the most effective treatment for individuals with severe obesity. After bariatric procedures, patients have been observed to present an increase in the plasma concentration of Fibroblast Growth Factor 19 (FGF19). The hormone is produced in enterocytes and has several functions, such as modulating carbohydrate and lipid metabolism and bile acid synthesis. However, despite studies showing that FGF19 has antidiabetic effects and reduces adiposity in rodents, little is known about its direct action on human adipose tissue, and its contribution to metabolic benefits obtained after bariatric surgery. This study aims at investigating the effects of FGF19 on the function of white adipocytes, specifically on glucose and lipid metabolism, expression of inflammatory cytokines, and adiponectin, which may contribute for future development of therapeutic strategies for treatment of obesity. **Objective:** To investigate the effects of FGF19 in glucose and lipid metabolism, inflammatory cytokine, and adiponectin expression in human white adipocytes. **Methods:** Fragments of adipose tissue will be collected with consent of patients who underwent elective bariatric surgery. Tissues will be used for isolation of mesenchymal stem cells, as well as for experiments with the tissue itself. Mesenchymal stem cells will be mounted on glass slide, induced to differentiate into white adipocytes for 14 or 20 days, and then treated with vehicle or FGF19 for 7 days to assess lipogenesis, or 24 hours to assess glucose metabolism,

respectively. Tissue fragments will be mounted on glass slide in the presence of vehicle or FGF19 for one week and evaluated for lipolysis, inflammatory cytokine and adiponectin expression. Glucose metabolism will be assessed by quantification of fluorescent glucose uptake and western blot by expression of proteins involved in the insulin signaling pathway. Lipid metabolism will be evaluated by lipogenesis, staining the cells with Oil Red O, lipolysis, and quantification of glycerol in the tissue supernatant. The expression of inflammatory cytokines will be evaluated by qPCR. Adiponectin secretion will be quantified by ELISA assay from tissue supernatant. **Results:** We expect an increase in glucose uptake and insulin sensitivity, reduce of lipogenesis, increase of lipolysis, reduction of inflammatory cytokine expression, and increase of adiponectin expression. **Conclusion:** All experiments are under conduction. To continue with the project is fundamental to investigate the potential therapeutic uses of the hormone FGF19 in the treatment for obesity.

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**Research funding:** Funding received from Seed Money Grant provided by *Instituto Israelita de Ensino e Pesquisa Albert Einstein*.

054

## The learning of laparoscopy by new generations: is it becoming a much more intuitive task?

**Category:** Surgery.

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**Introduction:** Laparoscopic suturing is a complex procedure, composed by different steps that require training and experience to manipulate forceps and tissues proficiently. The learning of this technique is an indispensable skill in the career of the laparoscopic surgeon, and this is part of the medical student's learning curve during medical school. Over the decades, it has been observed that the younger generations have benefit to obtain surgical skills due to technological advances, for example, in laparoscopy. This was already



observed in 1992, when the term “Nintendo surgeon” was used to refer to the new generation of surgeons with a great aptitude for laparoscopy. The term refers to the habit of playing video games and its potential benefit on laparoscopic skills, however, it is believed that other personal characteristics and lifestyle habits may be related to flawless performance in laparoscopy. Previous experiences with medical students at our medical school showed that, for not very complex movements, students show an adequate performance and results variation is little. For suturing, some students have better performance in relation to time and number of attempts until success. This study seeks to evaluate the proportion of students who born after the 1990s who show greater feasibility for laparoscopy and, to identify what factors may be related to this the feasibility. **Objective:** To evaluate the performance of medical students in performing intracorporeal laparoscopic suturing. To identify personal factors related to greater surgical proficiency. **Methods:** This is a cross-sectional cohort including a convenience sample of 6<sup>th</sup> semester medical students at *Faculdade Israelita de Ciências da Saúde Albert Einstein*. The ability to perform laparoscopic sutures will be evaluated using the Objective Structured Assessment of Technical Skill (OSATS). This instrument, which is validated in the literature, evaluates different perspectives, such as duration, respect to body structures and skills in handling the surgical thread. This assessment will occur during a laparoscopic surgical technique class at medical school. During the class students will learn how to handle the forceps and how to perform the laparoscopic suture. Different characteristics, such as age, gender, dominant hand, presence of medical relatives, practice of sports and/or musical instruments, hobbies, play of electronic games and areas of interest in medicine will be analyzed using an electronic questionnaire applied before the surgical technique class. **Results:** We expect to find the proportion of medical students of the current generation who have feasibility to acquire laparoscopic surgical skills and, among these students, what factors may influence their feasibility to perform the technique. **Conclusion:** This is an ongoing study. **SGPP Number:** 4510-20. **CAAE Number:** 42188621.6.0000.0071. **Research funding:** Not applicable.

055

## Perception of grandparents caring for their grandchildren with cancer

**Category:** Oncology.

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**Introduction:** The diagnosis of childhood and adolescence cancer face several challenges given that this diagnostic totally modifies these patients’ routine and affects their educational, and social life. The family of these patients undergoes periods restructuration of their role and routine, which is a mix of tension and suffering. At the same time, however, this period demanding family reorganization may develop skills and collaboration activities among family’s members. Given that the life expectancy of individuals in our society is increasing and the presence of grandparents is more common in the lives of their grandchildren. It is natural that grandparents are touched in situation that their grandchildren are affected by a life-threatening disease such as cancer. Currently, little is known on the perception of grandparents who collaborate with the care of grandchildren with cancer. **Objective:** To understand the experience of grandparent who delivery care for their grandchildren with cancer. **Methods:** This was an exploratory descriptive field study with a qualitative approach. The sample was composed of 4 grandparents of grandchildren with cancer. Data collection was carried out in the first semester of 2021 after approval of the research project by the Institutional Research Ethics Committee of *Hospital Israelita Albert Einstein*. A qualitative data analysis was performed using Bardin’s Content Analysis. All the precepts of Resolution 466 of 2012 were followed. **Results:** The analysis of the interviews allowed the elaboration of three topic categories: The feeling of pleasure of the role of grandparents, but at the same time, suffering for having the grandchild with cancer, which deals with the pleasurable role of being a grandmother which is a condition confronted by the suffering when accompanying grandchild with cancer; Having faith and considering the experience accumulated over the years as foundations in supporting the family and the grandchild with cancer, a topic that highlight the importance of life experience and faith of these grandparents to support their loved ones, and

perceiving themselves as a source for family support in facing the cancer of the grandchild, a topic which revealed the role of supporting the activities of daily living. **Conclusion:** Grandparents is even more present in the lives of their grandchildren due to increase in life expectancy. Nurse teams have a fundamental role to act collaboratively to provide grandparents the help need for them assume the role of support in a peculiar condition such as having a grandchild with cancer. In addition, nurses need to provide all necessary inclusion, information, and security that family members of these patients need.

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**CAAE Number:** 38563620.4.0000.0071.

**Research funding:** Not applicable.

056

## Time evolution of prevalence of marginality criteria of organ donors and liver transplantation from expanded criteria donors

**Category:** Nephrology and Solid Organ Transplantation.

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**Introduction:** The obesity epidemic and the aging of the population have caused a demographic change in organ donors. Donors who present, among other factors, older age, hypernatremia, prolonged time at intensive care unit, changed liver enzymes, and the presence of moderate, or severe degrees of steatosis are known as expanded criteria donors (ECD). These criteria are associated with a higher risk of unsatisfactory postoperative outcomes. To meet the demand of patients waiting for transplantation, the use of ECD grafts is a requirement. Despite the relevance of this topic, data on the prevalence of ECD and its using rate are scarce.

**Objective:** To evaluate the time evolution of prevalence of marginality criteria among deceased organ donors, its impact on the using rate of donor livers, as well as

the number of transplants from ECD. **Methods:** This was a retrospective study that reviewed data of brain-dead organ donors offered by the *Sistema Estadual de Transplantes do Estado de São Paulo* to the institutional liver transplant program of the *Hospital Israelita Albert Einstein*, from June 2017 to December 2020. The incidence of Eurotransplant marginality criteria among donors (age >65 years, intensive care unit >7 days, body mass index >30Kg/m<sup>2</sup>, liver steatosis >40%, serum sodium >165mmol/L, alanine aminotransferase >105U/L, aspartate aminotransferase >90U/L and total serum bilirubin >3mg/dL) as well as their using rate over the years were analyzed. The relationship between the occurrence of organ refusal for transplantation and the marginality criteria were assessed by simple and multiple logistic regression adjustment. **Results:** A total of 1,619 organ donors were evaluated, 78.31% (n=1268) had at least one marginal criteria. There was no significant relationship between the change in the amount of ECD by year of offering (estimated ratio of means 1.012, 95% confidence interval [CI] 0.973-1.052, p=0.551). Between 2017 and 2020, there was an increase in ECD organ acceptance for transplantation (1 criteria: from 23.40% to 31.60%; 2 criteria: from 13.10% to 27.70%; 3 criteria: from 6.30% to 13.60%). With each addition of an ECD, the estimated chance of organ refusal was 64.4% higher (odds ratio [OR] 1.644, 95%CI: 1.469-1.839, p<0.001). Except for donor serum sodium >160 mmol/L (OR 1.173, 95%CI: 0.862-1.596, p=0.310), all variables indicative of the occurrence of an ECD increased the estimated chance of organ refusal for transplantation. **Conclusion:** This study found a sustained high prevalence of ECD over the years. Despite the increase in the using rate of these organs, the presence as well as the quantity of donor marginality criteria are associated with refusal of the liver for transplantation. The implementation of strategies to safely expand the use of ECD organs are critical and demand attention from the transplant community to benefit the greatest number of patients waiting for transplantation.

**SGPP Number:** 4422-20.

**CAAE Number:** 39704520.0.0000.0071.

**Research funding:** Einstein Scientific Initiation Scholarship.

057

## Longitudinality and care management of users with self-reported mental health conditions associated with Family health teams

**Category:** Health and Family Medicine.

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**Introduction:** Mental health (MH) conditions can be observed in considerable proportions in primary health care (PHC) services. This situation, in terms of supply and organization of actions, is a challenge for family health care (FHC) teams. In general, despite all efforts to expand and strengthen the integration of MH in PHC services - to ensure the provision of comprehensive, coordinated, accessible and continuous care - there are still some weaknesses in the establishment of this scenario. In this sense, it seems that the existence of a continuous source of care, the long-term use, the relationship between professional-user, and the integration of care among services are essential factors to embrace the demands of MH. This study explores the attributes of “longitudinality” and “coordination - care integration” in PHC based on the experience of those with MH conditions. **Objective:** To describe the relationship between the profile of users who self-reported mental health conditions and the attributes of longitudinality and coordination-integration of care. **Methods:** This was a cross-sectional and descriptive study conducted in 13 Basic Health Units (BHU) located in the city of São Paulo. We included users registered in these units who were part of FHC program older than 18 years. Data collection was carried out during interviews conducted in the waiting room of BHUs. Information was collected on the sociodemographic profile, health conditions and, subsequently, the mapping of the conditions of MH in the BHUs. To evaluate the attributes of longitudinality and coordination-integration of care, the Primary Care Assessment Tool (PCATool-Brazil)

for adult patients - extended version - was used. Data analysis was performed with Fisher's exact test. The study was approved by the Institutional Research Ethics Committee #3.212.241. **Results:** A total of 595 users participated in the study. Of these, 123 self-reported depression (9.6%) and/or anxiety (16.6%). Of patients, 86.2% were women, 37.4% were between 41 and 65 years old, 41.5% were white, 43.1% had a college degree, and 39.2% were unemployed. Most users reported having three or more comorbidities (53.7%) and had consulted a specialist while being followed up at the unit (59.3%). Two users reported having been referred to a psychiatrist. Nine participants only were registered in the MH mapping of the PHC and one had a singular therapeutic project in psychosocial care center. Regarding attributes of PHC, medians of 6.43(0-10) were observed for longitudinality and 7.08 (0-10) for coordination - care integration, characterized as low and high scores, respectively, according to the cut-off point of the instrument. A statistically significant association was identified between work status and coordination - care integration, that is, unemployed users presented lower scores in this attribute ( $p=0.039$ ). From the point of view of longitudinality, none of the sociodemographic aspects was related to the outcome. **Conclusion:** The findings showed some important gaps regarding the mapping of the conditions of MH in PHC. The longitudinality attribute seems to be minimally present among the characteristics of services while the aspects of care coordination were satisfactory, excepting for the experience of unemployed participants.

**SGPP Number:** 3656 -19.

**CAAE Number:** 06807019.2.0000.0071.

**Research funding:** Scientific Initiation Scholarship - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) (Process # 163214/2020-4). Funding for Health Regulation Research - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) (Process # 409134/2018-0).

058

## Extracurricular internship program and impact on the career of new graduated nurses

**Category:** Health Education.

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**Introduction:** The extracurricular internship is a non-mandatory activity and complementary to the theoretical knowledge provided by the nursing undergraduate program. This activity enables the acquisition of professional experience and insertion in the labor market. The lack of practice and experience by nurses are factors that constitute a challenge for early career nurses and may generate more job vacancies than there are potential professionals due to the lack of qualified nurses. This study seeks to investigate the contributions of extracurricular internships to the career progression of new graduated nurses. **Objective:** To analyze the career progression of nurses recently graduated from an undergraduate nursing program. To determine whether there is a difference in career progression between nurses who participated in extracurricular internship programs, and those who did not participate in such programs during undergraduation studies. **Methods:** This was a field, descriptive, and cross-sectional study with a quantitative and correlational approach. The study was conducted based on a survey responded by undergraduate students in nursing at *Faculdade Israelita de Ciências da Saúde Albert Einstein* from 2005 to 2017. The sample included 130 undergraduate nurses who signed the Informed Consent Form between January and March 2021, and who completed the IAE-ENF instrument. Both the consent and the instrument were sent electronically using the survey management platform - REDCap. The analyses were performed in partnership with the Researcher Support Center Team of the *Instituto Israelita de Ensino e Pesquisa Albert Einstein*. **Results:** Most of the participants had attended extracurricular internship programs, were selected in formal hiring process, and were employed as nurse in general hospitals or other facilities, worked up to 44 hours per week in private institutions, had a monthly income between 4 and 7 Brazilian minimum wages, and had attended or were attending a specialization course. We observed that a higher proportion of participants

who got their first job within six months after graduation were those who did the extracurricular internship (84.5% vs 61.1%). Leadership positions (coordination/management) were occupied only by nurses who had joined extracurricular internship program (21.8% vs 0.0%). The investigation of the perception related to academic education, major disagreements were found regarding the training to work in health care areas and to perform health management activities in the group that did not participate in the extracurricular internship. Most of participants agreed that salary is inadequate given the complexity of the profession. **Conclusion:** Results of the study allowed the analysis of the career progression of nurses. The existence of differences was confirmed in the career progression between nurses who participated and those who did not participate in the extracurricular internship.

**SGPP Number:** 4281.

**CAAE Number:** 36466220.0.0000.0071.

**Research funding:** Scientific Initiation Scholarship – *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq).

059

## Pharmacological treatment for post-traumatic stress disorders: a systematic review of the literature

**Category:** Psychiatry.

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**Introduction:** Post-traumatic stress disorder (PTSD) is a psychiatric disorder characterized by symptoms that arise after a traumatic event that endangers a person's physical integrity or life. Not only can the victim of this event themselves develop PTSD, however, also those who witnesses to the incident who are linked with the victim. The 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2014) has defined the diagnostic criteria for PTSD, 30 days after the event, by including some symptoms, *i.e.*, re-experiencing or reliving; avoidant behavior; negative changes in cognition or mood; hypervigilance. An individual to be diagnosed with



PTSD, symptoms must lead to suffering or impairment in psychological functioning (Lancaster et al. 2016). Evidence in the literature suggests that the lifetime prevalence of PTSD in the United States is 7-8% and 8-10% in Brazil (Ribeiro et al. 2013). Considering PTSD as a prevalent mental disease, and at the same time difficult to treat, with a high risk of chronicity, comorbidity and functional impairment, the debate on therapeutic approaches is fundamental. Regarding pharmacological approaches, recommendations are still inconsistent, and no consensus exists. Some guidelines recommend selective serotonin reuptake inhibitors (SSRIs) as a possible first-line treatments (Department of Veterans Affairs, 2017). However, many guidelines consider antidepressants only as an adjunctive therapy to psychotherapies (Luz et al. 2016). To date, the U.S. health agency has approved only two SSRIs (sertraline and paroxetine) for the treatment of PTSD. These medications have demonstrated efficacy in reducing symptom severity and preventing relapse in patients with PTSD (Foa et al. 2020), although previous evidence showed that only around 60% of patients respond to treatment and less than 30% achieve complete remission (American Psychiatric Association, 2017). In this study, we will perform a systematic review of the literature on the efficacy of pharmacological treatments in PTSD to clarify doubts regarding the efficacy and tolerability of antidepressants, and the superiority of one specific agent over another. **Objective:** To conduct a systematic review of studies that have evaluated the effectiveness of pharmacological treatments for PTSD. A double-blind, randomized, placebo-controlled clinical trials will be used; other systematic reviews and meta-analyses on drug efficacy will also be included. **Methods:** The criteria established by the Transparent Reporting of Systematic Reviews and Meta-Analyses and the Critical Appraisal Skills Programme will be used. **Results:** Studies identified (n=1,458) → Evaluated for eligibility (n=58) → Included (n=29). **Conclusion:** This is an ongoing study.

**SGPP Number:** 4567-21.

**CAAE Number:** Not applicable.

**Research funding:** Scientific Initiation Scholarship - *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP) (Process # 2020/14814-3).

060

## Relationship between nursing consultation rates and attributes of Primary Health Care

**Category:** Public Health Nursing.

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**Introduction:** An important debate on nursing practices in Primary Health Care exists related to the expand universal access to health care and improve the quality of health care by increasing the number of nursing consultations. The research question of this study is "Do higher rates of nursing consultations lead to higher scores of Primary Health Care attributes?". **Objective:** To determine the relationship between Primary Health Care attributes and nursing consultation rates. **Methods:** This was a cross-sectional study including 332 users. To evaluate the attributes the Primary Care Assessment Tool Brazil - adult version was applied to 28 Family Health Teams. The rates of nursing consultations were calculated using data from the Integrated Administrative Management System. The association was made with Spearman correlation coefficients. **Results:** There was a negative correlation between accessibility scores and the rate of nursing consultations in relation to the total number of consultations performed by team. There was a positive correlation among: rate of childcare consultations and accessibility, rate of diabetes or hypertension consultations, degree of affiliation, family orientation, general and essential attributes. **Conclusion:** A relationship between the rates of nursing consultations and the attributes of primary care were observed. The results reinforced that the clinical practice of nurses in the context of consultation should go beyond the provisional of vacancies. The visibility and recognition of nursing consultation by the users as well as care and access to services need a qualified, empowered, recognized and disseminated care approach among teams, nurses and population.

**SGPP Number:** 3656.

**CAAE Number:** Institutional Ethics and Research Committee – Einstein (CAAE # 06807019.2.0000.0071 Report # 3.935.181) and *Secretaria Municipal de Saúde*



de São Paulo (CAAE # 06807019.2.3001.0086 Report # 3.263.871).

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061

## Tranexamic acid in the management of traumatic brain injury: a systematic review and meta-analysis with trial sequential analysis (TSA)

**Category:** Urgency and Emergency Medicine.

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**Introduction:** Traumatic brain injury (TBI) and spinal cord trauma are the leading causes of death and disability in the context of traumatic injuries. In 2017, TBI presented a worldwide prevalence of 613.49 cases per 100,000 which accounted for over 46 million events. This represented a worldwide incidence of 283.39 new cases per 100,000, which caused over 21 million new events. Given the frequency, severity, and financial impact of TBI, the importance of investigating alternative therapeutic methods for its management is evident. Tranexamic acid (TXA) is an antifibrinolytic agent analog of lysine that inhibits fibrinolysis by binding to the binding sites of this amino acid in plasminogen and plasmin and, consequently, hinder the interaction of these proteins with fibrin. This drug is potentially useful in the management of intracranial hemorrhages due to TBI. However, controversies exist about this drug efficacy and safety in this context. Other meta-analyses evaluated the role of this drug in TBI. Nevertheless, there were some limitations, such as not performing a comprehensive search and restricting the languages of the articles considered for studying. The high costs associated with the development of randomized clinical trials and the large number of meta-analyses available on the subject emphasize the importance of determining whether previous studies have determined the required information size and

sample sizes necessary for convergence of statistics test for each outcome towards the true value. **Objective:** To determine the efficacy and safety profile of TXA in the management of intracranial hemorrhages due to TBI, and to identify the need for further randomized clinical trials and meta-analyses on the issue. **Methods:** This is a systematic review of the literature and meta-analysis with TSA. A total of 7 databases/libraries will be searched as well as 8 repositories. Lists of references of articles included in the study will be screened as well as studies included in other meta-analysis published on the topic. The study population will include adults and the intervention to be analyzed will be the use of ATX, compared with placebo or standard treatment described in previous studies. The primary endpoints will be all-cause mortality and bleeding complications during treatment. We will include published or unpublished randomized controlled trials written in any language and made available by May 2021. This review will be guided according to PRISMA. The methodological quality of the included studies will be addressed according to the Cochrane risk of bias assessment. The quality of the available evidence and the degree of clinical recommendation will be assessed according to the GRADE systematic. The presence of publication bias will be also checked. For eligible syntheses, sensitivity analysis will be performed. Subgroup analyses will also be performed if relevant and possible. If data obtained allow, meta-regression will be performed. This review was registered in the PROSPERO systematic review registry database # CRD42021221949. **Results:** We expect to observe that tranexamic acid is effective and safe for the management of intracranial hemorrhages due to TBI. In addition, we believe that no further randomized clinical trials and meta-analyses will be needed on the topic of the present study. **Conclusion:** This is an ongoing study.

**SGPP Number:** 4505-20.

**CAAE Number:** Not applicable.

**Research funding:** Not applicable.

062

## Epidemiological analysis of lymphoma cases diagnosed at the Pathological Laboratory of Hospital Israelita Albert Einstein

**Category:** Hematology and Onco-Hematology.

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**Introduction:** Lymphomas, the seventh most prevalent cancer in the world, are neoplasms of the lymphatic system, nodal or extranodal that originate from B, T, or NK cells. They can be classified into Non-Hodgkin Lymphoma (NHL) and Hodgkin Lymphoma (HL). Non-Hodgkin Lymphoma have many subtypes, and these are classified according to origin in B (NHL-B) or T (NHL-T) lymphocytes, their degree of aggressiveness (high or low), the maturation of the lymphoid cell responsible for its origin (lymphoblastic or mature cell), and the expression of proteins. Hodgkin Lymphoma are classified according to their evolution and therapeutic response into the following types classic: subdivided, according to histology, into nodular sclerosis, mixed cellularity, and lymphocyte-rich, lymphocyte depletion - or nodular lymphocyte predominance. **Objective:** To analyze epidemiological data on Hodgkin and NHL diagnosed at the Pathological Laboratory of *Hospital Israelita Albert Einstein* (HIAE), and to observe possible correlations between patient profiles and lymphoma types. **Methods:** Retrospective cohort study including 726 patients whose diagnosis of lymphoma was made at the Pathology Laboratory of HIAE. One diagnosis was conducted in 2010 and the remaining others from September 2014 to September 2019. Gender, age group, hospital of origin - public and private - and type of lymphoma were analyzed. **Results:** The overall analysis revealed a predominance of men with mean age of 57 years old. Of all diagnoses, the most common was diffuse large B-cell lymphoma, and among HL the nodular sclerosis subtype was the most common one. There were more NHL-B than NHL-T and HL. Among the NHL-B and NHL-T, the high grade of NHL was predominant. There was no statistically significant difference in the frequency of HL, NHL-B, and NHL-T

between the public and private systems and between sexes. However, different diagnostic frequencies were identified among ages, with NHL-B the most frequent in the oldest (mean 62 years old), HL in the youngest (mean 32 years old), and NHL-T at intermediate ages. In addition, it was identified that most lymphomas were diagnosed after eighteen years. **Conclusion:** B-cell lymphomas affect older patients, while HL occur in younger patients and T-cell lymphomas in intermediate ages. Given the complexity of diagnosis and the scarcity of national epidemiological data, this study is relevant for contributing to the better understanding of these cancers that diagnosis criteria often overlap. Given the enormous diversity of lymphomas, the importance of a correct diagnosis is evident, and improve the therapeutic strategy, response to treatment and, above all, patient survival.

**SGPP Number:** 4353-20.

**CAAE Number:** 44580921.0.0000.0071.

**Research funding:** Not applicable.

063

## Impact of time of neonatal screening for diagnosis and health outcomes in individuals with cystic fibrosis in Brazil

**Category:** Pediatrics.

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**Introduction:** Cystic fibrosis (CF) is a genetic disease of autosomal recessive inheritance associated with mutations in the gene that encodes the CFTR protein, a channel that regulates the movement of chloride and bicarbonate across the cell membrane of epithelial cells. The incidence of the disease is estimated to be 1/10,000 individuals, and this is related to a significant reduction in life expectancy. Cystic fibrosis is a complex disease and in Brazil little is still known on this disease, despite the existence of several reference centers. The Brazilian Registry of Cystic Fibrosis (REBRAFC) is the national

database used to monitor the disease in the country, gather data on clinical, epidemiological and genetic conditions of the patients with the disease. The inclusion of CF in the National Newborn Screening Program has contributed to changes in the epidemiological scenario, allowing early diagnosis of the disease. The impact of neonatal screening (NS) on health outcomes and survival of people with CF is still poorly explored in the Brazil. **Objective:** To compare epidemiological, demographic, and microbiological variables, clinical outcomes, anthropometric data/lung function, and genetic test from patients diagnosed clinically or by neonatal screening. **Methods:** Data of REBRAFC from the year 2017 were analyzed descriptively using graphs, summary measures and tables. Statistical analyses were conducted using chi-squared test, Student's *t* test, and logistic regression models mainly in patients with and without NS as a diagnostic method. **Results:** Of the 5,128 patients included in the study, 35.4% were diagnosed by NS. Age at diagnosis was lower in patients diagnosed using the NS ( $p < 0.001$ ). Regarding region of birth, the North and Northeast regions had the lowest proportion of patients diagnosed by NS (OR=0.35; 95%CI: 0.29-0.42 and OR=0.22; 95%CI: 0.14-0.34 respectively). Genotyping analysis showed a higher proportion of positive results in the group diagnosed by NS (83.9%;  $p < 0.001$ ). Patients diagnosed by NS had higher lung function values, (predicted percentage of FEV1) at 7 and 14 years ( $p = 0.043$  and  $0.015$ , respectively), however, none at 18 years ( $p = 0.244$ ). Anthropometric data (weight, height and BMI) analyzed by regression models showed that the impact of performing NS is greatest at the first years of life and tends to decrease with aging. The identification of *Pseudomonas aeruginosa* before 5 years of age was higher in the clinically diagnosed group ( $p = 0.04$ ), and the frequency of the mucoid phenotype was even more significant ( $p < 0.001$ ). Diagnosis by newborn screening was also related to longer survival, even after adjustment for covariates (HR=3.16; 95%CI: 2.01-4.95;  $p < 0.001$ ). **Conclusion:** Although NS showed regional differences in its application, better results were observed in relation to age at diagnosis, lung function at 7 and 14 years, anthropometric data, occurrence of *Pseudomonas aeruginosa*, and overall survival.

**SGPP Number:** 4332-20.

**CAAE Number:** 37547320.9.0000.0071.

**Research funding:** Not applicable.

064

## CASULO Paraisópolis Study - Monitoring and evaluation of the impacts of a centralized isolation action in an urban region of high social vulnerability

**Category:** Public Health and Family Medicine.

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**Introduction:** The SARS-CoV-2 pandemic represents a challenge for public health. For this reason, non-pharmacological measures are essential to fight it. The implementation of such measures encounters barriers in regions of high social vulnerability. In April 2020, the Association of Medical Residents of Paraisópolis, with support from the *NGO Parceiros pela Educação* and *Faculdade Israelita de Ciência da Saúde Albert Einstein*, prepared a project for local intervention, namely *Projeto Casulo*. This project aims to offer COVID-19 tests to symptomatic individuals in the community. When the tests were positive and patients did not meet the criteria for hospitalization, they were expected to be in self-isolation at home. Masks and alcohol for disinfection for two weeks were provided to be used during period of isolation at home or at places organized by the project for centralized isolation. **Objective:** General: To evaluate the experience of centralized isolation to face COVID19 epidemic in Paraisópolis favela. Specific: To describe sociodemographic, clinical epidemiological, and clinical evolution of participants in the *Projeto Casulo*. **Methods:** This was a cohort study. The first stage included the interview of participants of the project. The questionnaires had data on sociodemographic, clinical, and epidemiological profile of participants. The second stage of the research, a sub-sample of individuals, who agreed to participate in the follow-up, were followed-up for one year to determine the natural history of their disease, and impacts on social and health of these individuals. These patients were monitored for 3 months using questionnaires to assess health and socioeconomic indicators. A blood sample was also be collected for serological analysis. **Results:**

*Projeto Casulo* had 1,407 participants. Of these, 697 had a negative RT-PCR result, 24 had no results, and 687 had a positive result. Among those with a positive test, a total of 229 were invited to participate in the follow-up. Of these, 100 agreed to participate in the research. In the group, 65.7% were women, 70% identified themselves as dark hair or black. The average number of years living in Paraisópolis favela was 21.36 (SD = 12.69). Of participants, 22% were illiterate or did not have finish elementary school, 38% had not completed high school, and only 7% had higher education degree. At the time of the study, 15% were unemployed, 35% reported a monthly income between R\$ 880,00 and R\$ 1.760,00, and 27% received financial support from government programs. Most of participants reported symptoms at the time of diagnosis including loss of taste or smell (77% and 74%, respectively), body aches (65%), fever or chills (54%), and fatigue (49.5%). However, 71% of participants also reported some other symptom, such as headache (45%) or forgetfulness (7%). Of 100 respondents, only 17 underwent centralized isolation. One patient (5.8%) reported that, after their diagnosis, an intimate or family member acquired the disease. The remaining patients, 83, who were self-isolated home, 36 (43%) contaminated someone from their surroundings. The difference results between centralized isolation and self-isolation showed a Chi-squared of 6.9 with a p-value of 0.008. **Conclusion:** Participants who opted for centralized isolation reported a lower percentage of person-to-person transmission of COVID-19. Centralized social isolation, despite having a high potential to reduce virus transmission, was not widely chosen as a form of isolation by the patients from community of Paraisópolis.

**SGPP Number:** 4185-20.

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**Research funding:** Einstein Scientific Initiation Scholarship Program  
Partners for Education.

065

## Co-localization of senescent cells in the deep, ovarian and superficial endometriosis lesions

**Category:** Gynecologic, Obstetrics and Human Reproduction.

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**Introduction:** Endometriosis is a gynecological affliction with a significant prevalence among fertile women, and one of the main gynecological causes for hospital admissions. This disease etiopathogenesis is poorly understood, and investigations are required to explain the development of its lesions. Traditionally, there are three different types of endometrial lesions: deep, superficial and ovarian, which are characterized by morphometric aspects. In addition, another feature of the disease is the presence of high concentrations of reactive oxygen species (ROS), pro-inflammatory cytokines and factors in the lesions, particularly in the peritoneal cavity. The cellular senescence is a permanent cell cycle withdrawal process that cells finish off their potential for division. It can be induced by diverse factors and one of them is ROS accumulation. However, although they no longer duplicate, the maintenance of these cells in the organism is associated with the compromise of the tissue's natural functioning since they continue to synthesis metabolites with deleterious effects upon cellular homeostasis, especially related to the Senescent Associated Secretory Phenotype (SASP) factor. The accumulation of senescent cells within endometrial lesions might be contributing to the lesion's maintenance since this process can be mediated by the accumulation of ROS. This study evaluates the existence of differences in the these cells' accumulation pattern within the three different types of endometrial lesions (superficial, ovarian and deep) by observing the cellular compartments that integrate them (stromal and epithelial glandular cells). The markers p16 and LaminB1, previously identified as cellular senescence biomarkers, and an epithelial cell marker (E-cadherin) will be used. **Objective:** To evaluate the standardization and signaling of senescent cells withing the endometriosis foci considering the different types of lesions (deep, peritoneal and ovarian), as well as to analyze the difference between the co-signaling in the epithelial and non-stromal cell compartments. **Methods:** Biopsies were harvested from women with endometriosis, both from the endometrium itself as well as from the lesions. Biopsies were also harvested from women without the condition (Control Group). The co-localization of cellular senescent markers was realized through indirect immunohistochemistry technique. This marking aimed to evaluate p16 and LaminB1. The visualization of the cellular compartment of epithelial cells through the protein of cellular adhesion E-cadherin



Specific antibodies related to cellular senescence (p16 and LaminB1) were deployed, along with the antibody anti-E cadherin that marked specifically epithelial cells. We used the secondary antibodies Alexa Fluor®488 and Alexa Fluor®647. Photomicrography was done using a confocal microscope to visualize the signals. **Results:** Results showed that the endometriosis lesions presented a pattern of expressing pro-senescent markers. There was an increase in the concentration of p16 within lesions, regardless of its histological nature (deep, superficial, ovarian). Moreover, as already demonstrated in previous results of a study from our group, the lesions also presented diminished expression of LaminB1. In relation to the cellular compartments, we could observe that LaminB1 was predominantly found in the epithelial compartment, although not exclusively. **Conclusion:** The cellular expression profile that caused the lesions (deep, superficial and endometrioma) presented a pro-senescent pattern, which may be an important finding in elucidating endometriosis etiopathogenesis.

**SGPP Number:** 2650-16.

**CAAE Number:** 56229916.9.0000.0071.

**Research funding:** Einstein Scientific Initiation Scholarship Program (PRO UNIEMP).

066

## Evaluation of NTRK fusion in the differentiated aggressive thyroid carcinomas

**Category:** Surgery.

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**Introduction:** Papillary carcinomas are often indolent, however, with ten-year mortality rates lower than 2%, some particular cases present an aggressive phenotype, development of distant metastasis, and/or death due to the disease progression. Gene fusions play an important role in oncogenesis and may be presented as fusions of the neurotrophic tyrosine kinase receptor genes, NTRK fusions. **Objective:** To determine NTRK fusions presence in a series of cases of papillary carcinomas with atypical progression to establish the relevance of

this marker to the prognostic and treatment of papillary carcinomas. **Methods:** We collected histopathological data and reviewed pathological report from a cohort including individuals who died due to the differentiated papillary carcinoma. A total of 48 subjects who met inclusion criteria were included, there was no Control Group. The biopsied material was subjected to immunohistochemistry technique that verified the expression of Pan-TRK, a highly concordant with the Next Generation Sequencing, which acted as a screening test. **Results:** Out of the 48 individuals who underwent immunohistochemistry, 1 had a positive result and was referred to NGS. The remaining analyses of the sample were inconclusive for the NTRK fusion panel. **Conclusion:** The expressions of atypical malignancy for papillary carcinomas in this cohort did not have as relevant common characteristic the presence of NTRK fusions that could indicate tissue-agnostic therapy. Further studies are needed to determine an effective method to identify cases within the therapeutic window.

**SGPP Number:** Not applicable.

**CAAE Number:** 44997215.1.0000.0065.

**Research funding:** Not applicable.

067

## Evaluation of the performance of the Gauging, transmission and analysis by O2 Sensors (ATAS O2) IoT system

**Category:** Intensive Therapy.

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**Introduction:** To create a mechanism to help to carry out activities related to the consumption of medical oxygen seems to be extremely important. These mechanisms can bring benefits such as an increase in the capacity of documenting, monitoring and, consequently, managing medical oxygen. Cost-benefit analysis (CBA) enables to determine whether a new technology may generate tangible financial benefits to the society, and allow



comparison with other interventional health programs. Projects on CBA with high impact to the society are expected to use economic tools to identify, among the options available in the market, solutions that maximize the benefit and reduce, as much as possible, the economic and social risk. This cost-benefit assessment project proposed in this study seeks to show costs and benefits related to consumption of medical oxygen. This research intends to collaborate with decision-making process of health managers concerning the need for implementation ATASO2 in hospital environment to the control of medical oxygen. **Objective:** To evaluate the use of ATAS O2 technology in medical oxygen monitoring by the analysis of total hospital oxygen consumption in a specific unit at a private hospital in São Paulo, Brazil. **Methods:** This was a quantitative research of CBA in which the time of hospital oxygen consumption in a hospital unit per patient will be observed. Data will be measured through the ATAS O2 and by an auditing team. The financial impact will be calculated as well as the solution ability to return on investments. **Results:** As a primary outcome, we expect to calculate oxygen consumption in the unit computed by the audit team as well as the time required by ATAS O2. At this same unit, the perspective is to observe if there was similarity between the calculated values. As a secondary outcome, it is expected to observe the waste of oxygen in the unit by quantify the amount used by patients who were hospitalized. **Conclusion:** This is an ongoing research.

**SGPP Number:** 4499-20.

**CAAE Number:** Not applicable.

**Research funding:** Center of Excellence in Reef Technology and Software (SOFTEX) (2021/22).

068

## Characteristics influencing teachers on the effective use of inverted classroom

**Category:** Health Education.

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**Introduction:** Recently, there has been an intense campaign for the reform of educational curriculum of

medical education by the adoption of active methods. These changes goal is to transform the students' profile by promoting student-centered teaching, which has been proved to lead to more meaningful learning and the development of "21st century skills". According to published literature, to the scope and sustainability of these changes, however, it is necessary, to invest in teacher training and investigate the factors that may influence the positive and negative outcomes of active methods implementation. **Objective:** To investigate what characteristics of teachers are related to the promoting of effective use of active methods, more specifically, the "inverted classroom" methodology. **Methods:** The study was conducted at the *Faculdade Israelita de Ciências da Saúde Albert Einstein* Medical School, where there is a commitment to the use active methods. Initially, 4 teachers from each pre-boarding class were invited to participate as volunteers in the study. Each teacher was asked to respond a questionnaire including sociodemographic characteristics, experience, education and personal factors. Subsequently, two classes of each of these teachers were observed for two consecutive semesters. To assess success, an adapted version of the PORTAAL tool was applied for classes observation. This tool consists of the analysis of elements related to the best practices for implementing active methods. **Results:** Thirty teachers participated in the study and 60 classes were observed. The sample of teachers was balanced in terms of gender and their mean age was 48.5 (SD 8.74). Most of teacher had on average 24.9 years of practice since graduation. In terms of experience and training, 46.4% of responded "none" for the question about experience with active methods as a student and 60.7% rated their experience with active methods as a teacher as "low to moderate" or "moderate". The average hours of continuous training in active methods was 27.5 hours (0 to 100 hours). In terms of quality of life, the perception of stress was heterogeneous among teachers, with an average of  $57.7\% \pm 23.7\%$ ; minimum of 10% and a maximum of 90%. The perception of well-being was slightly more standardized, with an average of 68%. Regarding willingness to change their class approaches, most of participants described themselves as highly open, with an average of  $86.6\% \pm 15.6\%$  and a median of 90%. Furthermore, when participants were asked about changes made in response to feedback received, any responded "no change" and the majority (53.6%) marked "significant changes". This latter result indicated that the evaluated faculty perceive themselves as not very resistant to changes. The data collected during the observation of classes, which will be associated with the characteristics of the teachers, are still under analysis. **Conclusion:** We observed that to develop individual and institutional action plans to

improve training is favorable, particularly, considering moderate to general experience with the use of active methods, and the heterogeneity of experiences with continued education observed so far. This ongoing study will attempt to identify the critical points to establish action plans, given that success is often associated with specific characteristics.

**SGPP Number:** 3944-19.

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**Research funding:** Scientific Initiation Scholarship - *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) (Process: 154898/2020-1).

069

## Practical management of anesthesiologists regarding hypersensitivity reactions to drugs in the perioperative period.

**Category:** Allergy and Immunology.

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**Introduction:** Prophylactic antibiotic therapy (ATB) and the use of non-steroidal anti-inflammatory drugs (NSAIDs) are important pillars of the perioperative period. These medications are the most frequent cause of drug hypersensitivity reactions (RHM). Little is known in Brazil about the approach and knowledge of anesthetists when RHM is referred by patients, particularly those who refer allergy to beta-lactams (BLs) and/or nonsteroidal anti-inflammatory drugs. **Objective:** We evaluated technical knowledge and conduct of anesthesiologists in cases of allergy to BLs and/or NSAIDs during the perioperative assessment to assess the risk of unnecessary BL exchanges and problems related to inappropriate use of NSAIDs. **Methods:** Anesthesiologists responded an electronic questionnaire on the Google Forms platform including demographic information, length of training in anesthesiology, and use of BLs and NSAIDs in medical practice when patients report previous RHM. Data

analyses were blinded. In addition to evaluating the general conduct of these professionals on HRH reports, the outcome was compared with other variables such as age, average time since graduation, highest academic degree, practice in public, private and/or teaching hospitals. The prevalence and form of replacement of drugs were secondary outcomes, in addition to the conduct regarding latex allergy. **Results:** A total of 104 anesthesiologists were included. They age ranged from 26 to 69 years, 67% were men and graduated for at least 14.5 years ago. The 95% of participants practice in the city of São Paulo and the majority worked in teaching hospitals (87%). All participants were asked about the characteristics of the reaction in self-reported patients who are allergic to penicillin, but only 13.3% of them have the concept that cefazolin does not cross-react with other beta-lactams. 40% of respondents believe that there was a high risk of cross-reaction between these drugs. The frequency of exchanging cefazolin for other ATB classes was high (85.7%). As for NSAIDs, 10.4% of anesthesiologists still use them in the perioperative period when self-reported allergy to dipyrone. 90.4% of volunteers with this approach believed that there was no cross-interaction between dipyrone and other NSAIDs. There was a positive correlation between “age” and “time since training” and the act of questioning about a history of latex allergy ( $p=0.01$  and  $p=0.04$ , respectively). **Conclusion:** The knowledge of anesthesiologists about hypersensitivity reactions to BLs and NSAIDs proved to be insufficient, despite their work in educational institutions. This lack of adequate knowledge leads to unnecessary exchanges, high-risk re-exposures to patients, and possible unnecessary costs to the health system.

**SGPP Number:** 3928-19.

**CAAE Number:** 29268620.1.0000.0071.

**Research funding:** Not applicable.

070

## Prevalence of esophageal lesions following ablation for atrial fibrillation at Hospital Israelita Albert Einstein

**Category:** Cardiology.

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**Introduction:** Catheter ablation (CA) of atrial fibrillation (AF) consists in the application of radiofrequency in the internal portion of the junction between the pulmonary veins and the left atrium. This technique is considered the main source of arrhythmia-inducing extrasystoles. However, given the proximity of the left atrium's posterior wall at the anterior wall of the esophagus, which is associated with the small thickness of the atrial wall in that region, esophageal damage has been observed as a complication of the procedure. Clinical manifestations can appear in the two months following the surgery, with unspecific symptoms, however, they have the potential to become serious and lead to embolic stroke if untreated. Multicentric studies have shown that the prevalence CA of AF has varied between 0.03% and 9.6%. These data are important, as they allow testing the efficacy and safety of the techniques used for patient protection during CA, help to establish early diagnosis, define guidelines for the adequate preventive treatment, and reduce the number of lesions caused during CA. **Objective:** To determine the prevalence of esophageal lesions in patients who underwent CA of AF at *Hospital Israelita Albert Einstein* (HIAE). To define factors that could interfere in CA results. To evaluate the occurrence of associated symptoms and the evolution of those lesions. **Methods:** A retrospective study was carried out with clinical follow-up based on the survey of medical records relating to the perioperative period of patients undergoing catheter ablation from early 2016 to the end of 2019 at HIAE. This was a convenience sample with the participation of 57 patients. To standardize the analysis, the types of lesions observed at endoscopy 24-72 hours after the procedure were qualified by the classification of Bharath Yarlagadda et al. In the analysis, we used endoscopies performed one week after the procedure in cases of more severe esophageal lesions in the first endoscopy to monitor them. Participants older than 18 years of age were included. Those younger 18 years of age and/or who already had a previous clinical history of esophageal lesions for reasons other than ablation were excluded. The study was approved by the the Research and Ethics Committee. Only participants who signed the informed consent were included in the study (TCLE). **Results:** Expected results for this study include the prevalence of esophageal lesions be within the margins stipulated in the published literature (0.03 to 9.6%). Based on the initial analysis of the 57 participants, the mean age was 60 years, 75.4% of participants were men, and 68.4% of cases were due to the paroxysmal atrial fibrillation. The size of the left atrium, on average, was 40.8 mm and the STSF catheter was used

in 64.9%, Thermocool in 21.1%, and Crio in 8.8%. As for the lesions, 4 patients had hematomas/ecchymosis, 1 had erythema, 7 had erosions and 6 had traumatic injuries. When evaluating the variables energy application technique, electroanatomic mapping, type of catheter, esophageal deviation, and esophageal injuries, only the latter related to a lower incidence of thermal injury had occurred. **Conclusion:** Our preliminary analysis showed that in most cases of esophageal lesions, there were no major complications and, when we checked the control group of endoscopy in the following week, the largest portion had completely resolved.

**SGPP Number:** 4313-20.

**CAAE Number:** 36842620.8.0000.0071.

**Research funding:** Einstein Scientific Initiation Scholarship Program.

071

## Retrospective analysis of cases referred to tertiary care at the vascular surgery service through primary care facilities at Brazilian Public Health System

**Category:** Surgery.

**Carlos Augusto Rossetti<sup>1</sup>, Felipe Soares Oliveira Portela<sup>2</sup>, Thulio Fernandes de Souza<sup>2</sup>, Cynthia de Almeida Mendes<sup>2</sup>, Nelson Wolosker<sup>1,2</sup>**

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**Introduction:** The most practical aspect of Brazilian Public Health System (*Sistema Único de Saúde – SUS*), and perhaps the most impactful to users of the system is the referral of patients to a varied level of health care services. Considering the SUS's precepts, any patient seeking care through the system must be admitted and their health issues demands must be solved. For complex cases, they should be referred to higher levels to enable them to undergo exams, receive specialized evaluation or undergo surgical procedures. Nevertheless, despite these precepts be clearly defined, the daily practice at SUS diverges from its precepts, and current practice represents an important threat to the system basic principles. In general, referrals to specialize care units are conducted by a care team that often lacks the evaluation of specialized physician.

For this reason, referrals are mostly precipitated and forward to incorrect specialty. This may result on an unnecessary treatment, and such errors may prevent those who really need those treatment to have access to them. These problems have been reported by previous studies that evaluated the incorrect and precipitated care referrals, however, to date, there are no data on incorrect referrals in surgical patients. **Objective:** To analyze characteristics of cases referred from primary care facilities to tertiary care vascular surgery specialists, and to determine whether each referral is real needed. To identify participants' demographic characteristics, comorbidities, need of complimentary examinations, and rate of surgical conversion. Finally, to evaluate how many of these patients could be partially or completely assisted by telemedicine. **Methods:** This is retrospective study including outpatient first consultations at vascular surgery service of patients assisted in 2016 who were referred from primary care facilities. Each first consultation will be evaluated and classified regarding the need of referral, complimentary exams available and required, and baseline characteristics (sex, age, comorbidities, medication usage, and previous surgeries). The referrals will be considered adequate when these truly required a consultation with specialist. Patients who were precipitated or incorrect referred were subdivided into the following 1- Incorrect specialty, 2 - Patient lacking exams and awareness of the reason behind the referral, and 3 - health condition manageable by a practitioner in primary care facility or through teleconsultation with a specialist. For these divisions the criteria used will be: subjects with varicose veins in the lower limbs, without willing to perform surgery; subjects with varicose veins with BMI >35; carotid stenosis with less than 70% diameter in asymptomatic subjects; carotid stenosis with less than 50% diameter in asymptomatic subjects; infra-renal aortic aneurysm with less than 5cm diameter in women and less than 5.5cm in men; supra-renal aortic aneurysm with less than 6cm diameter; non-limiting claudication in subjects with lower limb ischemia, and subjects with no vascular condition. Those needing complimentary exams will be grouped between cases that require or not exams. **Results:** Data are under collection. **Conclusion:** This is an ongoing study.

**SGPP Number:** 4203-20.

**CAAE Number:** 34994720.0.0000.0071.

**Research funding:** Not applicable.

072

## The role of bone marrow niches in the modulation of acute myeloid leukemia

**Category:** Hematology and Onco-Hematology.

**Débora Bifano Pimenta<sup>1</sup>, Vanessa Araújo Varela<sup>2</sup>, Victória Bulcão Caraciolo<sup>1</sup>, Tarcila Datogúia<sup>3</sup>, Gabriel Herculano<sup>1</sup>, Welbert de Oliveira Pereira<sup>1,2</sup>**

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**Introduction:** Acute myeloid leukemia (AML) is a clonal myeloproliferative hematologic neoplasm characterized by the accumulation in the bone marrow of immature myeloid progenitors with reduced capacity to differentiate into more mature cellular elements. This condition may lead to the replacement of normal hematopoietic tissue and compromise the immune system. Standard treatment is chemotherapy with cytarabine. However, even in those who achieve remission with treatment, disease relapse occurs between 60 and 80% of AML patients within 3 years of the diagnosis. Although most studies on the bone marrow microenvironment approach the physiological context, fragmenting it into units described as niches - endosteal, vascular and reticular, it is increasingly essential to know the behavior and components that make up these niches during the evolution of hematologic diseases. Currently, it is known that AML blasts interact and are able to model niches during the course of the disease. However, further studies are required on the extension and complexity of these types of interaction established between leukemic cells and niches, as well as the molecular and cellular mechanisms that motivated such interactions and their respective consequences for the development of the disease. **Objective:** This project reviews and gathers data described in the literature on the niches that make up the bone marrow microenvironment in the physiological and pathological context of AML. In addition, it presents current and future perspectives for the development of adjuvant therapies against the cancer process. **Methods:** A search was conducted in "PubMed" and "Clinical Trials". Keywords used to search original articles indexed in PubMed were "bone marrow", "acute myeloid leukemia", "endosteal niche", "vascular niche", "reticular niche", "leukemic



microenvironment". The search in Clinical Trials was based on the signaling pathways previously described to select the trials, completed or in progress trials, that includes as subject molecular processes. **Results:** The existing literature on cellular and molecular phenomena that occur in the bone marrow during the evolution of AML reveal that, compared with the physiological, the leukemic marrow microenvironment enabled the survival and proliferation of leukemic blasts. This resistance appears to be related with the modulation of some processes, such as the following: increased angiogenesis, which is stimulated by the VEGF/VEGFR pathway; promotion of osteoclastogenesis through the RANK/RANKL pathway; inhibition of adipogenesis differentiation by mesenchymal stromal cells, and stimulation of osteogenesis by a mechanism dependent on BMP, a protein expressed by leukemic cells; anchorage of leukemic blasts to endothelial cells

via CD44/E-selectin and VLA-4/VCAM-1 pathways; circulation of malignant cells by chemotaxis through stimulation of the CXCL12/CXCR4 axis; as well as several others processes reported in the published literature. **Conclusion:** This literature review showed that the possibility that bone marrow microenvironment contains cellular and molecular mechanisms that can be shared and fostered in the pathogenesis of AML. Bone marrow niches and their respective components are configured as potential therapeutic targets, and they may enable the development of adjacent therapies that, in association with conventional treatment, can improve the prognosis of patients with AML.

**SGPP Number:** 3563-18.

**CAAE Number:** Not applicable.

**Research funding:** *Amigos da Oncologia e Hematologia Einstein* (AmigoH) and Einstein Scientific Initiation Scholarship Program.



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### Health Economics and Management

Articles designed to report knowledge, which express concepts and reflects on effective practices in health management, administration and economics. The following items must be included: structured abstract (in Portuguese and English

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All contributions should follow the requirements below, which are based on the format proposed by the International Committee of Medical Journal Editors (ICMJE), published in the article Uniform requirements for manuscripts submitted to biomedical journals, available at <http://www.icmje.org/recommendations/browse/manuscript-preparation>.

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- Letter of approval by the Human or Animal Research Ethics Committee of the organization where the study was conducted. Studies performed in Brazil must inform the number of the CAAE - Certificate of Presentation for Ethical Consideration (<http://plataformabrasil.saude.gov.br/login.jsf>).
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- Conflict of interest disclosure statement from each author (available at the electronic submission system).

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- **Title:** title of the article, in Portuguese and English, which should be concise, but informative.
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#### Articles from journals

Wilder J, Choi SS, Moylan CA. Vibration-controlled transient elastography for diagnosing cirrhosis and staging hepatic fibrosis. *JAMA*. 2018;320(19): 2031-2.

Silva AA, Carlotto J, Rotta I. Standardization of the infusion sequence of antineoplastic drugs used in the treatment of breast and colorectal cancers. *einstein* (São Paulo). 2018;16(1):eRW4074.

#### Books

Tollesfboll TO, editor. Biological aging. Methods and protocols. New Jersey: Humana Press; 2007.

#### Chapters of books

Lui I, Keefe DL. Nuclear transfer methods to study aging. In: Tollesfboll TO, editor. Biological aging. Methods and protocols. New Jersey: Humana Press; 2007. p.191-207.

#### Works presented in conferences

Salvalaggio PR, Coelho MP, Hidalgo R, Afonso RC, Ferraz-Neto BH. Keep your eyes on the enzymes. Grading early allograft dysfunction in liver transplantation. *Liver Transpl*. 2011;17(6): S294-S294. [Presented at Joint International Congress of ILTS, ELITA, and LICAGE; 2011 Jun 22-25; Valencia, Spain].

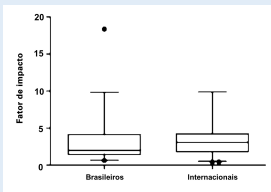
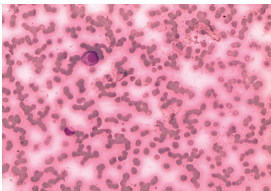
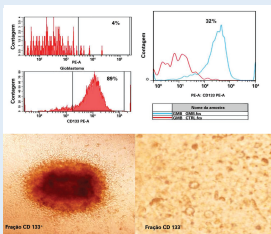
#### Thesis

Silva RP. Aspectos genético-moleculares do sono e da privação de sono em humanos e roedores [tese]. São Paulo: Universidade Federal de São Paulo; 2013.

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