Title: ASPIRE - A Journey from Intuition to Innovation

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Authors Contribution Statement:

<table>
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<tr>
<th>Contributor Role</th>
<th>Role Definition</th>
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<tbody>
<tr>
<td>Conceptualization</td>
<td>Ideas; formulation or evolution of overarching research goals and aims.</td>
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<tr>
<td>Data Curation</td>
<td>Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse.</td>
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<tr>
<td>Formal Analysis</td>
<td>Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data.</td>
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<td>Investigation</td>
<td>Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.</td>
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<td>Methodology</td>
<td>Development or design of methodology; creation of models</td>
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<td>Project Administration</td>
<td>Management and coordination responsibility for the research activity planning and execution.</td>
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<td>Resources</td>
<td>Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.</td>
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<td>Software</td>
<td>Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.</td>
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<td>Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.</td>
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<td>Creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).</td>
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<td>Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post publication stages.</td>
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- Instagram: @aspire_sethgsmc

**Discussion Points:**  
- Seeking new opportunities during graduation  
- Student led initiatives to promote medical research  
- Overcoming barriers and hurdles in early days of professional life

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The Experience

A student’s mind is filled with multiple aspirations and fears. For every undergraduate, the path towards their M.B.B.S is an exciting journey of learning and self-discovery. There are many examples of noteworthy contributions by medical students during their studies - Jay McLean’s discovery of heparin, Paul Langerhans’ description of pancreatic islets, and Martin Flack’s discovery of the sino-atrial node. Early research exposure also leads to improvement in the productivity of postgraduate research. However, uptake of undergraduate research opportunities is reported to be disappointing, and little is known about the hurdles faced by students in undertaking research activities.

As a medical student passionate for research and having personally realized all that the world of research had to offer, I often wondered why an institute like mine, which produced so many quality publications, had so few undergraduate students involved in research. I interacted with my teachers and colleagues to find out the reasons behind this discrepancy. Although many students seemed to be interested in being a part of research activities, few knew how they could start becoming involved. The students who did start a project seldom continued it till the end and very few eventually co-authored the publication (Figure 1). This attrition was found to be due to numerous factors including lack of supportive mentorship, conflict with the mainstream course work or simply loss of interest.

I soon realized that the students needed to have appropriate guidance regarding the different aspects of research. At first, I decided to start with something small, on an individual level to educate my junior colleagues about research. I conducted informal group sessions to share my research experiences, the positive takeaways and the common challenges, pitfalls and dilemmas faced. Seeing the consistently positive results over three years, I realized the need of a formal institution that could guide the undergraduate students through their research paths. Hence, I decided to establish, in my institute, a department called the Association for Support and Propagation of Innovation, Research and Education (ASPIRE); with the intent of supporting and nurturing the curiosity of young medical students (Figure 2). This article
summarizes my personal experiences as I navigated my way through the tumultuous path to graduation, and more specifically, the lessons from my unique endeavor of ASPIRE.

To bridge the existing gaps of research knowledge and opportunities among the undergraduate medical students of the institute, a proposal to establish a student led research council, named ASPIRE, was drafted with the following aims & objectives:

- Collaborate with different departments of the institute to educate students on various aspects of research through seminars and workshops
- Conduct activities and workshops for students to increase the participation of undergraduate students in research projects
- Coordinate with various departments of the college to make ongoing research projects more approachable for the students
- Help students find the right mentor and requisites to work on a novel research idea or innovation
- Guide students working on a research study throughout the process with the help of research experts from our college
- Collaborate with various institutes and Trusts of other disciplines to promote research and innovation

The specific mechanisms proposed to achieve the above objectives have been summarized in Figure 3. I knew this was not going to be an easy journey. Theoretically, the idea of this new department seemed simple, but altering the status quo at the institution was sure to invite opposition. In my early days as a student, I was not very good at handling failures and often they had a negative impact on my health; which is why most of my colleagues and close friends warned me against this risk. At times, I was willing to give up on this project before starting due to fear of what may happen and the possibility of failure. However, I realized that not trying was a certain way of failing. I decided that it was at least worth a try. Not knowing where to start, I decided to talk to few approachable faculty members with whom I had worked with previously. They acknowledged the need for such a platform, but were also apprehensive regarding its feasibility and the bureaucratic hurdles which may interfere in its implementation. I decided to meet all the senior professors of the college personally to explain the idea and at
the same time incorporate their suggestions to better the model. Although I faced initial
resistance, slowly the initiative started garnering support, and after almost a year’s hard work, I
was allowed to present the idea at our Annual General Body Meeting, where the proposal was
passed with an overwhelming majority. ASPIRE thus became one of India’s few student-led
Medical Research and Innovation bodies. Today, it one of the institution’s most active
organizations, having launched multiple initiatives to improve the awareness about medical
research and guiding students along their own research journey.

On a personal level, the gratification for me was not as much for establishing this organization
per se, but the ability this gave me to believe in the strength of persistence, patience and
optimism. The journey of this small endeavor was merely one of many enriching experiences I
have witnessed throughout studying for my M.B.B.S. I am barely able to remember how shy
and introverted I was when I started off my medical school journey. I had spent the better part
of my childhood consciously avoiding the tough paths, and thereby avoiding mistakes and
failures. It is only now that I realize the importance of risks and failures in personal growth. My
advice to all would be to act on their ideas, no matter how uncertain and precarious the journey
may seem. Don’t let the comfort of inaction rob you of potential greatness. You never know
what prospects are in store for you.

These experiences made me realize my love for administration and diplomacy, which
eventually led me to quit the field of medicine post-M.B.B.S. to pursue a career in Indian
diplomacy. This was not an easy decision. I will admit it is scary starting this new chapter of my
life; but I’ll do it anyway, because, although I am afraid of failure, I am even more terrified of
regret. So you do not need to be fearless, just don’t let the fear overrun your desire to move
past it.

When I envision my career, I choose to focus on the opportunity and not the obligation. I might
fail at some point in time, but my undergraduate days taught me to look not give up on my
goals. So when asked, “Are you really going to change your career despite completing a
lengthy and tough degree like M.B.B.S?” I simply like to reply “I have finally realized my
passion and the courage only because of the experiences in my M.B.B.S”
Not having a vision for our lives is the greatest disservice we could do to ourselves. Let every choice and decision of your life be an informed and conscious one. Unfortunate events and setbacks are bound to befall us, and more often than not, we will not have a say in these instances. Nevertheless, our success lies in the ability to not give up; and the choice between giving up and going; that is completely in our hands.

It’s not easy, but it will definitely be worth it.
References


**Figure 1.** Results of my survey regarding attitude of medical students towards research depicting high degree of attrition (based on data of undergraduate students of Seth GSMS and KEM Hospital; MBBS batches (2015-2018))

<table>
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<th>Total number of students in every undergraduate batch (n=180)</th>
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<tr>
<td>Students interested in medical research (20%)</td>
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<td>Students taking up research projects (10%)</td>
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<td>Students completing the project (5%)</td>
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<td>Publication of manuscript (3%)</td>
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Figure 2. ASPIRE - Association for Support & Propagation of Innovation, Research & Education

Division of Medical Research and Innovation
Seth G.S.M.C. and K.E.M. Hospital, Mumbai

ASPIRE
Dedicated To Discovery, Committed To Care
Figure 3. Initiatives proposed under ASPIRE to promote undergraduate medical research

Initiatives of ASPIRE

**Research Consultation OPDs:**
With the help of faculty members of the institute, consultation OPD’s by research experts for specific aspects of research methodology for medical students pursuing a research study could be arranged on a regular basis to help eliminate the technical hurdles they may encounter in the course of their projects.

**Research Database:** A single up-to-date compilation of the researches currently in progress in The Institute and vacancies there in for students could be maintained so that they could be a part of the research project of their interest.

**Journal Club:** Sessions for undergraduate students to help them understand the different components and analysis of research articles and study designs. This will enable them to better comprehend and critique published medical literature.

Sessions in coordination with the **Institutional Ethics Committee** for guidance on drafting Ethics Committee Proposals and Informed Consent Document to ease the process of submissions for research studies undertaken by students of the institute.

**Workshops and guidance by** the faculty members of the institute for **designing** and **validating questionnaires** and conducting **community-based research studies** in collaboration with the Department of Community medicine.

Sessions on writing **medical literature**, understanding different types of media (poster / paper / symposium) and platforms to present their studies, hands-on workshops for using **search engines** like PubMed and software like SPSS for biostatistical analysis.

**Interactive sessions** by experienced faculty members of the institute to make the young students understand the contribution of research to administration and **policy making**, eventually translating into practice to **standard treatment guidelines** for National Health Programs.

Educational visits to various laboratories and departments of the college to orient and stimulate the young minds in paraclinical research studies such as the institutional biochemistry and microbiology laboratories, pharmacology practical experiment center, Animal House for animal-based research studies, Ayurveda Research Center, etc.