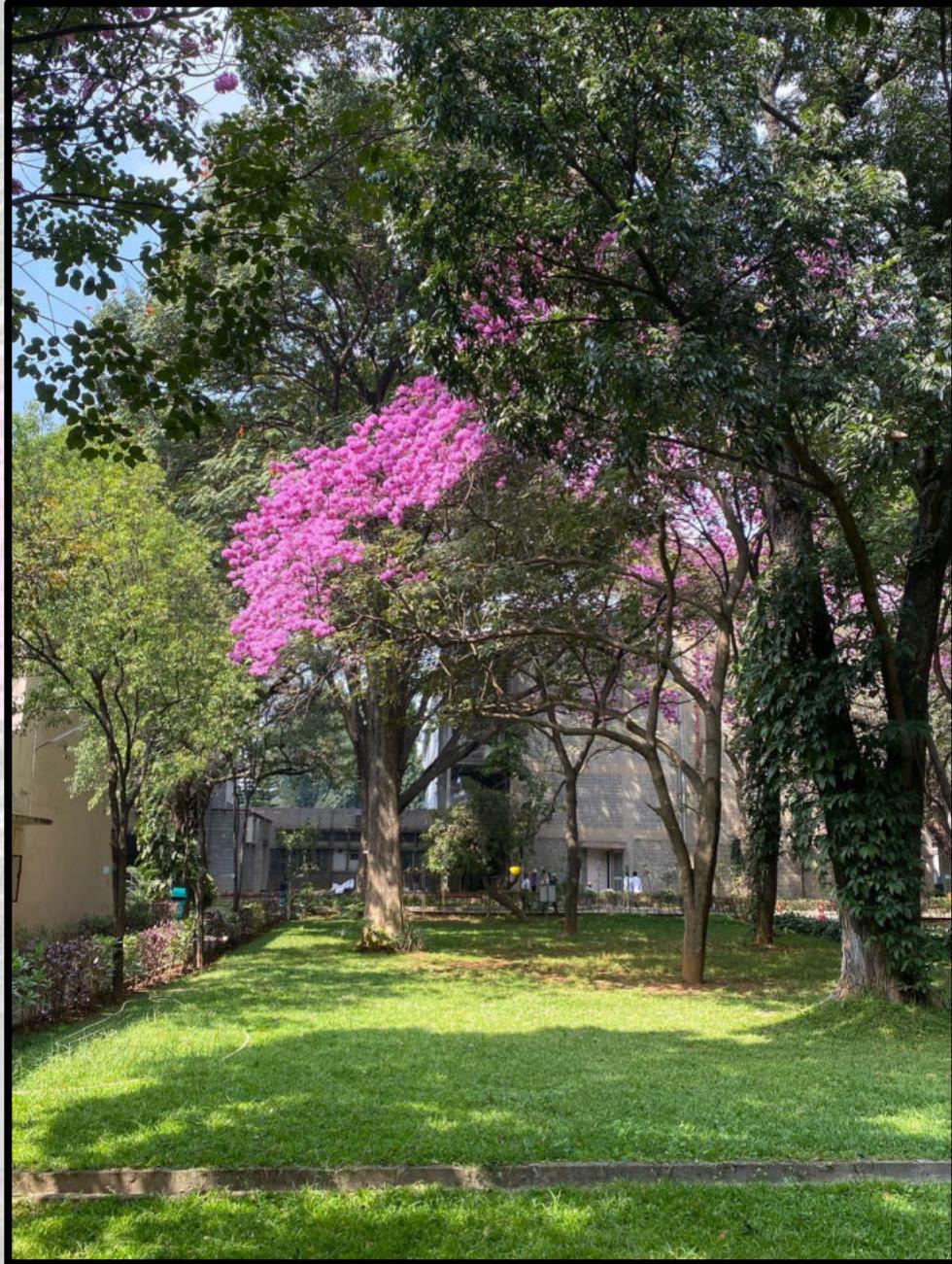


# What's Up? @St John's Hospital

Issue 56, February 1<sup>st</sup>, 2022



Lavenders bloom in the campus (PC: Dr. Rakesh Ramesh)

#### EDITORIAL TEAM:

Archana S, Arvind Kasturi, Ananya R Sharma, Avinash. H. U, Deepak Kamath, Dhvani Ravi, Jenniefer Gabriella, Jyothi Idiculla, Monica Rita Hendricks, Nivedita Kamath, Rakesh Ramesh, Ruchi Kanhere, Santu Ghosh, Saudamini Nesargi, Sowmya Kaimal, Sreenivasan N, Srilakshmi Adhyapak, Uma Maheshwari, Rev. Fr. Vimal Francis



St John's National Academy of Health Sciences  
St John's Medical College Hospital, Bengaluru

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\* We now present a fully interactive menu. It works best with Adobe reader application (on computers, mobile phones and tablets)



# MESSAGE FROM THE EDITORIAL TEAM

**Dear All!**

We are pleased to release fifty sixth issue of “What’s Up? @ St John’s Hospital” magazine today.

We are all going through the third wave of COVID-19 pandemic. Many health care personnel in our institution and their families have fallen ill. We wish all of them a speedy recovery. We hope that we will get over this and come back stronger than ever before.

The present issue of the magazine has many updates from the institution. We suggest that you do not miss the interesting story of a young boy with spinal cord injury in the section of survivor's corner. And a beautiful write up by Ms. Megha George on ‘First clinical posting’ in the student reflections.

The editorial team strives hard to provide as many updates of the academy as possible. However, few of them might be left out, since we may not get to know about every happening or accomplishment. Please feel free to communicate with us to publish your achievements.

Feedback on any section of the magazine is welcome. We are happy to evolve to meet the needs of our beloved readers. Happy Reading!!

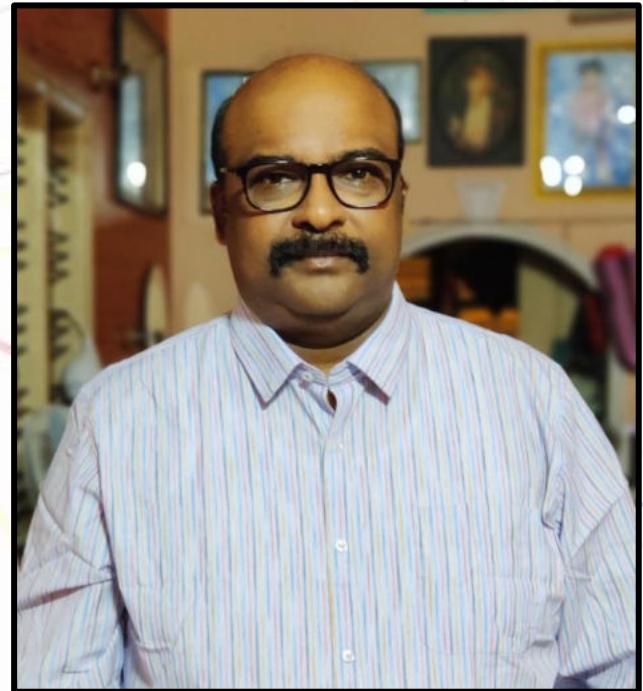
**Editorial Team**



*Updates this month...*

## **Dr. Johnson Pradeep. R received “IToP MUST Enrich Research Grants Award”**

Dr. Johnson Pradeep was awarded the “IToP MUST Enrich Research Grants Award for Psychiatry Teachers” by the Minds United for Health Sciences and Humanity Trust and Indian Teachers of Psychiatry Forum for the year 2020-2021. The grant received was Rs. 10,000 to do research related to Psychiatry education. The topic was “Effective and Innovative Teaching Methods in Psychiatry for the medical undergraduates - Teachers and Students perspectives” and was guided by Dr. Henal Shah, Professor of Psychiatry, TNMC and Nair Hospital, Co-Director, Mumbai, and Dr. Sunita Simon Kurpad, Professor of Psychiatry and Medical Ethics, SJMC.



The findings were presented as an e-Poster in the National CME on Psychiatry Education & Faculty Training, a joint initiative of IPS Faculty Training Task Force, IPS UG Education sub-committee, and IPS PG Education Subcommittee supported by Department of Psychiatry, St. John’s Medical College, Minds United for Health Sciences and Humanity Trust and Indian Teachers of Psychiatry Forum held on 15<sup>th</sup> January 2022. The e-Poster was awarded the 2nd Prize!!

## **73<sup>rd</sup> Republic Day Celebration**



St. John’s celebrated 73<sup>rd</sup> Republic day on 26<sup>th</sup> January 2022 with flag hoisting at Hospital OPD Entrance by the Director of St. John’s National Academy of Health Sciences, Rev. Dr. Paul Parathazham.



*Updates this month...*

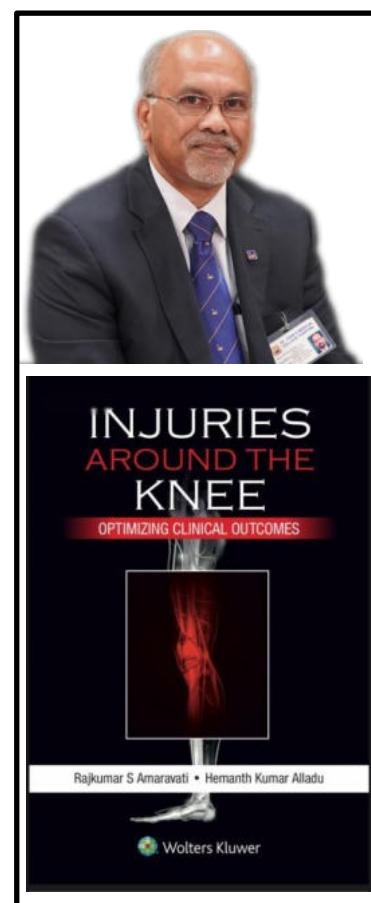
## **Dr. Rajkiran Raju S received Best paper award in E-IAPSCON 2021**



Dr. Rajkiran Raju S, Assistant professor, Dept. of Pediatric Surgery was awarded the best paper presentation in the GI session at the 47th Annual Conference of Indian Association of Pediatric Surgeons(E-IAPSCON 2021) conducted on virtual platform from 22-24<sup>th</sup> Oct 2021 for presentation titled “Impacted Esophageal Foreign Bodies in Children”. The co-authors were Dr. Shalini GH, Dr. Kiran M, Dr. Prasanna Kumar AR and Dr. Shubha AM

## **Injuries around the knee: Optimizing Clinical outcomes – Book Published**

Dr. Rajkumar S Amaravati, Professor, Dept. of Orthopedics who along with Dr. Hemanth Kumar Alladu published a book titled “Injuries around the knee: Optimizing Clinical outcomes”. The book illuminates how a healthy knee is crucial for normal movement. The Book has refined complex topics into simple chapters. The chapters focus on the management of cruciate ligament injury, meniscus, collateral ligaments, and cartilage. Further, the book involves experts from the field of physiology, pharmacology, nutrition to enable and facilitate the effective application of emerging concepts in managing knee injuries.



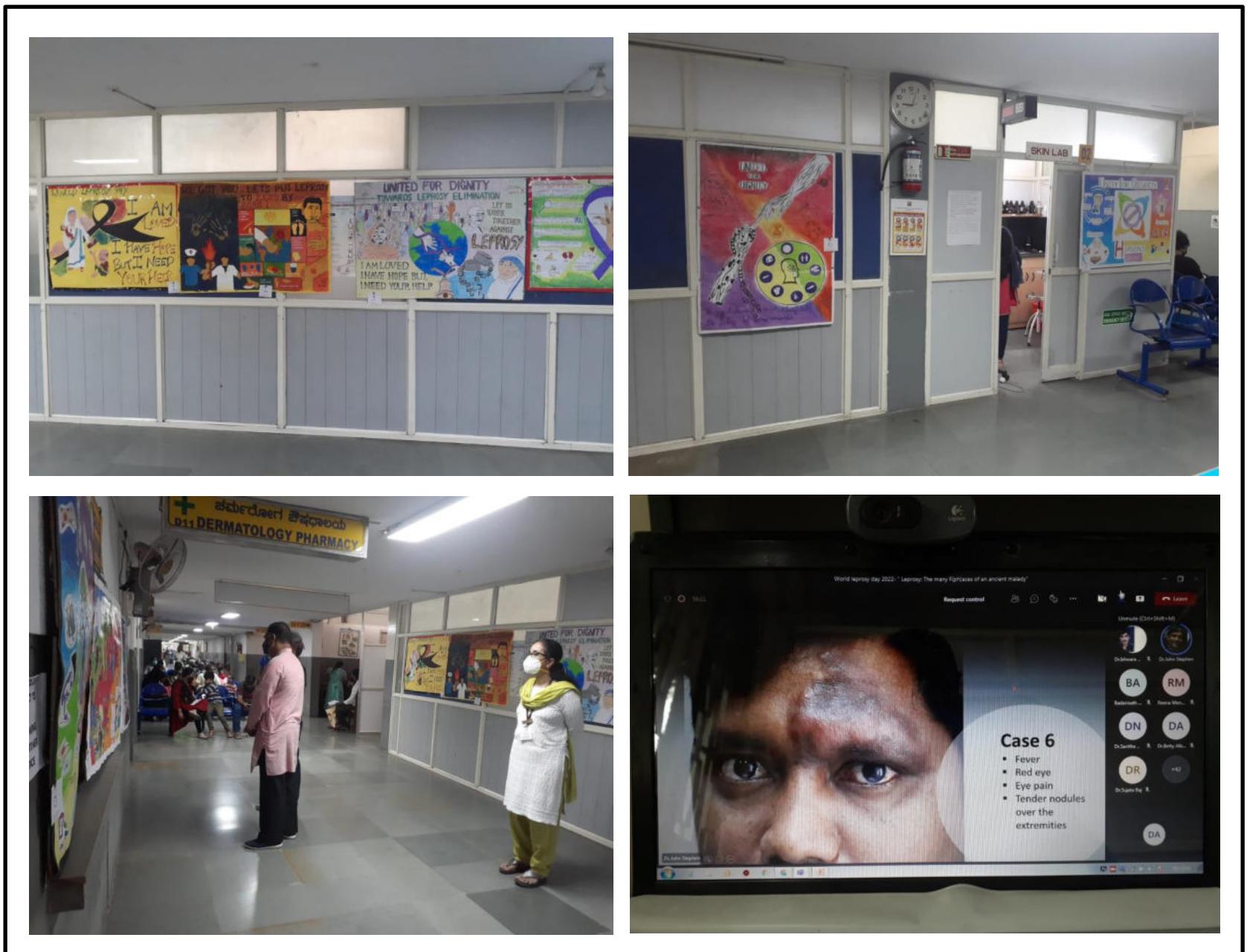
Updates this month...

# World Leprosy day 2022

30<sup>th</sup> January 2022

Department of Dermatology organized poster competition cum exhibition in the Dermatology OPD and a clinical conference on Leprosy on account of World Leprosy day.

Ms. Amitha Prince & Ms. Anika Thomas; Ms. Albana Varghese & Ms. Albi Saji; Ms. Anjali Isac secured first, second and third prize respectively. All the students were from 3<sup>rd</sup> year BSc nursing.



# Annual Sports Meet of Sneha Santhwana Women Federation

4<sup>th</sup> January 2022

Department of Community Health runs a dedicated rural community health training centre (CHTC) at Mugalur village situated 30 km from Bangalore. As part of the community development initiative to empower women, volunteers were identified from 16 villages to initiate and organise women's associations. Sneha Santhwana is one such association. The objective of these groups is to empower women by addressing various social determinants prevailing in these villages. These groups meet once a month to discuss family, social, and health issues, and discuss problems that need to be addressed in their community. The association also run a small savings scheme.

In the year 2015, these associations formed a women's federation with 43 representatives from various villages around Mugalur. Every year this federation organizes annual sports meet to celebrate women's day. This report is about the annual sports meet that was conducted on 4th Jan 2022. Ms. Gayathri H.P General Manager, Human Resource Department, Silver Crest Clothing Pvt Ltd, Sarjapur was the chief guest to inaugurate the days event. She also participated in few games along with participants. Women panchayath members of Mugalur village also participated in the day's event. The whole event was organized and coordinated by the women's federation. Throwball, lemon and spoon, running race, shotput, musical chair and kabaddi were included in this meet.



## *Letter from the Field...*

Headmaster of Government High School, Kugur also attended the inauguration. A teacher from the same school participated in all the sports and games, physical education teacher from Endeavour International School Mugalur, helped in smooth and successfully conducting the sports and games.

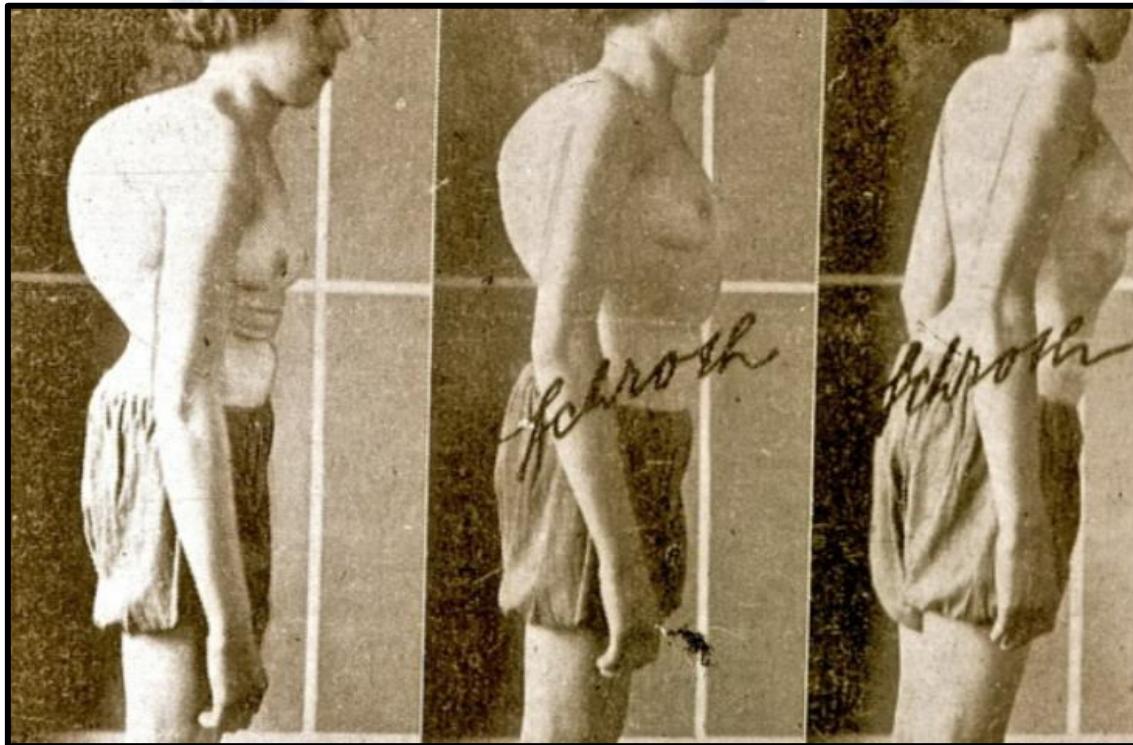
It should be noted, the members of the groups themselves took the initiative to organize and conduct the day's event. It was a more of opportunity to exhibit their talent and have fun. At the end of the day there was happiness in everyone's face as they enjoyed the game without any worry about their daily domestic routine.



Top: A self help group in action, Bottom left: Associate director college distributing donation to female child as part of Silver Jubilee celebration, Bottom Right: Pictures of sports meet



## Schroth's method – for Scoliosis



REF: Weiss HR, Scoliosis. 2011

This month we describe a technique called “Schroth’s method” for Scoliosis! It is one of the many non-surgical management methods for scoliosis under a Physiotherapists’ sleeve! Under the Physiotherapy domain, the condition is managed by Musculoskeletal Physiotherapists and Paediatric Physiotherapists.

The history of this method is a history involving the professional work of three generations. This method was developed by Katharina Schroth in 1910. She initially developed this method for herself as she was suffering from moderate scoliosis. From the late 30s, she was supported by her daughter Christa Schroth, a trained physical therapist. Their work was furthered by Christa Schroth’s son Hans-Rudolf Weiss who was a trained physician.

The technique involves de-rotation, elongation, and stabilization of the spine in a three-dimensional plane. The technique involves a specific postural correction, correction of breathing, and correction of postural perception to recalibrate normal postural alignment, static/dynamic postural control, and spinal stability. Apart from exercises, the technique involves manual correction by the therapist. The technique has evolved and developed with time. This method is part of Physiotherapeutic Scoliosis Specific Exercise and is often combined with other techniques. The effects of this method are a reduction in Cobb’s angle, a slower rate of progress, and improved respiratory capacity.

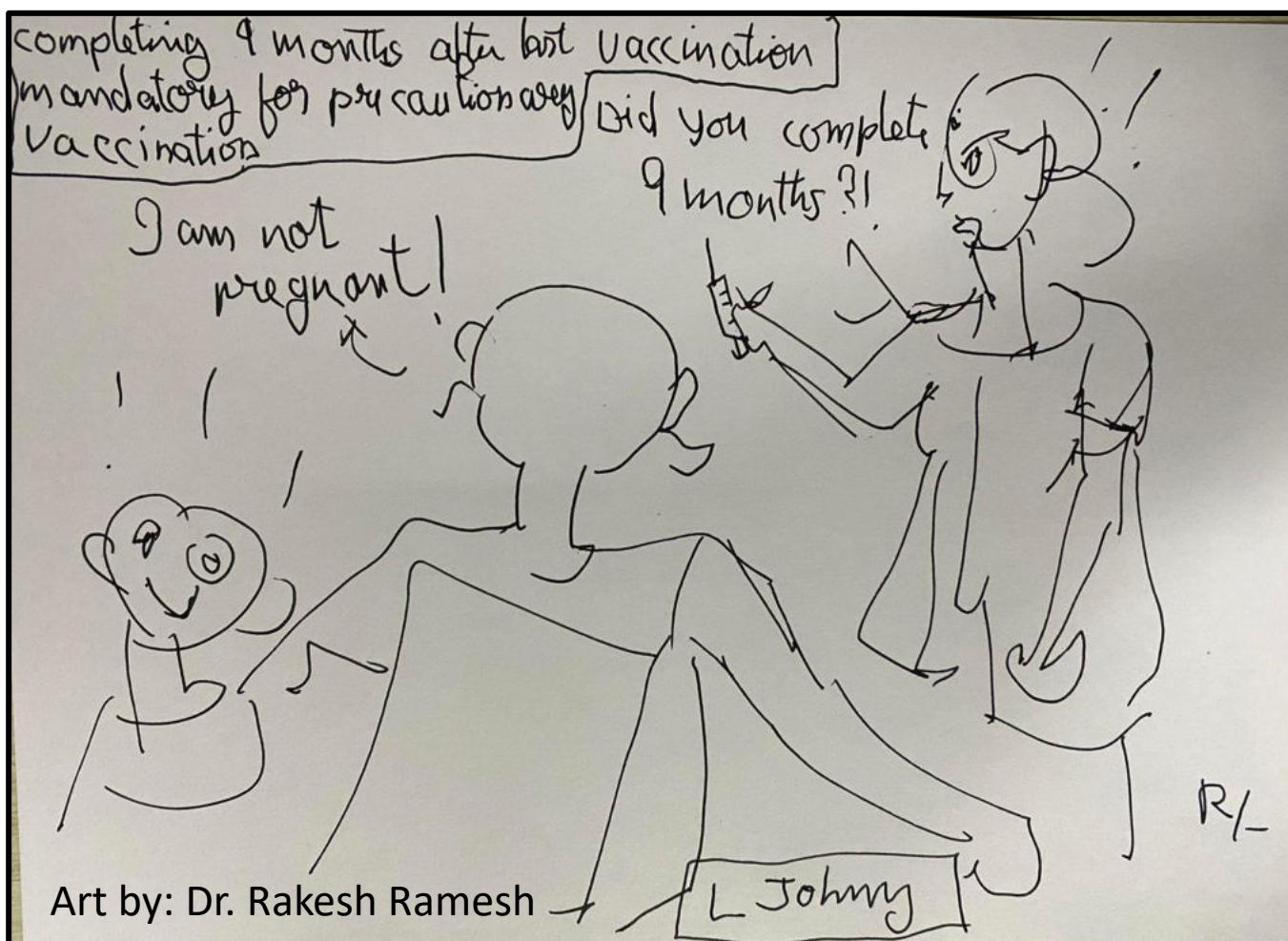


## Physiotherapist Corner...

Literature has shown that Cobb's angle even up to 45 degrees respond well to Schroth's exercises. The maximum benefit, however, is seen in patients with Cobb's angle lesser than 30 degrees. A meta-analysis conducted in 2020 on the effectiveness of Schroth's exercises in adolescents concluded a significant reduction of Cobb's angle and improved QOL in adolescents. Numerous amounts of literature have been published on Schroth's method and its effects. Recent developments show that bracing offers the highest treatment security and towards the end of the bracing period, more intensive physiotherapy is advisable. A physiotherapist should perform a thorough assessment before deciding on which approach to proceed with. The duration of treatment can last from a month to up to 6 months.

Schroth's method is one of the numerous methods available to treat scoliosis conservatively. It is performed by a trained physiotherapist and helps the patient lead a better and less curvy life!

## L Johnny



# 'The First Clinical Rotation'

- Megha George, MBBS 2019

There is a particularly beautiful paragraph in *The Great Gatsby* where Nick Carraway stands at the window, watching the street below him, "enchanted by the inexhaustible variety of life."

I cannot think of a better way to describe my emotions on my very first clinical rotation, as I beheld the throng of people gathered in the wards.

Of course, as a student fresh out of first year, who could recite the Krebs Cycle but fumbled at the Korotkoff sounds, I felt decidedly quite useless to the crowd and in fact, was seized by an overwhelming desire to blend in with them by the time the resident came out to assign us our OPDs.

The rest of the day could best be described as a blur, as we struggled to keep up with the clinician's myriad questions that he threw both at us and at the patients, switching effortlessly between Hindi, Telugu and Kannada; a feat I would later realize is quite commonly done in Johnite OPDs. We were then whisked to the wards where we advanced from one room to the other, my head swirling with the pace at which they ruled out diagnoses.

By the end of that three-hour eternity, I barely managed to drag myself to the mess with several hundred pages of reading to do and a sinking feeling in the pit of my stomach that I had bitten off more than I could chew.

But it was only the initial shock and I realised, as one adjusted to the beating rhythm of the hospital, one learnt to observe a lot. It's difficult to imagine medicine as a profession of the people when you're bent over a textbook but, when in the wards surrounded by patients, it's difficult to imagine it as anything but. A poor man who travelled across four states to bring his sick daughter to John's and a middle-class father who drove hardly two kilometers for his child; a man weeping for his wife who died during labour, drowning out the desperate prayers of a family whose daughter just went into labour. The crossing over of so many walks of life and the sheer differences between people seemed to melt away, as if they were strangely united in their suffering and in their hopes.



## *Student Reflections...*

My friend had once related a story to me of how, while she was in the emergency, a young man died of poisoning in the bed next to her. While his mother wailed uncontrollably, another set of wails filled the air as a lady gave birth to a healthy baby boy. One life is gone, another born. One mother gained while another faced the cruelest pain. All of it guarded by the four walls of a hospital.

As the month dragged on, it certainly became easier. I could elicit an average history with a mix of exasperated hand signs and broken Kannada (or so I hoped), finally learnt the different Korotkoff sounds and had officially started the making of my medical hands. Hands that need to be firm yet gentle. Hands that will weave the frighteningly delicate thread of life. Hands that can comfort and command. Hands in whose palms, skill will be just as deeply engraved as the palmar creases.

While I still stumble awkwardly while eliciting a reflex and the path to forging those hands seem unnaturally long and exhausting, I take comfort in the glimpses of doctors I see who made it before me and that **'inexhaustible variety'** of which I too, am inevitably a part.

---





# SURVIVOR'S CORNER

## Dear Readers...

*The section survivor's corner highlights story of a patient (challenging case) who was successfully treated and cured or rehabilitated in St. John's Medical College Hospital.*

If you like to showcase such stories from your department please contact:

2

**Dr. Saudamini Nesargi**  
[saudamini.n@stjohns.in](mailto:saudamini.n@stjohns.in)

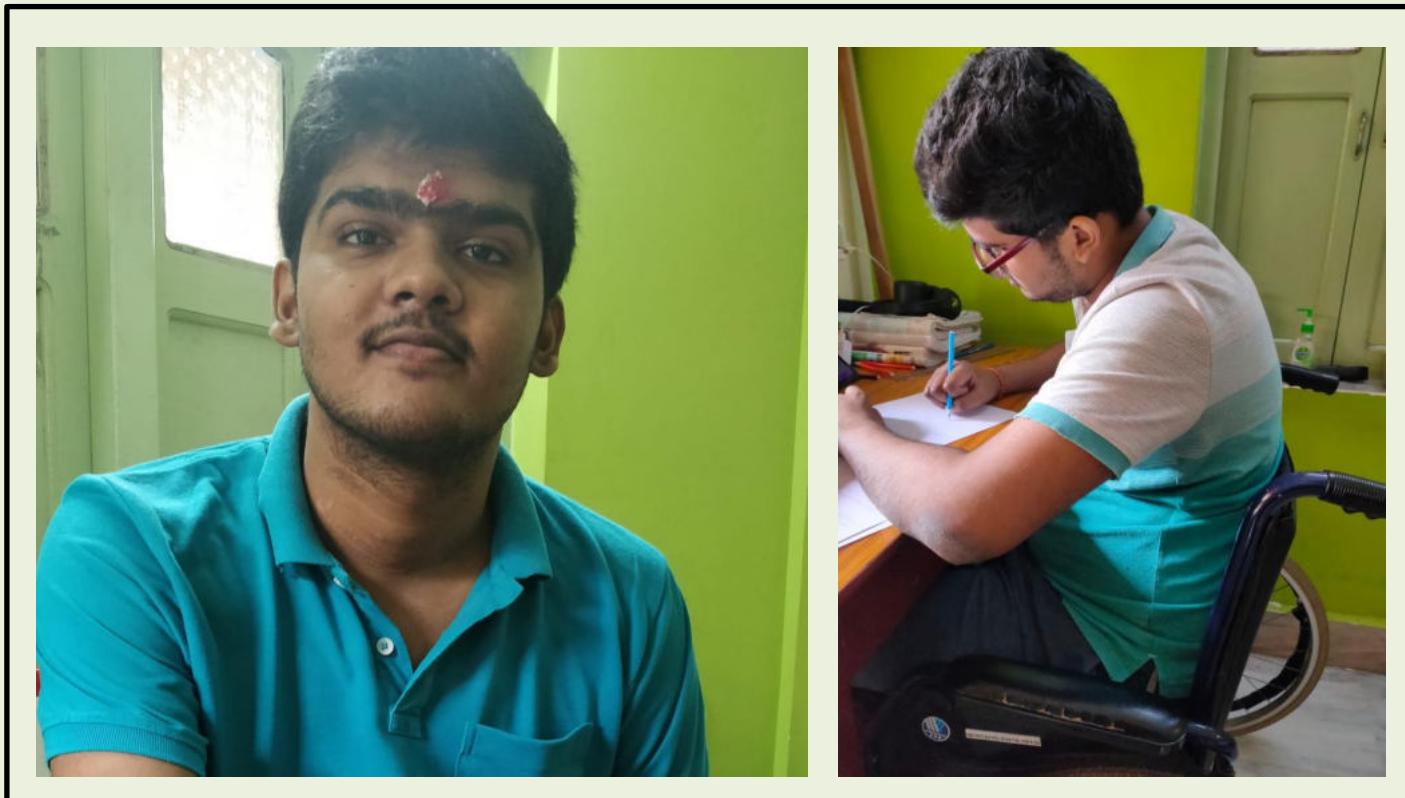
**Dr. Nivedita Kamath**  
[nivedita.s@stjohns.in](mailto:nivedita.s@stjohns.in)





# SURVIVOR'S CORNER

***“Every Moment is a New Beginning”***



I would like to share with you the experiences of one of our young spinal cord injured patient who underwent rehabilitation in the Department of PMR.

*“My name is Somay Gupta, I’m 21 years old from Kolkata. Three years back during my summer holidays, I was with my friends swimming in a nearby pond and wanted to learn a back flip. When I did the flip, I fell directly on my head and lost consciousness. My friends waited for me to come out, they sensed something was wrong and pulled me out of the pond.*

*I was immediately taken to a nearby hospital. I was admitted in ICU for monitoring. The doctors said all the tests done, did not show anything significant and I would recover soon. That very night, one neurosurgeon came to see a patient next to my bed. He saw me and took information about my condition and found that my blood pressure was very low. He sensed something wrong and did some test again and found that my C6 spine was having a burst fracture which has paralysed my body below my chest. I was shifted to another hospital where my surgery was done. I came back to my consciousness the next day and got to know everything what has happened to me.*





# SURVIVOR'S CORNER

*By that time, I also had a bedsore which increased in size because of poor treatment and care that deteriorated my health. My physiotherapy was going on but because of the bedsore I was not able to do exercise regularly.*

*After few months, I was brought to NIMHANS hospital for rehabilitation where the doctors suggested that wound needs to heal first. I came to St John's Plastic surgery for closing my wound I continued my rehabilitation in St John's PMR. The rehab team encouraged, motivated, taught me exercises and skills to do things which I can do independently. They suggested me a wheelchair which would suit me. I was taught how to manage my bowel and bladder with suppository and catheters since after a spine injury, most of us lose our bowel and bladder control.*

*After returning home, I started my preparation and gave my board exams. I did well in exams, and I have attached a small newspaper clipping of myself which was published in TOI*

*Now I've chosen to pursue my studies in BCom, and I hope to become a Chartered Account. Family support and guidance from the right doctors is extremely essential in spine injury and in similar cases to live a healthy life and I am very thankful to my parents and doctors for giving me a new life"*

**- Somay Gupta**



Times of India, 12<sup>th</sup> July 2020





# SURVIVOR'S CORNER

Life can change drastically after a spinal cord injury. It is, but natural for patients to grieve about the loss of their functional activities leading to longer confinement to bed. This acts as a precursor for development of various complications such as in his case pressure ulcers.

Educating and motivating patients to accept the consequences of what has happened, is extremely essential. It's necessary to set new goals and find a way to move forward with their life. Also, teaching them to make the best out of the challenges they faced is imperative for a successful rehab program.

Rehabilitation is a comprehensive team work, compiling of doctors, nurses and therapists. The medical issues concerning Somay were spasticity, autonomic dysfunction and bladder & bowel incontinence which were managed effectively during the in-patient stay under PMR. He was able to achieve a good sitting balance and developed limited upper limb powers. With occupational therapy he learnt pen holding techniques and writing skills, he was taught how to operate the wheelchair along with transfers. With intensive physiotherapy he was taught exercises to keep his body conditioned and improve upper limb strength.

At the end I would like to emphasize the importance of a comprehensive rehabilitation team work in empowering individuals to progress with their future endeavours.

Report By: Dr. Ria Sabrene Fernandes,  
Senior resident, Department of PMR .

**Congratulation to Department of  
Physical Medicine and Rehabilitation  
(PMR) and Team**





# LAUGHTER IS THE BEST MEDICINE...



Q: Did you hear about the racing snail who got rid of his shell?

A: He thought it would make him faster, but it just made him sluggish.



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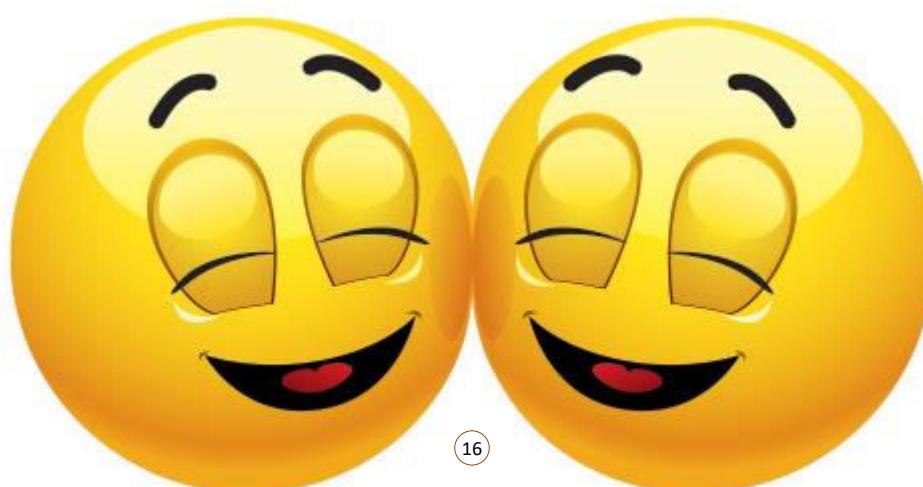
www.dreamstime.com

As a brain wave technologist, I often ask postoperative patients to smile to make sure their facial nerves are intact. It always struck me as odd to be asking this question right after brain surgery, so a colleague suggested I ask patients to show me their teeth. Armed with this new phrase, I said to my next patient, "Mr. Smith, show me your teeth." He shook his head. "The nurse has them."

The definition of a perfectionist: someone who wants to go from point A to point A+.



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## Sepsis-Induced Myocardial Dysfunction in Pediatric Septic Shock: Prevalence, Predictors, and Outcome—A Prospective Observational Study

Viresh S. Swami , Lalitha A. V. , Santu Ghosh , Mounika Reddy

Dr. Bidari's Ashwini Institute of Child Health and Research Centre, Vijayapur, Karnataka, India and St. John's Medical College and Hospital, Bengaluru, Karnataka 560034, India

### Abstract

There is a paucity of literature on the prevalence, predictors, prognostic markers, and outcomes of sepsis-induced myocardial dysfunction (SMD) in pediatric septic shock. The objectives of our study were to estimate the prevalence of SMD in pediatric septic shock by point-of-care functional echocardiography (POCFE) and to study the association of SMD with severity of illness, organ dysfunctions, and outcomes. This prospective, observational study was conducted over a period of 1 year (from July 2018 to July 2019) in a 12-bed, tertiary pediatric intensive care unit (PICU) of an academic and referral hospital in South India. Children presenting with septic shock were enrolled in the study. POCFE was done within 6 hours of PICU admission and patients were categorized as having SMD based on POCFE findings. The prevalence of SMD (left ventricle:right ventricle) was 32%(32/100). More than half of the children (54.5%) died in SMD group, whereas only 7.5% died in non-SMD group ( $p < 0.001$ ). SMD was associated with higher organ dysfunctions, worse patient outcomes, and was found to be an independent predictor of mortality. The median lactate levels were higher in SMD group (3.15 [2.7, 5] vs. 2 [1.3, 2.7],  $p < 0.001$ ) as compared with non-SMD group. We observed significantly lower median lactate clearance at 6 hours in SMD than non-SMD (30.0% [14.44, 44.22] vs. 59.8% [45.83, 71.43],  $p < 0.001$ ). Lactate levels at 6 hours with a threshold of 2.4 mmol/L was a good predictor of SMD with sensitivity and specificity of 73 and 80%, respectively. SMD is not an uncommon entity in children with septic shock. SMD was associated with worse patient outcomes, organ dysfunction, and mortality. Serum lactate trends may predict SMD and can be used as prognostic markers as well.

## Fatal Tetanus in a Patient with Carcinoma of the Breast – A Case Report

Renuka Shantharam Pai, Shoba Narayanan Nair, Subash D. Tarey

St. John's National Academy of Health Sciences, Bengaluru, Karnataka and  
Amrita Institute of Medical Sciences, Kochi, Kerala, India

### Abstract

Tetanus in patients with malignant wounds can be fatal. We report a case of a patient with carcinoma of the breast, with a malignant wound. She had applied native medication and approached us for pain management. She developed typical features of tetanus which despite prompt detection and management by the palliative care team, turned fatal. We further discuss the need to keep the possibility of the diagnosis in mind, educate the caregivers to be aware of the possibility of a toxic infection like tetanus that can occur in patients with open wounds, ascertain the immunisation status if possible and conclude by reiterating the conclusions of other authors that prophylactic tetanus immunisation for those with malignant wounds could be effective in reducing the resultant morbidity-mortality.

Indian Journal of Palliative Care; DOI 10.25259/IJPC\_43\_21

# PEARLS OF WISDOM

You never forget kindness. Like love, it stays with you forever.

- R.J.Palacio, *WHITE BIRD*.



©Drawn together art collective



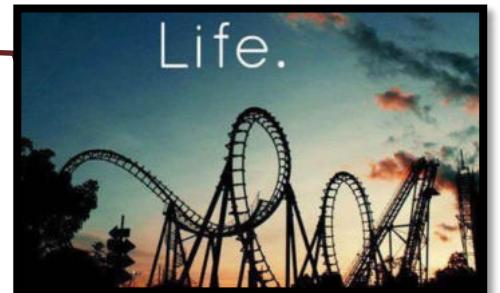
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As soon as you trust yourself, you will know how to live.

- Johann Wolfgang von Goethe

Life is like a rollercoaster... .. With all its ups and downs...

- Kyler



© The hans India

REF: 365 Days of Wonder: R.J.Palacio.

## Did You Know?

Juno satellite is a rotating spacecraft launched by NASA in 2011, has been orbiting the planet Jupiter since 2016 and has given invaluable information on the giant planet to mankind.

Interestingly, 'Juno' is the female counterpart of Jupiter closely resembled the Greek Hera, with whom she was associated. Juno was connected with all aspects of the life of women, most particularly married life.

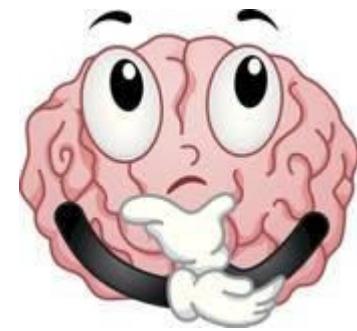


© NASA and Britannica





# GREY *Matters!*



## METALLIC POISONS

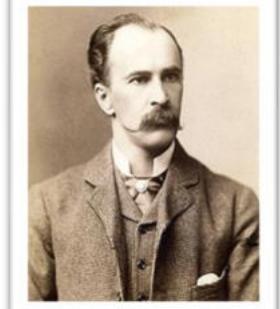
1. This metal is a colourless, odorless and tasteless substance that mimics food poisoning when ingested. This, coupled with its greater solubility in hot fluids like tea as compared to cold fluids, led to this heavy metal being the poison used in Agatha Christie's '4.50 from Paddington'. Name the metal.
2. Poisoning from this heavy metal was reported as an occupational hazard of hat makers, also lending its name to a famous character from Alice in Wonderland. Name the character and the metal in question.
3. Poisoning by this metal supposedly caused the downfall of the Roman empire. Patients poisoned with this metal were described to have a disposition resembling the gloomy Roman god, Saturn. However, though its use in various civil works and industries has been linked with poisoning since antiquity, it was only in the 20th century that legislation banning its use in various settings was passed. Name the metal.
4. Salts of this metal were once widely used as rat and ant poisons, and for treatment of ringworm and night sweats in tuberculosis patients. Its poisoning causes death about 3 weeks after fatal ingestion, with a characteristic sign being a loss of hair. This point was used in Agatha Christie's 'The Pale Horse'. Name the metal.
5. Poisoning by this metal in Japan was the cause for a disease translated to 'it hurts-it hurts'. The symptoms of this disease are osteomalacia mimicking Vitamin D deficiency, and proteinuria. This metal acts directly on the renal tubular cells, and by inhibiting Vitamin D metabolism in the kidney causes its deficiency. Which metal is this, which you may find in rechargeable batteries?



[CLICK HERE FOR ANSWERS](#)



# THE QUOTABLE OSLER



SIR WILLIAM OSLER

## Avoid Criticizing a colleague.

Let not your ear hear the sound of your voice raised in unkind criticism or ridicule of condemnation of a brother physician.



© dreamstime

## Never slander a colleague.

Never let your tongue say a slighting word of a colleague.

REF: The Quotable OSLER: Edited by Mark E Silverman, T. Jock Murray, Charles. S Bryan



## MEDICINE THIS MONTH

*A Bird's Eye View.....*

### Prenatal antipsychotics and psychopathology in the offspring

Maternal use of antipsychotics during pregnancy does not appear to increase the risk of psychopathology in offspring. A retrospective study of electronic medical records identified over 400,000 mother-child pairs in which 706 had gestational exposure to antipsychotics. After adjusting for potential confounding factors, the risks of attention-deficit hyperactivity disorder and autism spectrum disorder in the exposed and nonexposed children were comparable. These results are reassuring for pregnant patients with bipolar disorder who require antipsychotics.

- Wang Z et al, JAMA Intern Med. Oct 2021.

### Long-term appendectomy rates following initial antibiotics for appendicitis in adults

Antibiotic therapy has been proposed as an alternative to surgery for uncomplicated appendicitis. In 2020, the Comparison of Outcomes of Antibiotic Drugs and Appendectomy (CODA) trial reported that the 30-day general health status of patients treated with antibiotics was comparable to the appendectomy group; however, 29 percent of medically-treated patients required appendectomy by 90 days. Longer-term data from this trial now confirm high rates of subsequent appendectomy after initial medical therapy: 40 percent at one year, 46 percent at two years, and 49 percent at three and four years. Surgery should be the first choice for uncomplicated appendicitis and antibiotic therapy reserved for those who are medically unfit for or decline surgery.

- CODA Collaborative, NEJM. Dec 2021.



JAMA Internal Medicine | [Original Investigation](#)

# Association Between Prenatal Exposure to Antipsychotics and Attention-Deficit/Hyperactivity Disorder, Autism Spectrum Disorder, Preterm Birth, and Small for Gestational Age

Zixuan Wang, MSc; Adrienne Y. L. Chan, MPH; David Coghill, MD; Patrick Ip, MPH; Wallis C. Y. Lau, PhD; Emily Simonoff, MD; Ruth Brauer, PhD; Li Wei, PhD; Ian C. K. Wong, PhD; Kenneth K. C. Man, PhD

**IMPORTANCE** The risk of birth and neurodevelopmental complications with prenatal exposure to antipsychotics is unclear.

**OBJECTIVE** To evaluate the association between prenatal antipsychotics exposure and the risk of birth and neurodevelopmental problems.

**DESIGN, SETTING, AND PARTICIPANTS** This population-based cohort study included children born between January 2001 and January 2015 with follow-up to December 2019 who were identified by the Hong Kong Clinical Data Analysis and Reporting System. Pregnancies with maternal antidepressant/lithium exposure were removed. Primary analyses compared gestationally exposed and gestationally nonexposed individuals with propensity score fine stratification. Additional analyses included gestationally exposed individuals vs those with past exposure and a sibling-matched analysis to evaluate the effect of confounding by indication.

**EXPOSURES** Prenatal antipsychotic exposure.

**MAIN OUTCOMES AND MEASURES** Preterm birth (<37 gestational weeks), small for gestational age (birth weight <2 standard deviations below the mean for gestational age), and first diagnosis of attention-deficit/hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) in children.

**RESULTS** The cohorts included 333 749 mother-child pairs for ADHD (mean [SD] maternal age at delivery, 31.46 [5.03] years) and 411 251 pairs for ASD, preterm birth, and small for gestational age analyses (mean [SD] maternal age at delivery, 31.56 [5.01] years). There were 13 196 children (3.95%) with a diagnosis of ADHD, 8715 (2.12%) with ASD, 33 891 (8.24%) preterm, and 7009 (1.70%) who were small for gestational age. The weighted hazard ratio (wHR) was 1.16 (95% CI, 0.83-1.61) for ADHD and 1.06 (95% CI, 0.70-1.60) for ASD, while the weighted odds ratio (wOR) was 1.40 (95% CI, 1.13-1.75) for preterm birth and 1.36 (95% CI, 0.86-2.14) for small for gestational age when comparing gestationally exposed with gestationally nonexposed individuals. Additional analyses showed no association when comparing gestationally exposed individuals with those with past exposure (ADHD: wHR, 0.99; 95% CI, 0.60-1.61; ASD: wHR, 1.10; 95% CI, 0.58-2.08; preterm birth: wOR, 0.93; 95% CI, 0.70-1.24; small for gestational age: wOR, 1.21; 95% CI, 0.66-2.20) and in a sibling-matched analysis (ADHD: wHR, 0.41; 95% CI, 0.04-4.93; ASD: wHR, 0.90; 95% CI, 0.40-2.01; preterm birth: wOR, 1.25; 95% CI, 0.85-1.82; small for gestational age: wOR, 0.86, 95% CI, 0.32-2.31).

**CONCLUSIONS AND RELEVANCE** In this cohort study, the findings did not suggest that prenatal antipsychotics exposure increased the risk of ADHD, ASD, or small for gestational age. In the primary analysis, there was a small increased risk of preterm birth, but additional analyses comparing gestationally exposed individuals with those with past exposure and comparing gestationally exposed with gestationally nonexposed siblings did not support an increased risk. Given the benefits of treating psychosis during pregnancy, our findings do not support a recommendation for women to discontinue receipt of their regular antipsychotic treatment during pregnancy.

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## CORRESPONDENCE



## Antibiotics versus Appendectomy for Acute Appendicitis — Longer-Term Outcomes

**TO THE EDITOR:** Antibiotic treatment of appendicitis is now described as an “accepted first-line treatment” by the American College of Surgeons<sup>1</sup> on the basis of the results of several randomized trials.<sup>2</sup> In the Comparison of Outcomes of Antibiotic Drugs and Appendectomy (CODA) trial,<sup>3</sup> we previously reported short-term outcomes involving 1552 patients with appendicitis (with or without an appendicolith). In that trial, we found that antibiotic treatment was noninferior to appendectomy on the basis of a measure of general health status at 30 days, with similar rates of safety events. Among the patients in the antibiotics group, 29% had undergone appendectomy by 90 days (41% with an appendicolith vs. 25% without). Here, we report our findings regarding longer-term outcomes, including the risk of recurrence of appendicitis and the rate of eventual appendectomy among the patients who were assigned to receive antibiotic therapy — outcomes that are also important for clinical decision making.

The methods that we used in this trial have been described previously<sup>4</sup> and are summarized in the Supplementary Appendix, available with the full text of this letter at NEJM.org. We defined recurrence of appendicitis as the performance of appendectomy in which the primary indication for surgery was for clinical reasons occurring 31 to 365 days after randomization. Appendicitis was considered to have been confirmed on the basis of the pathological findings. Data collection ended 1 year after the final patient had been recruited, with 82% of the patients enrolled for more than 2 years, 44% for more than 3 years, and 15% for more than 4 years. Surveys in which patients were asked

about outcomes (and if they had an appendectomy, what they thought was the reason for the appendectomy) were available for 79% of the patients at 1 year, 57% at 2 years, 10% at 3 years, and 5% at 4 years (Fig. S1 in the Supplementary Appendix). Characteristics of the patients at baseline (Table S1) and 90-day outcomes<sup>3</sup> were reported previously.

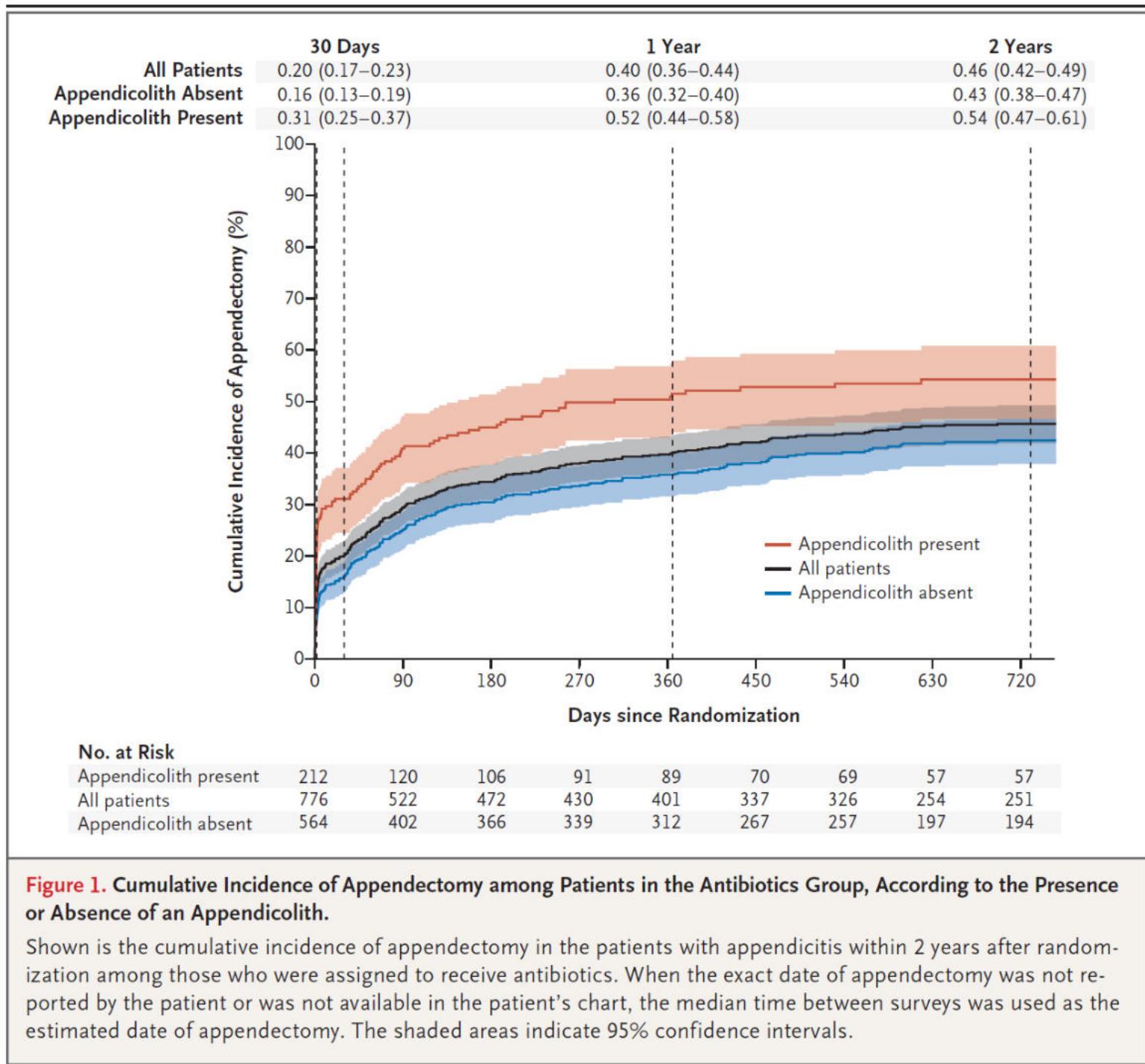
In the antibiotics groups, the percentage of patients who underwent subsequent appendectomy was 40% (95% confidence interval [CI], 36 to 44) at 1 year and 46% (95% CI, 42 to 49) at 2 years (Fig. 1); the percentages were 49% (95% CI, 44 to 53) at 3 and 4 years, according to limited longer-term follow-up (Fig. S2). At 30 days after randomization, the risk of appendectomy was 27% (95% CI, 23 to 30) through 1 year. Appendectomy was more common among patients who had an appendicolith, but this greater risk was attenuated with time. The hazard ratio for appendectomy among patients with an appendicolith as compared with those without an appendicolith was 2.9 (95% CI, 1.9 to 4.4) within 48 hours, 1.4 (95% CI, 0.8 to 2.4) from 48 hours to 30 days, and 1.1 (95% CI, 0.8 to 1.6) from 31

## THIS WEEK'S LETTERS

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days to 2 years. Of the 333 patients in the antibiotics group who underwent appendectomy after randomization, appendicitis was confirmed in 278 of 297 (94%) for whom a pathology report was available. Primary indications for appendectomy and pathological confirmation of appendicitis are shown in Table S2.

After 30 days, complications were uncommon in the two treatment groups, regardless of the presence or absence of an appendicolith (Table S3). Among patients with recurrence in the antibiotics group, perforation was reported in 20% (95% CI, 13 to 28), a percentage that was similar to that in the appendectomy group (16%; 95% CI, 13 to 19).<sup>3</sup> Among patients with 2-year follow-up, 62 of 443 (14%) in the antibiotics group had received an additional course of antibiotics; of these patients, 66% underwent subsequent

appendectomy. Since the reporting of our initial findings, 2 additional neoplasms were identified among the patients in the antibiotics group (Table S4).

In our trial, the longer-term incidence of appendectomy in the antibiotics group was higher than pooled results from prior trials.<sup>1</sup> This finding is probably related to our inclusion of patients with radiographic evidence of an appendicolith or perforation, common findings in patients with appendicitis. Limitations of the trial, in addition to those described previously,<sup>3</sup> include the absence of data beyond 1 or 2 years in a substantial percentage of patients, the lack of a widely accepted time window for defining recurrence, and the use of nonstandardized pathological reports or, in some cases, missing reports. In order to address missing data in



comparing safety events and complications, we used a weighted cohort analysis with results that were similar to those in an unweighted analysis (Table S5). Patients who were prescribed an additional course of antibiotics and who did not undergo appendectomy were not counted as recurrences because appendicitis could not be confirmed.

Although some clinicians and patients may determine that these longer-term rates of appendectomy make antibiotics a less desirable treatment than early appendectomy, substantial numbers of patients report a preference for antibiotics, even if appendectomy may ultimately be necessary.<sup>5</sup> The present data will further inform shared decision making between clinicians and their patients with appendicitis, including those with an appendicolith (see videos, which are being made available with permission from the authors).

#### The CODA Collaborative

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A complete list of members of the CODA Collaborative is provided in the Supplementary Appendix, available at [NEJM.org](http://NEJM.org).

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Disclosure forms provided by the authors are available with the full text of this letter at [NEJM.org](http://NEJM.org).

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 A video is available at [NEJM.org](http://NEJM.org)

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# RESEARCH SNIPPETS

## Effect Modification

If effects of exposure on outcome varies across levels of another factor, the phenomena is called effect modification and the third factor is called effect modifier. It could be misleading reporting overall results of effect size or magnitude of the impact of exposure on outcome ignoring effect modifier if it exists. For example, suppose a clinical trial is conducted and the drug is shown to result in a statistically significant reduction in total cholesterol. However, suppose that with closer scrutiny of the data, the investigators find that the drug is only effective in subjects with a specific genetic marker and that there is no effect in persons who do not possess the marker. The effect of the treatment is different depending on the presence or absence of the genetic marker. This is an example of effect modification or "interaction".

Unlike confounding, effect modification is not a nuisance rather a biological phenomenon in which the exposure has a different impact in different circumstances. Another good example is the effect of smoking on risk of lung cancer.

- Smoking and exposure to asbestos are both risk factors for lung cancer. Non-smokers exposed to asbestos have a 3-4-fold increased risk of lung cancer, and most studies suggest that smoking increases the risk of lung cancer about 20 times.
- However, shipyard workers who chronically inhaled asbestos fibers and also smoked had about a 64-fold increased risk of lung cancer.
- In other words, the effects of smoking and asbestos were not just additive – they were multiplicative. This suggests synergism or interaction, i.e., that the effect of smoking is somehow magnified in people who have also been exposed to asbestos.

**How to deal with effect modification:** A stratified analysis provides a way to identify effect modification. That is estimate the effects of exposure on outcome at different level of the effect modifier.

- As per the above smoking and lung cancer example, stratify the entire data by asbestos exposure, then estimate the effect of smoking on lung cancer for those exposed to asbestos and for those didn't expose to asbestos separately. However, adjustment of confounding effects must be performed as per the rule but separately for the two groups.

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 $\pi$   $\theta$   $\sigma$   $p$   
**Effect Modification**

$v$

- As an alternative to the stratification, one can use regression technique with interaction of effect modifier and exposure keeping confounders as the adjusting factors in a single regression model. As a result, the regression will provide two different regression coefficients of exposure, one for those exposed to asbestos and another for those not exposed to asbestos as per example discussed above.

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- The precision of the estimates by interaction regression model will be higher than stratified analysis as a results false negative error would be lower if we use regression technique over stratification.

$sd$

$v$   $\theta$   $\sigma$   $\int$   $n$   $\leq$   $\Sigma$   $v$   $\leq$   $\pi$   $\infty$   $+$   $\Sigma$



# GREY Matters!



## METALLIC POISONS ANSWERS

1. Arsenic; 2. Mad Hatter, Mercury; 3. Lead; 4. Thallium; 5. Cadmium



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