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## Operation and technical features of the Academic League of Pediatric Surgery in quaternary center

### Características e funcionamento da Liga Acadêmica de Cirurgia Pediátrica em um centro quartenário

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**ABSTRACT:** Academic Leagues are student interest groups for the development and in-depth learning of a certain field of study, being the one most popular extracurricular in some Medical Schools. We present the Pediatric Surgery Academic League in a quaternary center in São Paulo, Brazil, where 23 students ranging from 2<sup>nd</sup> to 5<sup>th</sup> Medical School year are regular members, having regular activities such as visits to the operation room, outpatient clinic rotation, inpatient rounds and seminars. To be part of the Academic League, students have to pass a multiple question test based on an introductory course. In 2015, 65.00% of candidates were 1<sup>st</sup> year students, and the average grade obtained was 74.50%. Overall, we believe being a member of the Academic League promotes first exposure to a surgical specialty, greater workload in Pediatric Surgery, learning Semiology and development of teaching skills.

**Keywords:** Pediatrics/education; Education, medical, undergraduate/methods; Students, medical; Learning; Health knowledge, attitudes, practice.

**RESUMO:** Ligas Acadêmicas são agremiações estudantis para o desenvolvimento e aprendizados em determinados campo de estudo, sendo a atividade extracurricular mais popular em algumas escolas médicas. Nesse contexto, apresentamos descritivamente a Liga Acadêmica de Cirurgia Pediátrica de um centro médico quaternário em São Paulo, Brasil, onde 23 alunos entre o 2º ao 5º ano médico são membros regulares, frequentando atividades como sala operatória, ambulatório e visitas à enfermaria e participando de seminários. O ingresso à Liga Acadêmica se dá por prova de múltipla escolha após Curso Introdutório, sendo no ano de 2015 65,00% do público do Primeiro Ano Médico, e a média de acertos geral de 74,50%. Acreditamos serem benefícios da participação da Liga um primeiro contato com uma especialidade cirúrgica, ter uma maior carga horária em Cirurgia Infantil, desenvolvimento propedêutico e desenvolvimento de atividades didáticas.

**Descritores:** Pediatria/educação; Educação de graduação em medicina/métodos; Estudantes de medicina; Aprendizagem; Conhecimentos, atitudes e prática em saúde.

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## INTRODUCTION

Academic leagues (AL) are associations of undergraduate students under a professor or other faculty member supervision for the development and personal improvement of certain field of study. Activities are focused either on educational, scientific or patient care purposes<sup>1</sup>. It happens more often in Medical Schools, being the most popular extracurricular activity in some of them. For medical students, it is an opportunity to be exposed to actual medical practice, therefore being more attended on the early years of medical school<sup>2</sup>.

AL originate from public health issues. The anti-syphilis league was the first AL founded, in 1920, by medical students of “Faculdade de Medicina FMUSP Universidade de Sao Paulo”<sup>3</sup>. Throughout the 20<sup>th</sup> century, AL profiles changed. The tripod teaching-research-extension established by Brazil’s 1988 Constitution and several curricular reforms in Medical Schools lead AL to have a more important role in medical education<sup>4</sup>.

Nonetheless the lack of research on AL impact on medical education, some reports on AL’s experience have been published, showing student’s gain of knowledge on the AL’s certain field of study<sup>5,6</sup>, scientific conferences participation<sup>7</sup> and leadership development<sup>8</sup>.

Pediatric Surgery as a medical specialty is recent, originated in the first half of the 20<sup>th</sup>. William Ladd, one of its main founders, systematized children’s surgical pathologies and their appropriate care technique and medical procedures. Specialty’s teaching starts in 1941 with the publishing of *Abdominal Surgery of Infancy and Childhood* by Ladd and Gross. Robert Gross is considered to be Ladd’s main successor, creating new techniques and being directly responsible for 69 pediatric surgeons training<sup>9,10</sup>.

At our institution, Pediatric Surgery is introduced at a late point in our study programme, being taught at the 4<sup>th</sup> medical year over 4 periods. Thus, an AL on this field study is interesting as it allows students to have a greater workload and expand their knowledge on this field of study.

## OBJECTIVE

Primarily, describe the model and experience of AL at our Institution, generating reference material that allows enhancement of our own AL and a possible model for others, and ultimately, contributing for Pediatric Surgery diffusion amongst medical students. Secondly, we further discuss the entering process in the AL, analyze basic demographics and performance of candidates to the AL in our selective process, tracing out the AL’s target audience and their previous exposure to Pediatric Surgery.

## METHODS

This study is a two-part, essentially descriptive report. First, a critical summary on the AL’s history and activities, followed by the report of the AL’s selective process, candidates characteristics (gender and Medical School year) and their test performance. Qualitative and quantitative data have their percentages described.

## RESULTS

The Pediatric Surgery AL was founded 5 years ago. Currently, there are 23 student-members ranging from 2<sup>nd</sup> to 5<sup>th</sup> medical year. AL aims to provide basic knowledge on Surgery to the general practitioner along with experiencing the specialty daily routine. Another goal is to introduce students to a surgical center environment. Target audience are medical students interested in Surgery learning, above all Pediatric Surgery.

All Pediatric Surgery facilities at the Children’s Hospital are available to the AL as a practice scenario: 4 operating rooms, two outpatients clinics and an infirmary. Being a reference center, the Children’s Hospital is a high-volume center with very complex cases. AL’s staff is composed of students and faculty: 4 students (President, Vice-President and 2 Directors) and 2 physicians (a teaching physician and a Pediatric Surgery attending physician).

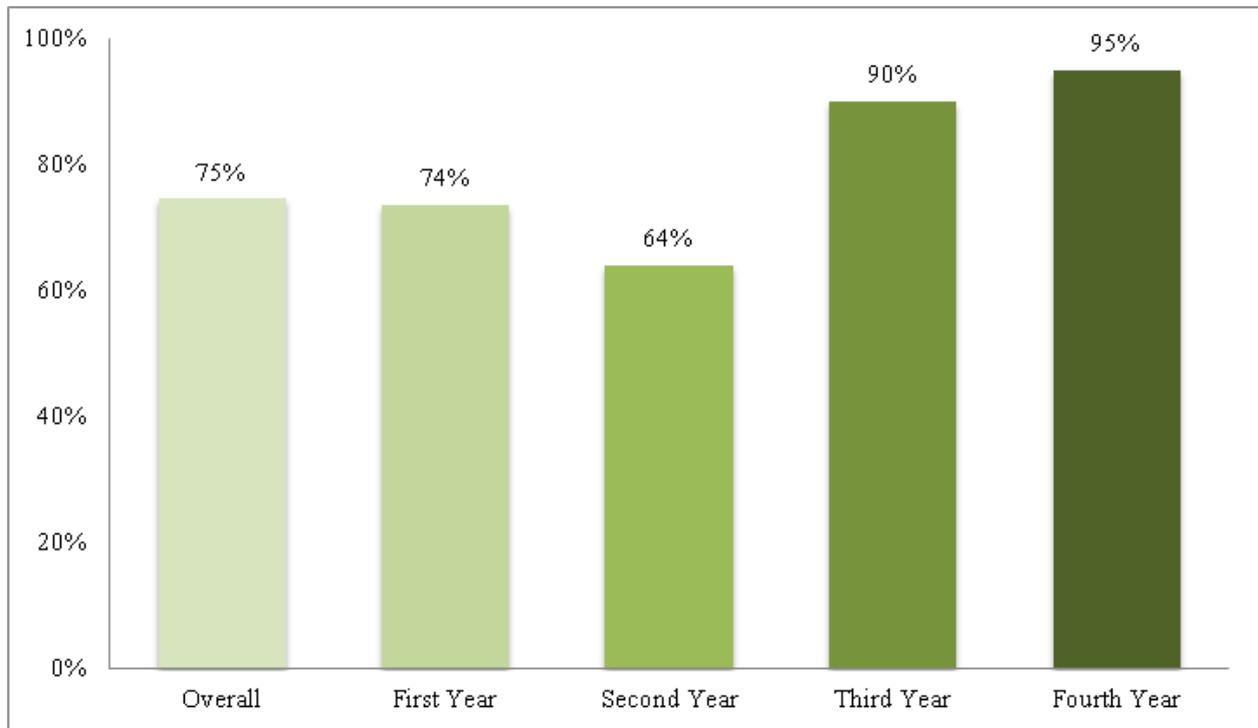
One student-member should choose among several available weekly activities to attend. AL main activity is watching surgeries at the Children’s Hospital surgical center. Available procedures vary from ambulatory surgeries, such as postectomy and hernia repair, to major surgeries, such as esophagocoloplasty, solid tumor surgery and liver transplantation. Students are welcome to scrub in and assist within the sterile field. Other practical activities include rounds at the Pediatric Surgery inpatients and shadowing in the outpatient clinics (general Pediatric Surgery and liver transplantation). Older students are allowed to perform medical consultations under an attending physician. The schedule is flexible, so students can choose between activities that best suit their other activities.

AL members may, voluntarily, deliver and attend peer-to-peer seminars ministered by students. Relevant themes on Pediatric Surgery are discussed in these meetings. A volunteer student presents, while additional commentaries are made by a faculty member on the audience. Also, it is possible to engage in clinical and experimental research.

Candidates for AL positions in the next year have to attend a three day-long introductory course, with at least 70% attendance. Introductory course’s main goal is to assure minimum exposure to prior AL’s activities.

Afterwards, candidates are ranked based on their performance on a multiple question test with 20 questions. In 2015 selective process, 32 students participated, 16 males and 16 females, of whom 21 (65.60%) were 1<sup>st</sup> year medical students, 5 (15.60%) 2<sup>nd</sup> year, 5 (15.60%) 3<sup>rd</sup> year

and 1 (3.10%) 4<sup>th</sup> year medical student. The Test consisted of a multiple choice test, with 20 questions. Overall mean was 14.97/20 (74.50%). Candidates outcome is described in Figure 1.



**Figure 1.** Candidates' mean percentage of correct answers per Medical School Year in 2015 selective process to the Academic League of Pediatric Surgery

## DISCUSSION

In this text, we present the structure and operation of the Academic League of Pediatric Surgery, one of the very few in Brazil. An AL is an opportunity to develop both theoretical and practical activities in one surgical specialty. Appropriate facilities and being at a reference center seems to play a major role in student's willingness to be part of the AL. Flexible schedule and the possibility to choose what activity to attend are interesting features, and a good strategy for the enhancement of one *parallel curriculum* activity such as an AL, especially considering the current debate whether these activities may compete for students' dedication to core curriculum activities<sup>11</sup>.

Regarding the last selective process, one may note most students (65.60%) are 1<sup>st</sup> year medical student, similar to what has been described concerning AL participation by medical students<sup>2</sup>. However, as most surgical AL at our institution are only available for 2<sup>nd</sup> year and beyond, our population might have been biased. Nonetheless, this is one of the very few extracurricular activities that allow students starting the medical course get in touch with a surgical specialty. In the other hand, older students

participation suggests other advantages proportioned by the AL, such as surgical center experience, semiology practice in the ambulatory, scientific research introduction and the development of teaching activities, what has been pointed as an experimentation and initiation to teaching and lecturing<sup>12</sup>. Also, there is a trend to better results in the selective process the more advanced students are.

A greater exposure to Pediatric Surgery is a key point, specially considering its very short amount of time in regular classes and being taught late in the medical curriculum, Towards the criticizing of possible early specialization promoted by AL<sup>7</sup>, several other activities important to the general practitioner occur in our AL, such as semiology practice in the outpatients clinic and the understanding of the surgical patient as a whole, considering the disease, diagnostics, pre and post surgical care and the surgical act itself.

Main study limitation relates to its descriptive features, as no qualitative and quantitative assessment was performed on the AL's regular activities. On the selective process outcomes, newcomers showed good knowledge on asked questions. Despite good results in this test, descriptive evaluation, no adjustment to prior knowledge

and absence of control group are limiting factors to this study. Further steps to complement this study should evaluate AL impact in the medical formation.

In conclusion, the Academic League of Pediatric Surgery is a theoretical and practical activity that allows

medical students to dedicate their time from basic semiology to a medical specialty. Newcomers outcomes in a test based on an introductory course was satisfactory, and considerations for further studies in order to enhance AL's contribution to medical formation were indicated.

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