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

What's Up? @St John's Hospital

COVID-19 PANDEMIC - CORONADAYS!

Issue 42, 6th May 2020

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MESSAGE FROM THE EDITORIAL TEAM

Dear All!

We are releasing the 42nd issue of **"What's Up? @ St John's Hospital"** magazine today. The whole world is bracing through hardship of COVID 19 pandemic. A disaster of this magnitude, the present generation had never witnessed before. No matter which country you are, which state you are, which district you are, people are not spared. In summary, world is going through lockdowns, serious restrictions in social life and extreme compromises during work. We the health care providers belong to a distinct category, now being christened as frontline warriors. Although most of us are sinking into the situation and things are getting routinised, were we really ready for this kind of war?

We prefer to call St. John's a ship sailing now on rough seas with all its dedicated employees under able captain (management), trying to beat, defeat and overcome the impact of this pandemic.

We dedicate this issue to hear stories of '***coronadays***'. Let's have a sneak peek into the stories, fears, hopes, anxiety and worries of staff in this special issue.

We also would want to slowly revert back to normalcy (co-exist with corona), hence we symbolically include the regular sections of magazine. As usual we look forward to your comments and suggestions. 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 to our beloved readers. Take care!!!

Editorial Team

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Setting up for COVID 19: A Pediatrician's Perspective

Dr Ranjini Srinivasan, Department of Pediatrics

Preparing for COVID 19 in the Pediatric department has been a tumultuous experience so far requiring a great deal of foresight and quick planning with limited data available in pediatric literature from other COVID affected countries. Although children usually have mild manifestations and may often even be asymptomatic, they form excellent vehicles for transmitting the virus thereby posing a huge hazard to health care workers.

Apart from staggering faculty and creating backup groups in the event of any group being exposed to a positive patient, several other protocols were made and quickly implemented. A separate pediatric COVID emergency and corona isolation ward were set up as an offshoot of the adult counterpart wards and the final year postgraduates due to give their university exams were called back to work in the above areas. Similarly the outpatient area was reorganized to ensure that febrile patients were seen in a separate enclosure.

Online teaching platforms were used to ensure that undergraduate and postgraduate teaching in the department continued giving rise to a lot of innovative thinking from faculty to teach a very clinical subject. The department faculty led by the head of the department underwent training in basic ventilation to serve as a backup team in the COVID ICU in the extreme situation. Similarly, the postgraduates and junior faculty were trained in collecting swabs from suspect patients and managing adult patients in corona isolation wards.

Despite stringent restrictions enforced by the government on travel during this lockdown period and a significant reduction in the number of patients in the OPDs and emergencies, the pediatric NON-COVID wards continue to show a bed occupancy of around 30 percent, many with complicated health issues. Our health care workers have continued to provide unfaltering care to these patients during this period in addition to being called to serve in other areas of the hospital as well. The pediatric hematoncology team has put in protocols specially suited for their patients to ensure the safety of children under their care. Teleconsultation services are being provided for oncology patients as well as patients with chronic problems who are unable to come for follow up and routine care during this period. The journey has just begun and this may be the new normal for all of us in the ensuing months. It has been a continuous learning experience and we hope someday to see light at the end of the tunnel. Until then, we have promises to keep and miles to go before we sleep...

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A walk to remember – Corona days

Ms. Monica Rita Hendricks

It started with a bat, and then it was about hoarding toilet paper, masks, and hand sanitizers; now we are going nuts during quarantine. When I first read about the Corona virus - COVID -19; something that happened in the far Oriental East. I read it, like I would do generally, as a piece of information.

Even when India reported the first confirmed case of the corona virus infection on 30 January 2020 in the state of Kerala, the seriousness of the disease did not sink in. In the month of March, a circular was issued about declaring leave for all undergraduate students, except the final years. Subsequently the final years were also granted this holiday and within a couple of days the entire college was asked to be shut down.

I sensed the gravity of the issue; I realized this was not just a piece of information in the newspaper anymore, but a full blown threatening pandemic. One part of me was glad, as I hadn't spent time with my family since long. I also felt the burnout and the drudgery of my mundane job. The thought of getting back home made me feel secure and the very idea brought me peace. I got busy booking my ticket home, packing things, shopping, cleaning my hostel room, getting all ready to take off for a break. A call from the travel agent , the night before my travel , saying that," all forms of public transport are suspended", got me worried and put an end to my excitement. What would I do, in the hostel all alone? I would like to be with my parents during these trying times! How would I reach home? Who should I call for help?

After a lot of thought I booked a cab and got home. Getting into the cab I was on tenter hooks about crossing the border of Karnataka. What would I do, if they do not let the cab cross the borders? Oh God! Please help me.

I was able to cross the border with no issues. I got home and spent a few pleasant days at home, cooking, baking, resting, nurturing my talents and above all spending quality time at home. I realized and started appreciating the simple joys of life, until the news of the 21 day lock down was released by the PM.

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A walk to remember – Corona days contd..

We immediately rushed to do some grocery shopping; the crowd in the super market was staggering, the racks were partly empty and the entire town was in panic. Once things at home were organized to face the pandemic, the news that all employees should report for duty on April 1st, 2020, was issued.

An overwhelming fear of how would I get across the borders during the lock down troubled me and my family. However, the management was kind enough to allow us take our leave. But when the lock down was extended again, I realized I did not have a lot of EL to exhaust and the thought, this was just the beginning of the year frightened me. It all suddenly seemed so unfair. The uncertainty of whether we would get our salaries, the fear of running out of EL, the requirement of the college to start online classes, my poor internet network, my inability to be on the frontline assisting with patient care, the suffering humanity, our transient lives on planet earth and the list goes on. In the transition from voluntary to mandatory isolation, conflicts arouse at the intersection of ethics, human rights and the law. The very thought of all this disturbed my inner peace and calm. My inability to reach out and a feeling of imprisonment prevailed.

On careful scrutiny, I realized that COVID-19 has no obvious solutions, no agreement on what the problem is or from what and where did it come and how does it spread, it places all of humanity on a long uncertain time scale, it has uncertain prognosis but involves a lot of mental exhaustion, it can never be disentangled from the context and ultimately brings every individual's priorities to question. However a realization dawned upon me, that if there was no solution to the problem, why should I worry.

My travel plans were only to the windows, to the wall and right down up to the hall.

Nonetheless ,these quarantine days have taught me that life is unpredictable, there is nothing that I can control, ¾ th of the world's population can work online, nature is at its best when we are in, life is beautiful without any parties and social gathering and the possibility of living a full life becomes a reality only when I live in the moment.

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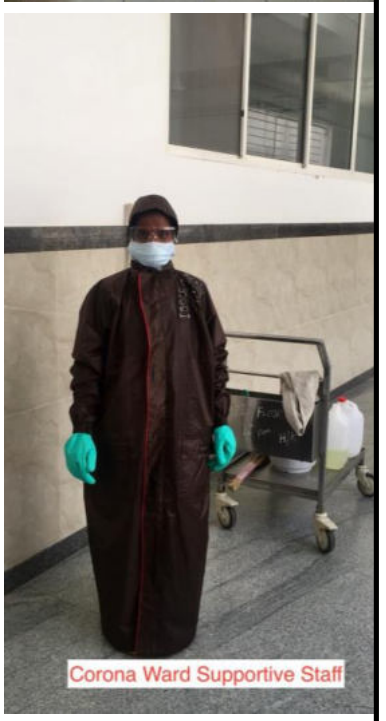
Coronadays….. In Pictures

Covid Setup in St. John's Medical College Hospital



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Armoured doctors to fight the COVID19 battle

- Dr. Bhuvana Krishna, Professor and Head, Department of Critical Care

The growing Covid19 cases in China hardly worried us in December 2019. By the end of January the first case of Covid19 had sneaked into India. Confident that the first few cases in Kerala would be well contained like the Nipah virus infection, our Department of Critical Care was still unprepared to face the Covid19 virus.

Late in February our Hospital had begun preparation to deal with growing pandemic. Meetings, responsibilities and committees seemed to be the need of the hour. Being a tertiary care referral Hospital, with prior first-hand experience of the H1N1 pandemic in 2009, we knew our Department was not going to be spared of the sickest of the sick Covid19 infected patients. The worry was where to start? Having watched a live webcast from Lombardy on how the ICU was overwhelmed with cases, made me realize it was time to prepare the Department for the storm.

The Covid-ICU plan had already been faintly sketched, but the blue print needed to be finalized. This ICU had to have a separate entrance, negative pressure rooms and place for donning and doffing. The personal protective equipment – for whom, type, quality and quantity had to be finalized. Training of all the team members on donning and doffing of personal protective equipment was mandatory. Management of Covid19 patients and disinfection protocol was to be elaborated. Manpower for running the Covid-ICU – doctors, nurses and allied staff, needed planning. Bed strength and surge capacity needed to be worked out. These thoughts, suggestions, opinions and counter opinions from one and all had me spinning and worrying.

The first standard operating procedure (SOP) was written from start to maintenance of the Covid-ICU. The above points were incorporated in the SOP and all faculties in the Department were given special roles and responsibilities to gear up for the battle.

The easiest task was writing the SOP, the bigger hurdles were execution. Safety was priority - availing a proper PPE (proud to have our own stitched PPE), to ensuring adequate air exchanges in our ICU, to worrying about manpower, my pedometer was reflecting high targets each day. Motivating and encouraging talks to the team members was of paramount importance, to allay their fear and anxiety.

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Armoured doctors contd…

A reasonable plan in place with bated breath, we waited for our first Covid19 suspect case, that arrived into our Covid-ICU on March 21st. There has been no looking back from then.

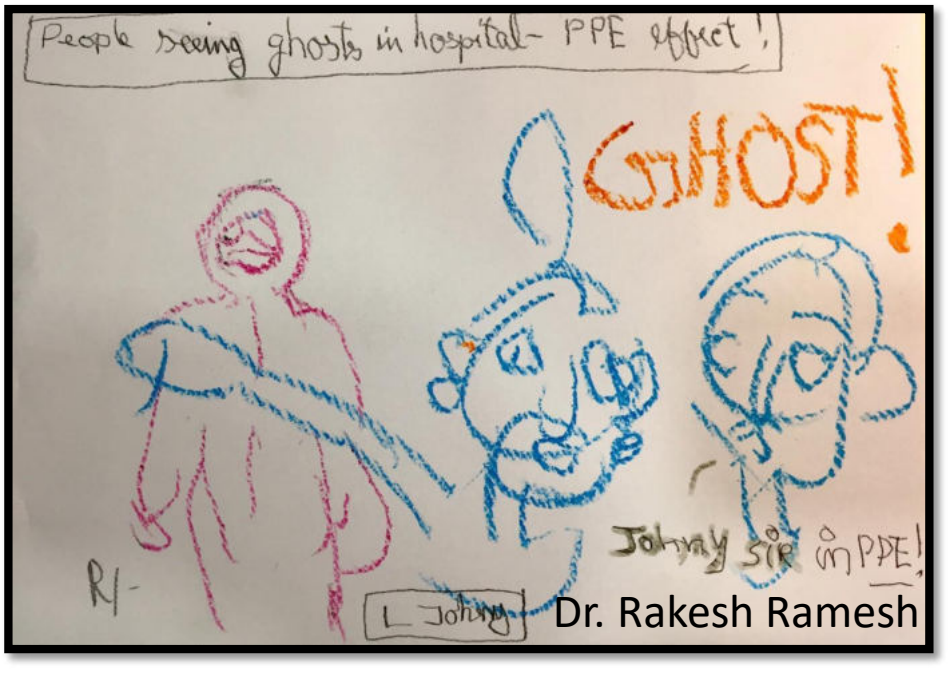
Our world in the Department has changed. No classes (classroom is makeshift duty room now), no lunch time gossip (thanks to social distancing), our coffee lounge moved into a small room, where no more than 4 can sit to hungrily gobble the bun dipped in sugary warm water. Facing social stigma from both peer and common man, for having cared for Covid19 patients.. Enduring physical discomfort from tight, well-fitting PPEs, to ignoring hunger, thirst and nature's call, in an effort to save precious PPE. Long days with no weekend offs, makes one struggle to maintain sanity within and outside. But the environment and mood in the Covid-ICU, the happy faces of the team members, unperturbed and tirelessly working to help patients recover, makes one forget all these unpleasantness.

Learning from mistakes, winning small battles, without losing the number and enthusiasm of the team, we know that there are several mountains and rivers that need to be crossed before we reach Home (normalcy). Every team member of the Department has played a vital role till date in fighting the battle, with the hospital administration being the backbone, supporting all our needs.

We await the day when our ICU will get back to its normal hustle and bustle, pecked now and then by emergencies, with its members working unarmoured.

"Coming together is a beginning, staying together is progress, and working together is success." – Henry Ford.

L Johny



Dr. Rakesh Ramesh

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Coronadays.....

Enduring through the challenge: The frontline warriors

Department of Pharmacy

As stated by the National Alliance of State Pharmacy Associations (NASPA), “Pharmacists are the most accessible healthcare providers and the first touchpoint of patient engagement with the healthcare system.” As a vital part of the healthcare system, Hospital Pharmacy department plays an important role in providing medicines, therapeutics, vaccines, consumables, surgical items and critical health services to the public 24/7.

Safety Measures for the Pharmacy Staff:

The Pharmacy staff is required to go above and beyond their role in the coming weeks and months during this Covid19 Pandemic. In order to protect ourselves, each staff is given 2 cloth masks (reusable ones). Unsterile gloves are provided as a precautionary measure to all those who are directly in contact with the patients at the counters. The Cashiers are provided with disposable gloves at the counters. Pharmacy staffs are advised to minimise risk and also keep the family members safe and healthy. We ensure that everyone can work without being overwhelmed and exhausted, by following a staggered duty roster.

To protect our staff, the institution has issued guidelines to provide personnel (if willing) to be on Tab HCQ Prophylaxis. From the department of Pharmacology, Dr. Denis Xavier, is monitoring the staff who are on tab HCQ through ICMR portal for compliance and safety. So far about 416 hospital personnel are on HCQ prophylaxis. Just before the complete national lock down, about 30% of our staff, who went on long leave out of the State, is unable to return to duty. About 20% staff who are staying out of the campus also were unable to report for duty. Even with a personnel crunch, the pharmacy is functioning well to meet the requirements of the hospital

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Enduring through the challenge contd…

Availability of Medicines:

St. John's hospital pharmacy caters to nearly 123 departments or units or wards daily or on a regular basis. Given the pandemic situation, there is shortage of supply of raw materials especially from China and also pharmaceutical ingredients and drugs. Therefore, as pharmacists, we continue to act proactively, identify effective therapeutic alternatives for e.g. in house production of hand sanitizer, cloth mask. We enforce the implementation of drug shortage mitigation strategies, and if needed, prioritize drug supply to the patients who are most likely to benefit. At our institution, we developed formulary restriction criteria for COVID-19 therapies. We have maintained adequate stocks of Tab hydroxychloroquine, Tab Azithromycin, Tab Ivermectin & Tab Oseltamivir etc. We have educated our staff and patients about the restrictions, and have implemented alerts to prescribers upon ordering.

Clinical Pharmacists in front line (Covid MICU Area):

Posting of clinical pharmacists in MICU in Covid19 area has helped the nurses to concentrate completely on better patient care. Clinical pharmacists ensure availability and timely provision of the medications. Therefore, a pharmacy sub store (mini satellite pharmacy) has been created in this area. Considering the strain on our healthcare system now, the clinical pharmacists ensure that the patient/ public has access to necessary medications and other healthcare services.

Following Safety norms: Social Distancing & Hand Hygiene

1. We have used signages/barriers and floor markers to instruct our patients to remain 6 feet apart from the counter, other patients and pharmacy staff.
2. Once in two hours, Clean and disinfect frequently touched objects and surfaces such as workstations, system keyboards, telephones, and doorknobs, table top surfaces, etc.
3. Promoting the use of self-serve checkout registers and clean them frequently. Have hand sanitizer and disinfecting solutions at register locations for patient use, and use one's own pen to sign on the attendance registers, etc.
4. Hand washing with soap & water periodically against infection.
5. Using alcohol-based hand rub after handling the articles/boxes supplied by vendors.

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Enduring through the challenge contd…

Personal Protective Equipment (PPE):

St. John's Hospital is having its own, in house production of PPE. The gowns made by the laundry dept. are being regularly sent to central sterile services department (CSSD) for autoclaving. Two dedicated pharmacy staff pick-up the gowns from the laundry twice a day and reach to the CSSD. They are brought to the pharmacy dept, where the pharmacists assemble the PPE KIT into individual bags with all the safety measures and seal them before issuing to the Covid Units. Alterations or additions of PPE (gown), face shields, shoe covers, are made on daily basis by the pharmacy staff in the Main Store Pharmacy which is supervised by the head of department. We are issuing Personal Protective Equipment's (PPE) KITS to wards and departments who all are having direct contacts with Covid -19 suspected patients for e.g: All ICUS& ITUs, Medical ICU/ Isolation unit /Covid screening unit/Emergency Gen. Medicine unit, Paediatric ICU. The Ward In-Charge nurse comes to the Pharmacy main store and collects.

The stocks are impeccably maintained daily. It is reported every morning to the team during the Covid19 task force meeting. Out of stocks are well maintained by pharmacy personnel (Reorder Level/Economic Quantity Level) according to that it is issued to wards/dept/units.

Enduring through the challenge contd…

Good Samaritans helping St. Johns at Covid19 Pandemic:

As a member of the COVID-19 task force and the Head of the pharmacy, Sister Jessie Saldanha has successfully coordinated the collaboration of religious communities in Bangalore for the preparation of PPE and other essentials. We are grateful to the following religious sisters for their generosity in preparing the PPEs needed for the personnel of St. John's Medical College Hospital.

1. The Hospitaller Sisters of Mercy – Snehalayam Garments, Vijayapura -Bengaluru,
2. Missionary Sisters of the Queen of the Apostles – Asha Kirana, Hebbagodi -Bengaluru,
3. Sisters of the Apostolic Carmel- Jayanagar (Carmel Convent School)

We are also grateful for the positive responses from the Johnites, Alumni, well-wishers, collaborators and other kind-hearted people have been donating generously with the face shields, masks. All the donations in kind come to the main store pharmacy where it is well documented and issued out. Sr. Jessie is constantly on the lookout for various collaborators to obtain PPEs.

Our new responsibilities

1. Online data updating of Covid19 essential items daily.
2. Demands of certain medicines are increased during this time, so pharmacies are well maintained with buffer stocks except for N95 masks.
3. Covid MICU Pharmacy is opened as a sub store to meet the crisis in the first floor.
4. Medicines & Items (Covid19 essential Items) which are issued out from the Pharmacy dept for e.g.: N95 mask, PPE kit, mask 3M, hand sanitizers, Surgeon's HIV kit are meticulously documented and reported.
5. Pharmacists are educating their patients on effective strategies to prevent acquisition and further spread of infection (e.g., optimal hand hygiene, social distancing, symptomatic relief) and the best resources for current COVID-19 information (i.e, CDC, local public health departments)

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Enduring through the challenge contd…

6. Home delivery of medicines from Pharmacy Dept. will begin once the tele-consultation interface is ready. We are assisted by Dr Denis Xavier (Professor, Department of Pharmacology).
7. Documentation & Recording information & Supply details (Soft & hard copies)
8. On a daily basis the dept is maintaining all the transactions (Ex: Staff Prophylaxis Register (Tab HCQ), Covid19 PPE KIT issue register, mask issue register, ward/dept /unit issue stock register, Covid19 essential items requests, approved letters through ADH, CMS & AMS, donations details & acknowledgment letters, a separate register for all the Covid donated items, Covid19 MICU sub store pharmacy register.

Challenges:

1. Returning Medicine to pharmacy either by the patients or written requests made by the doctors during this Covid19 is a huge challenge and is an added work pressure.
2. Inadequate/acute shortage & authentic Covid19 essentials items for e.g. N95 masks, 3 ply surgical masks & Standard Covid19 PPE kits.
3. Continuous request for Covid19 PPE KIT, N95 masks and 3M-3ply masks. As the rising number of Covid suspect cases, the department is unable to meet the demand.
4. Difficult to maintain the social distancing in the main store pharmacy as we have the influx of suppliers, vendors, who come in with supply & implants throughout the day. These suppliers also visit number of hospitals.
5. At the Pharmacy counters too, it is difficult to maintain social distancing while people come to collect the medicines.
6. Less manpower in the peak hours.
7. Since we receive a few items as donation, it is a challenge to maintain acute & proper registers along with our usual stock.
8. Slow & rarely moving items have been requested now too often, so we need to adjust the ROL (reorder level)

Impact on Revenue:

Since the occupancy has gone down drastically, so is the pharmacy income down by 75% but the purchase is going on because of the heavy use of consumables. We are unable to make the payments on time due to lack of funds, which has put lot of constraints on the Pharmacy.

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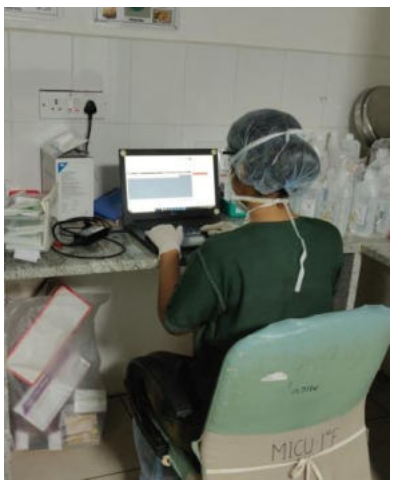
Enduring through the challenge contd…

Conclusion:

The genesis of the COVID-19 pandemic occurred less than 4 months ago. Our knowledge about the disease is changing daily, and it is uncertain how long the pandemic will last. Pharmacists are a trusted and accessible resource for the public during this public health emergency and we at the pharmacy department are ever ready to meet the needs of the hospital 24/7. Pharmacists play a key role as the drug information expert in evaluating literature related to new or repurposed therapies and helping them to ensure access to these therapies and other drugs on shortage due the pandemic. By serving as a resource to physicians and other medical providers, patients, and the public, pharmacists are essential in mitigating adverse consequences due to the COVID-19 pandemic. We are grateful to the entire Family of St John's for their continued support & co-operation to the department of Pharmacy.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Coronadays.....

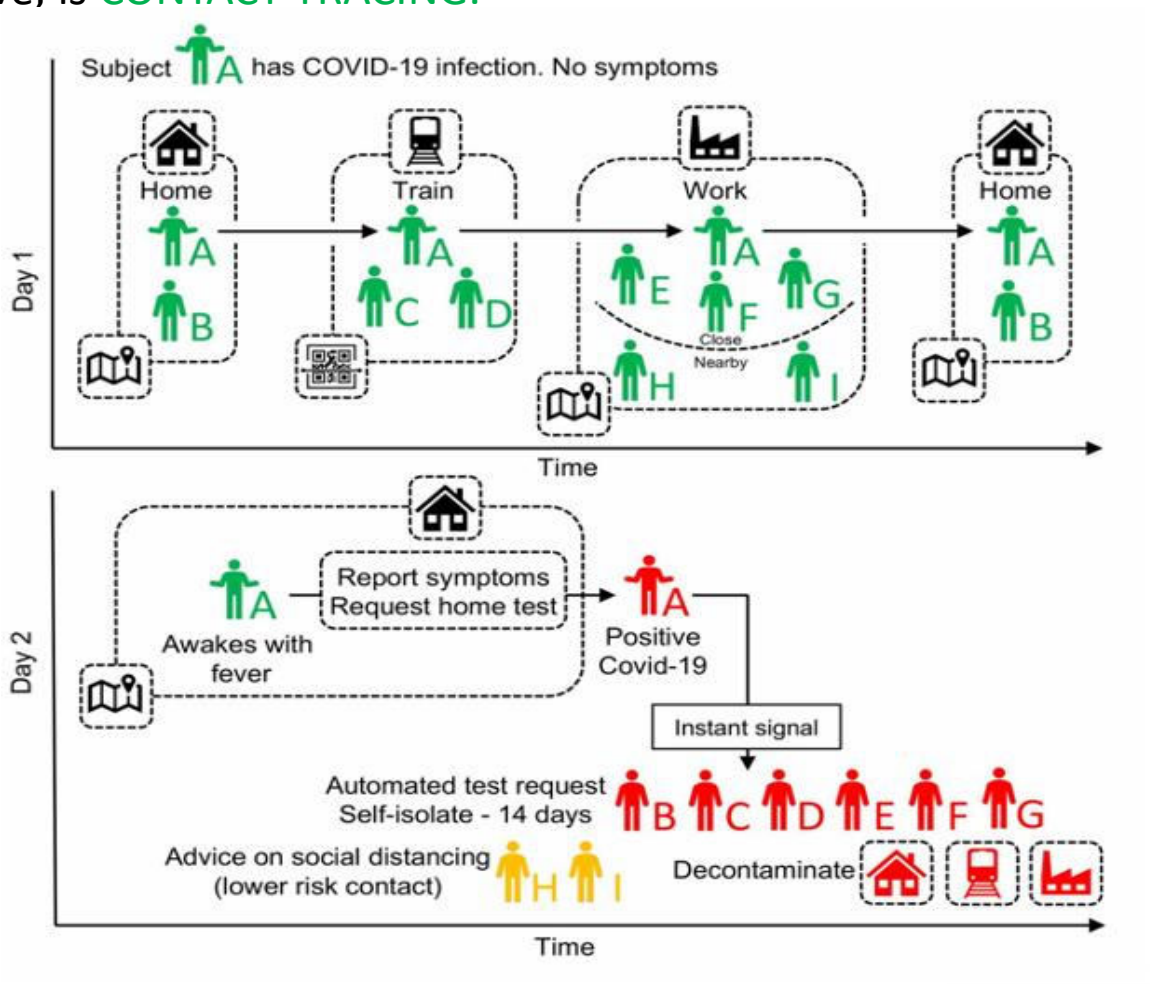
Dominoes - The Epidemiologist and Contact Tracing

Dr Kadambari, , Post graduate student, Community Health

Ms. A was chopping vegetables to put into her pasta. “I’ll see you guys at the movies!” she texted, and went back to her culinary occupation. The movie was not great, but she enjoyed the time that she spent with her friends. After her year-long internship abroad, Ms. A returned to India a few days ago. Next morning she felt very ill. Her body was burning. She had a runny nose and a bad cough. Her throat swab was taken. She tested positive for COVID- 19.

The public health experts immediately contacted Ms. A and asked her a few questions.Which country did she return from? How long ago? What were her whereabouts since she returned? Who were all the people she came in contact with? Home, the metro, the supermarket, the movies, her workplace. Her room-mate, her friends, and her fiancé.

The people she had come in contact with were immediately educated about their contact status, and asked to self-quarantine. They were followed up daily to see if they developed any symptoms of fever, cough or upper respiratory illness. The places she had visited, were closed and disinfected. During an infectious disease outbreak, one of the best tools public health experts have, is CONTACT TRACING.



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Dominoes - The Epidemiologist and Contact Tracing

Contact tracing is like detective work. Trained staff interview people who have been diagnosed with a contagious disease. They try to identify individuals who may have had prolonged close contact with the patient, in the recent past. This means being within 6 feet of the patient for more than 10 minutes. In a health care setting, the bar is lowered to five minutes. The exposed individuals are informed of their contact status and are encouraged to quarantine themselves to prevent the further spread of the disease. The individual will be regularly followed-up to monitor for symptoms.

Although it is the “corner-stone of Preventive Medicine”, Contact tracing it has its limitations. It is an arduous process. Interviewing infectious patients and reaching out to a large number of contacts takes time. Health care workers may also have trouble getting in touch with contacts if phone records aren’t up to date. Contact tracing is difficult if the infected patient is too sick to give information to help identify their recent contacts. With a virus like SARS CoV2, which spreads by droplet infection, things can get out of hand, quickly. Trying to find those who sat near an infected individual on a plane or a bus, for instance, is not an easy task.

Contact tracing is not of much help when states and localities have already issued lockdown orders where most people are self-isolating anyway. Contact tracing in COVID-19 has proven to be particularly difficult, as some infected individuals are asymptomatic. And people may transmit infection in the latent period between catching the infection and the appearance of symptoms. However, even at the height of a pandemic, contact tracing can be useful within smaller community settings, such as in health care facilities or nursing homes.

Contact tracing teams should have the trust and cooperation of the community. Involving appropriate community members is extremely important for this technique to be fairly successful. The local surveillance and community health workers should be involved as early as possible and should be closely supervised by trained epidemiologists/surveillance officers.

The Aarogya-Setu App is the main contact tracing technology endorsed by the Central government. When an app user tests positive, all his contacts who use the app, get an alert on the risk they face. They receive instruction on self isolation and what to do next. The limitation is that it is people-dependent.

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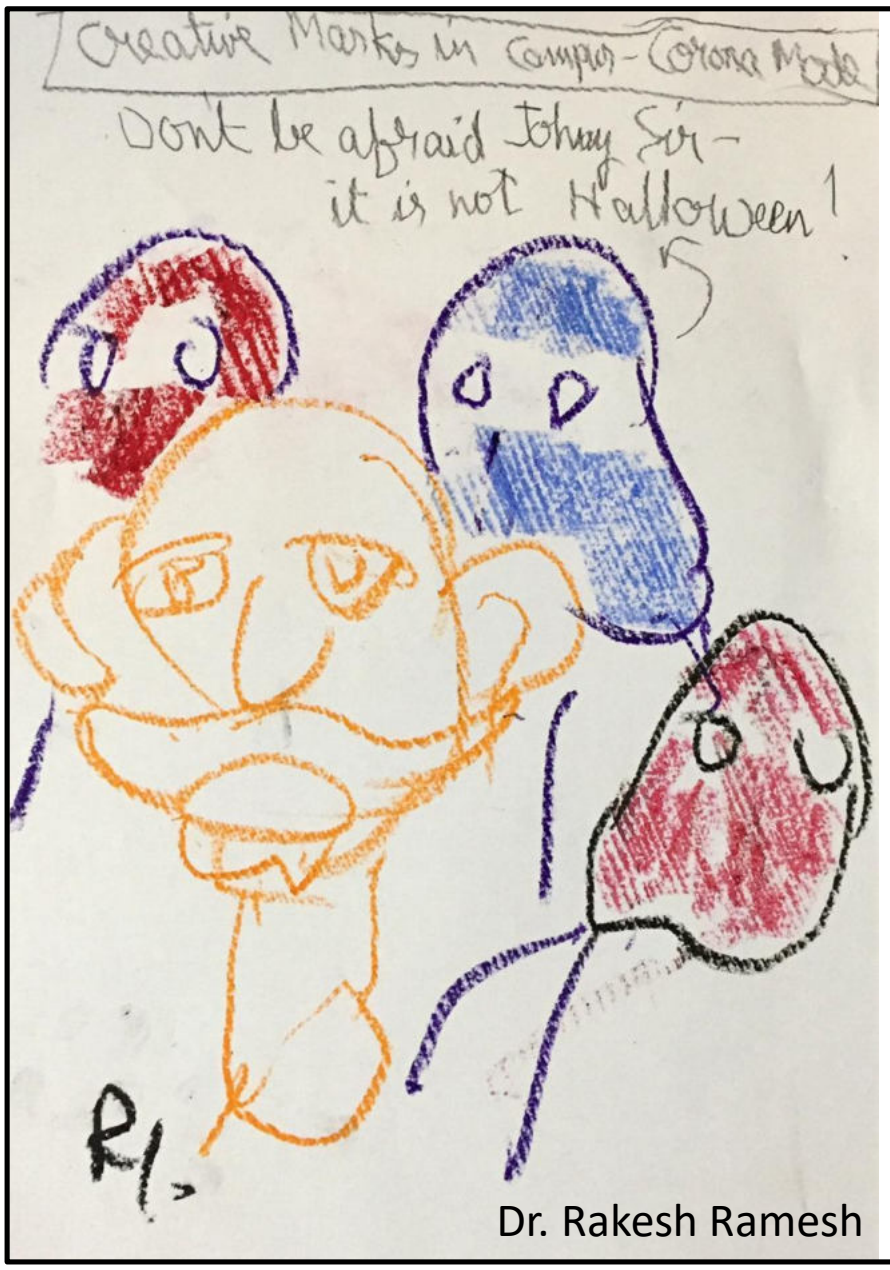
Dominoes - The Epidemiologist and Contact Tracing

Arogya-setu needs widespread usage and self-reporting to be effective. There also have been privacy concerns over its use.

While there is the risk of identifying an excess of false positives, the technology has promise, even if it identifies more contacts than necessary. “Contact tracing is all about trying to find that circle of individuals, who were infected by the index patient as well as those who were not infected by the index patient, in order to make a ring that can be sealed off and thus prevent the next level of spread.”

L Johny



Dr. Rakesh Ramesh

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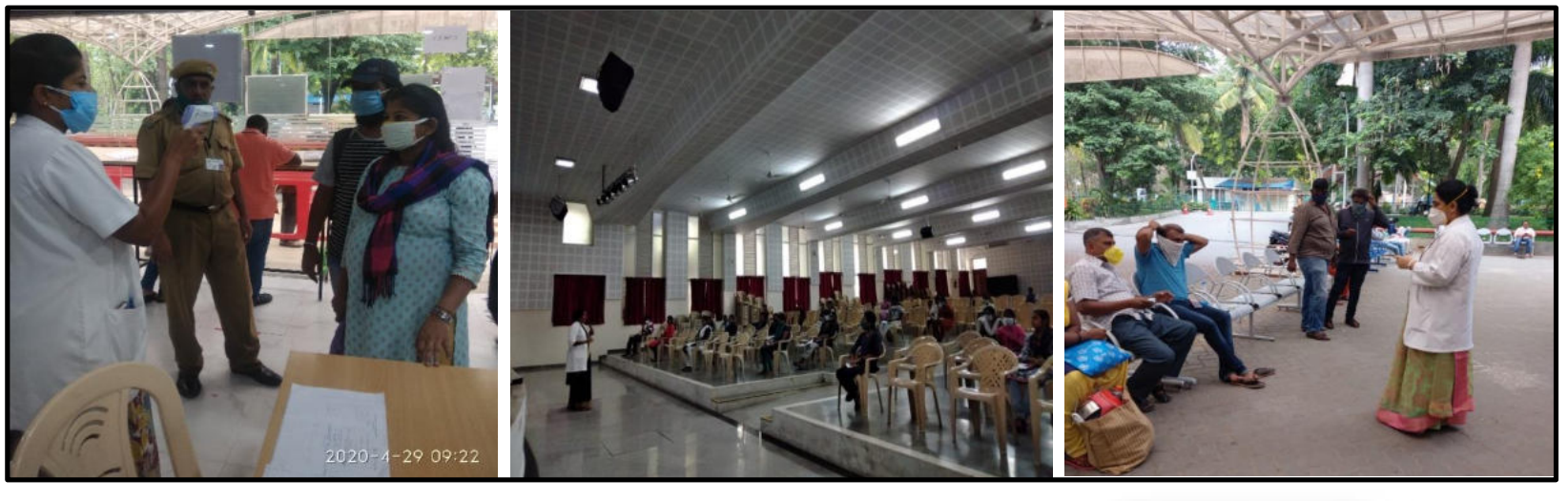
COVID Days & Nightingales

- Rev. Sr. Ria Emmanuel, Chief of Nursing Services, St. John's Medical College Hospital.

The integrated department of nursing geared itself to battle the COVID scenario adopting the following measures.

- A single command pattern to mobilize staff towards COVID suspect areas, Isolation units both positive & negative side with ITU , ICUs , following the principles of graded exposure to prevent risk to large number of staff. Donned in protective gears for 6 to 7 hours at a stretch, withstanding the unwieldy inconvenience, the young COVID warriors deserve our utmost appreciation.
- COVID training modules to all staff nurses limited in batches following norms of Social distancing under the coordination of Dr. Bindhu Mathew, DNS together with other faculty members, Mrs Jyothi Quadros, Mrs Sherin Susan and Mrs Chandrika.
- COVID Coordination of screening & directing patients on 1st floor.
- Quarantine & Isolation of staff working in COVID areas / suspect areas in a designated hostel - Nightingale hostel with food being served here. More than 140 staff are staying in this hostel.
- Walkers: Patrolling of all areas in the hospital including vihara & Hostels was done on rotational duties by Tutors. They help them to maintain Social isolation, Use of masks, Encouraging hand washing, cough etiquette. Also gives instant health awareness.
- Pre screening at OPD entrance was done to ensure social distancing & to direct patients towards OPD / Covid 19 screening areas.

Keeping up to the ethos of St. John's the Nightingales truly believe that
" TOGETHER WE SHALL OVERCOME"



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Coronadays.....

Inside a COVID-19 ICU: Nurses' experience

- Dr. Manu Varma M K, Critical Care

Jeena (a pseudonym) is mentally and emotionally exhausted when she goes back to her room after a shift in the Covid ICU. Even though she is physically exhausted, worries about how much worse things can become in the future prevents sleep. Just a few weeks ago, fatigue of heavy duties were lightened by blissful fear free sleep. She tamps down her panic while looking at her phone compulsively. Till now as nurses in the ICU they never felt that they would get infected and hospitalized from infections contracted at work.

Jeena is a long-time (one year) critical care nurse working in a medical college hospital that's part of a multi-specialty system. With little warning her 30 bed intensive care unit (ICU) had 15 beds isolated for Covid-19. Jeena and her friends are still learning. Most of critically ill are intubated, paralyzed, and sedated. They receive central venous catheters, arterial lines, nasogastric tubes, and urinary catheters. Most are on one or more vasopressor drips. Oxygenation, pulmonary function, and cardiovascular status are continuously monitored. The nurse titrates and adjusts drug infusions in response to changes in these parameters, drawing labs periodically to monitor a host of other body functions. She and her colleagues are aware that their every action will impact patient's lives and no amount of training seems to be adequate. But her supervisor appreciates every one of the nurses working there, even if they don't have much experience. But in the last one week she is aware that her actions can impact her and other co-workers health!

To reduce exposure risk, Jeena has to combine patient care tasks with getting used to Personal protective equipment (PPE). A full PPE, which she has never used before, includes one or more gowns or coveralls, head coverings, masks, goggles, gloves, shoe covers, and face shields. Well once into a PPE, it's hard to hear, and unbearably hot. One can feel the sweat pouring down the back and most get light-headedness. She has to don and doff PPE carefully, following a specific protocol, to avoid contaminating herself or her PPE during the process. The isolated ICU is literally isolated from outside world. She has no access to her gadgets, there is only one door for entry/exit and land line phone is the only means of communication for any emergency requirements. The room temperature is higher than regular ICU to make way for required air exchanges.

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Inside a COVID-19 ICU contd..

As an experienced ICU nurse, Jeena is assigned to two COVID-19 patients, a patient load that's likely to increase as the crisis worsens. It's physically demanding work. The goggles fog with every breath, all sense organs are blurred. She cannot feel the cold peripheries of a patient, cannot see the numbers on infusion pumps and monitors easily, writing with pen is no more fluent and distinguishing the look alike drugs is difficult. Jeena hopes that she doesn't get the urgency to drink or take a toilet break in her 7 hour shift. She is always afraid if there is a breach in PPE. She is also aware that lack of hygiene would transmit fomites from Covid19 confirmed patient to a suspect.

The absence of family members at the bedside of a patient is a stark difference. They are either quarantined or isolated. Jeena doesn't know if they can hear her, still she talks to her patients anyway. Jeena tells them that their family misses them, that they called to find out how they are doing, that their family loves them and wants them to get better. Jeena is emotional about a COVID-19 patient she took care of recently. The patient was sinking with worsening shock, renal failure and oxygenation. She was afraid patient is going to get worse and not going to make it. Family can't come in and she didn't want to provide false reassurance. She had to use skype, in a laptop provided, so they can see patient's face with all the tubes, before the patient dies. Comforting the devastated family members was nearly impossible as there was no visible contact with them.

Jeena is aware Hospitals across the world are reporting shortages of personal protective equipment (PPE), Staff and equipments and that her hospital will not be an exception. Ward nurses will become ICU nurses and are expected to take care of the hospital's sickest patients. Some had been nurses for less than half year. What used to be taught in a 3-month clinical training program will be condensed into an 8-hour crash course in critical care nursing. The newly trained nurses will need a lot of support. They will be learning about mechanical ventilation strategies, endotracheal tubes, neuromuscular blockade, sedation, pronation, and the hemodynamic consequences of COVID-19 and its treatment. Her supervisors and mentors spend a lot of time teaching, advising, and reassuring them. She feels the trainee nurses should join her in regular ICU. She wants to help them to assess their patients, and to troubleshoot the equipments. She wants to teach them how the meds work, how to document, what's important, what to focus on. She wants to tell them, if the patient crashes, she will be there with them. Jeena knows that her hospital administration is working on strategy to counter shortage of PPE, equipment and drugs.

CONTENTS

Inside a COVID-19 ICU contd…

So far, none of her co-workers are tested positive for the new coronavirus. Yes, she is terrified by the way she is looked after by her people working in other departments. They run farther when she walks in corridor and they fear to even talk to her in dietary. One way she is proud to be an untouchable in her hostel. Some of her fellow workers have been threatened to vacate from their locality, while some fear transmitting infection to their dear ones at home.

Despite her best efforts, Jeena still feels that she's not doing enough. To be able to keep going, she has to forgive herself that she is not going to be the ICU nurse that she was before COVID 19. It's not possible. She can't physically be in the room like she used to be. She does the best she can with what she has. She keeps her patients as clean and comfortable as she can. It's about setting priorities and focusing on what is absolutely mandatory, and trying to forgive herself for not being able to do everything. One thing she knows that as soon as she dons the PPE and goes in the next seven hours will pass in a flash and she will have time to think only when she goes home.

Acknowledgement: Dr. Sriram Sampath (Professor, Department of Critical Care) for proof reading and suggestions

IG NOBEL 😂

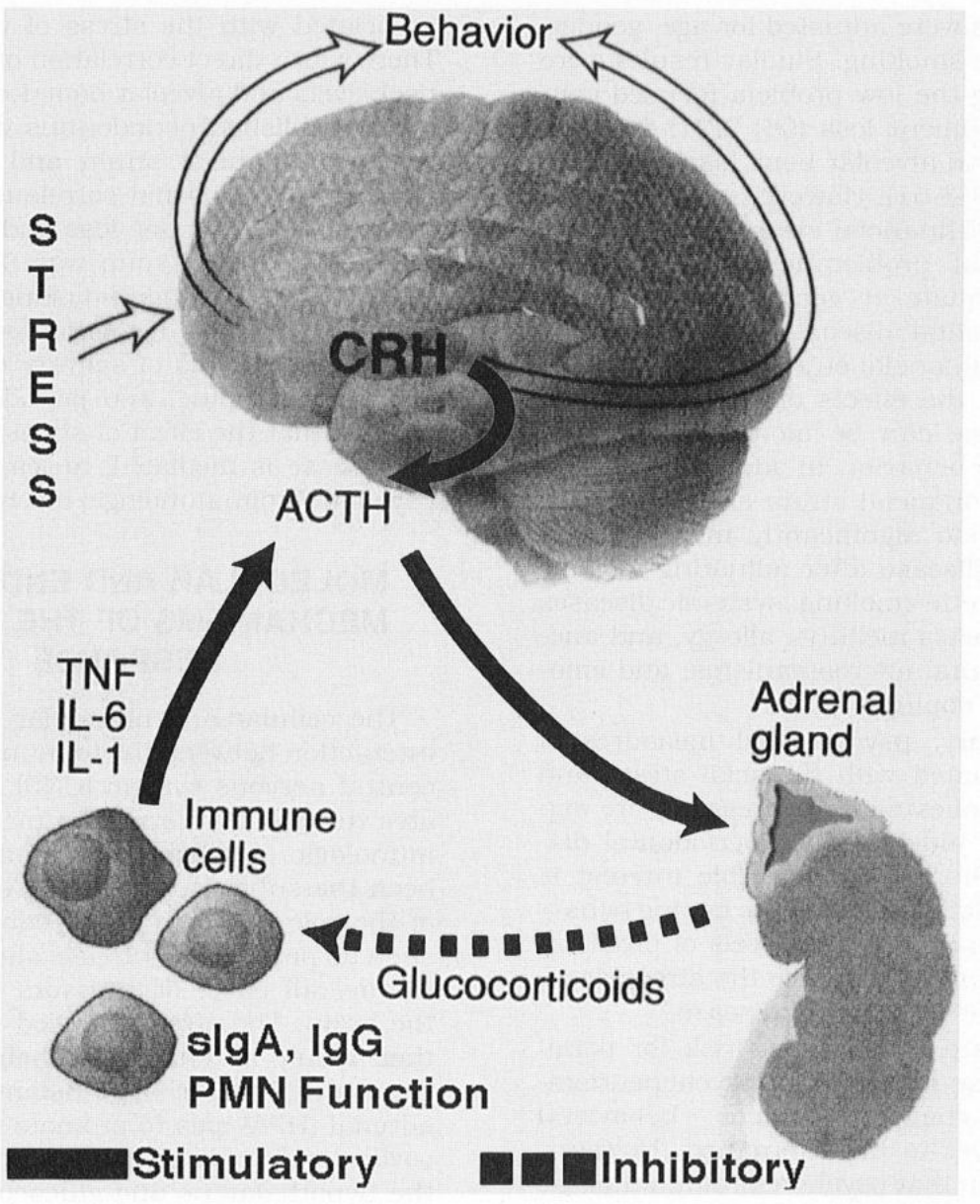
1996 – ECONOMICS

Dr. Robert J. Genco

Dr. Robert J. Genco of the University of Buffalo for his discovery that "financial strain is a risk indicator for destructive periodontal disease.

Periodontal (**gum**) **disease** is an infection of the tissues that hold your teeth in place. It's typically caused by poor brushing and flossing habits that allow plaque—a sticky film of bacteria—to build up on the teeth and harden.

A study conducted on 1426 subjects aged 25 to 74 in Newyork, where the risk factors for periodontal disease was studied. The association of stress, distress, and coping behaviors with periodontal disease in were studied. The other known factors such as smoking, alcohol, bacterial flora were also compared.



It was found that psychosocial measures of stress associated with financial strain, was associated with significant increased risk of periodontal disease.

CONTENTS

REF: https://www.improbable.com/ig/winners/
Ann Periodontol. 1998 Jul;3(1):288-302.

Coronadays.....

Neonatology in the time of Covid

Dr. Saudamini Nesargi

Caring for newborns poses unique challenges at this time. Formulating protocols and plans is a daunting task due to a lack of evidence in this vulnerable population. What little evidence there is, changes rapidly. Initially it was believed that children in general are resistant to severe forms of disease and that was there no vertical transmission from mother to baby. Now however, there are anecdotal reports of vertical transmission, and of neonates contracting COVID from the community.

As far as daily working of the department is concerned, we first created a rotating COVID reserve team, consisting of 2 faculty and one senior resident. As we are a small department, of only 5 faculty and 5 senior residents, the rest of the faculty and senior residents are working. Amongst these, we have further divided into a team who takes care of the NICU and one that attends deliveries, looks after babies in the post natal ward, KMC room, private wards and attends OPD. The NICU has been at roughly 2/3 capacity with a fair number of outborns presenting to the emergency. A majority of these babies who manage to reach the ER are very sick and need ventilation. Deliveries too, are roughly 2/3 of the usual. Unlike other departments, we have no off duty faculty due to our small numbers and a minimal decrease in workload.

Families of these babies are under great stress at this time, due to all the restrictions in travel, while having to look after a post-partum mother and a sick little baby. Financially too, these families are very stretched and a few are taking very preterm babies against medical advice.

Deliveries for women who are suspect COVID are slated to be conducted in the Pediatric surgery ward. Newborns who are asymptomatic will be cared for there with the mothers. This will be the responsibility of the COVID reserve team. These numbers are expected to increase with the recent Government guidelines mandating screening of women from hotspots even if asymptomatic.

Teaching program for post graduates continue, but are online. The fellowship and DM training program too are online but are limited to seminars, journal clubs etc. Come Monday, we have 2 undergraduate batches posted, and we will be conducting clinics online. While this is not ideal, it is the best that can be done under these trying circumstances.

Hopefully, the curve will flatten and this too shall pass.

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Department of Medicine through Coronadays

Dr. Jyothi Idiculla, Professor and Head, Department of Medicine

Covid 19 has swept across the World sending a chill through its spine! Though at a slower pace, India is also unspared and we are all moving through a pandemic time. The corona taskforce made up of relevant senior faculty across the academy led the planning and implementation of services in St. John's. Here we run a screening centre, isolation wards and a specially facilitated intensive care unit (ICU) for SARS-CoV 2 suspected and infected patients. Nearly everyday, plans changed with our invisible foe taking twists and turns worsened by the massive amount of (mis)information and with high levels of anxiety even panic across all strata. However, with wilful and timely contribution from pre, para and clinical departments, we have witnessed unity and spirit of service like never before!

The Department of Medicine runs the covid wards which are a foursome ie health care worker, suspect, patients and acute respiratory infection (ARI) areas. All patients who are swabbed as per the ready reckoner criteria are admitted to the covid isolation. This ward also receives suspects from across the hospital. It is equipped with a four bedded ITU for sicker patients. The patients are monitored and treated here till swab reports are available. All positive patients are shifted to the adjoining designated area and the negatives to the ARI ward or ITU. Any patient needing ventilation or intensive care are transferred to the ICU. The ARI ward also receives patients stepped down from the covid ICU.

The covid wards are managed by a Medicine PG , an SR from Medicine or allied Medical Specialties and a Medicine Consultant on rotation. Donning a PPE all these doctors have done dedicated and conscientious work reviewing and managing the in patients in these wards. All those who have worn a PPE would have felt the restrictions to work and move while attired in those layers! Hats off and a big THANK YOU to each one of you for this extraordinary commitment!

Within the Department of Medicine, each and every one has put in hard and diligent work , so much so that there is no first among equals. Hope we conquer covid and move on to normalcy, while retaining the lessons this malady of gigantic proportions has bestowed on us!

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RESEARCH SNIPPETS

Biophysiological Methods

It's a method that involves collection of biophysiological data from subjects using specialized equipments to determine the physical and biological status of subjects.

TYPES

1. **In vivo biophysiological methods:** Performed directly to measure processes occurring internally through medical or surgical instruments. Eg: Temperature monitoring, BP monitoring

1. **In vitro biohysiological methods:** Physiological processes are measured and analysis is done outside the organism. Eg; Blood tests, radiological examinations, cytological examinations

L Johny

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Coronadays.....

Resilient Information department@ John's

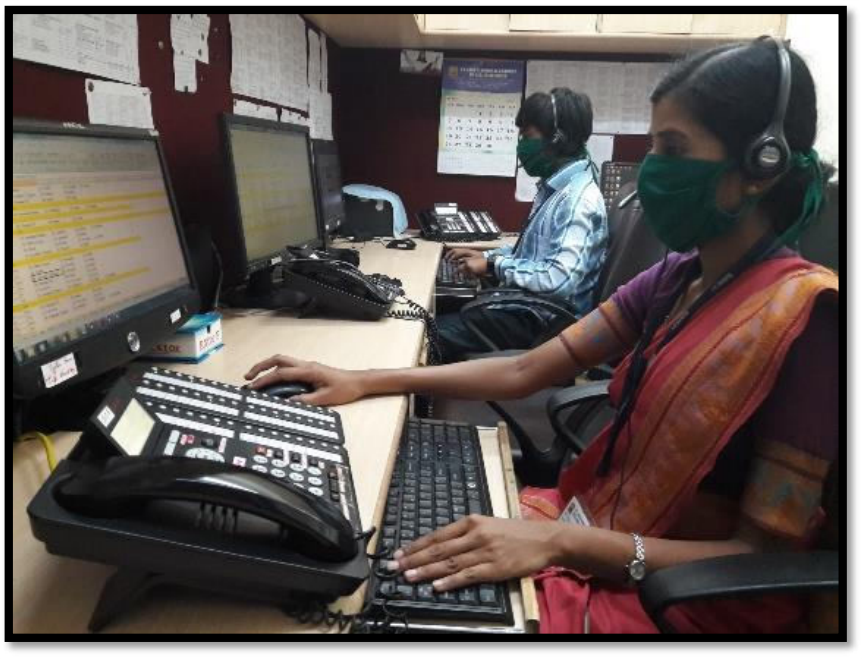
Ms. Shine Mathew, Information Department

Information Department is located at the main entrance of the hospital answers around 3000 people in a day over phone or by email or in person. It functions in three different areas as the reception desk at the Silver Jubilee block, main OPD and the telephone counter. It gives information about the services provided at St John's Hospital, updates on doctors availability/leave in OPD calendar, books appointment for outpatient consultations, replies the public emails, guides patients to the concerned OPD, deals with different kinds of grievances, operates the video wall at the OPD entrance for doctors schedule and special announcements, issues railway concession forms. Apart from this, information department supports the volunteers at the "Helping Hand Desk", does patient satisfaction survey, patient coordination and language translation.

Information department has played a principal role in management of audio teleconsults which was initiated for the benefit of patients on 31st March 2020. Till date we have connected more than 2000 calls to doctors from various departments across the hospital.

Being a lead of the department, faced distinct challenges during this COVID which were never faced before. During the initial days of lockdown, major proportion of our staff were not able to come to work due to lack of public transport. There were instances, where few staff were not allowed to travel by the policemen inspite of showing the hospital ID cards.

Few of them were worried, frightened and anxious about the situation. Requiring a lot of reassurance and training. Owners of rented house apparently restricted one of my staff to come to hospital for work.



Moving with the crisis of pandemic...We work hard, we work together.. We continue to help our patients level best....

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Coronadays.....

Security and COVID–19 Pandemic

Mr. Vincent Shantha Kumar, General Manager
(Security & Vigilance) SJNAHS

The UN Secretary General was absolutely right while recently highlighting how the COVID – 19 is primarily a health crisis but has far reaching repercussions as big as affecting global Security, Economy and Peace. Violence and stigmatization against Nurses, Doctors and other frontline workers including Security personnel need to be handled very carefully. Honorable Prime Minister of India urged the People to perform one day Janatha Curfew on 22nd March' 2020 and is followed by umpteen lockdowns to combat Corona Virus. The Govt. has been repeatedly appealing to people to stop this harassment and violence and has come up with various Acts and Ordinances. While the Govt. is doing its bit to sensitizing the public and taking legal action, it becomes the responsibility of each individual to respect and adhere to Govt. Laws and respect the work of these front line workers.

The Security personnel in St. John's has become vulnerable as they are the first to interact with people being the front liners. The COVID – 19 scare has reduced the staff strength considerably as many are residing far off places and depending on public transport to reach hospital. Some are coming by foot and have the burden of attending two shifts. They have an additional duty to screen patients asking their travel history and health conditions and taking temperature. They are also deployed in Red Zone areas like COVID – 19 Screening Center, Emergency, MICU, SICU, Lifts and in front of OPD to regulate crowds. Delivering the COVID – 19 samples to different laboratories and shifting of suspected COVID – 19 dead bodies is a challenging job as they have to hold the stretchers as well as bodies in the mortuary. Security staff also manages cluster areas like Hostels, Vihara, Annex – 1.

Motivational training is imparted to the Security personnel in Hand Washing, Social Distancing, Hygiene and dealing with Foreign Nationals so as to join hands with the Government who have shifted their efforts and resources to fight the pandemic. It is a testing and sensitive time for humankind, a time which will change the Society structure. Discipline and punishment will be the greatest legacies of COVID – 19 that we will inherit after the Corona days are gone. The Philosopher, Michael Foucault described discipline and punishment in chilling Words, because we are so close to living this.

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Security and COVID–19 Pandemic contd…

"First a strict spatial partitioning; the closing of the town and its outlying Districts, a prohibition to leave the town on pain of death, the division of the town into district quarters, each Governed by an intendant. Each street is placed under the authority of a syndic, who keeps it under surveillance; if he leaves the street he will be condemned to death. Everyone is ordered to stay in indoors. It is forbidden to leave on pain of death".

Though the situation looks grim and it is a long way from over, the ray of hope may be the advancement of Science and humanity itself. Ironically the enemy in this war is invisible and the weapons that will help us fight this are care, humanitarian efforts and non-violence. Thus panopticism is the order of the day.

L Johny

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Coronadays.....

A SUSPECT IN THE FRONTLINE

- Dr. Dipali T, Senior Resident, Department of Critical Care

When the disease began, none of us imagined the magnitude it would assume. We were learning new things every day and we still are. Incubation period and quarantine are now common parlance. But way back then, and I mean let's go back all the way to end of February and early March, a seemingly different era, the only people who posed a risk to us were International travellers. Now, it's possibly all around us. It? "It" who must not be named. I will also continue to refer to it as "It", because "It" has earned a place along with all our other 21st century villains (Voldemort, Pennywise, Thanos, and of course Fake news)

When the reports of the first few people who contracted COVID-19 first started circulating on social media, I was amazed at how intrusive they were. Short of their names, everything else was up for grabs and headline-making. I was waiting for the news articles to tell us their shoe size, favourite dosa joint and favourite Harry Potter character (FYI, I love Ron Weasley). It would not be difficult for a colleague or acquaintance to figure out their identity. They gave a list of all the places they had been to. They listed out all their activities. "Oh.. He went for a walk, he went to this particular movie theatre, he went to this super market." "Tch tch", people said, "How irresponsible". I might have tch-ed. But the fact of the matter is, that could have been any one of us.

We all know that working in a hospital comes with some amount of risk of acquiring "It". There is a fear of the disease which we all harbour. But with the kind of coverage "It" has received, the social and psychological impact, and the stigma seems worse than the disease itself. This realization hits harder only when faced with the situation. I had imagined that at some point in time I would need to be swabbed for "It". But I hadn't imagined the impact it would have or the amount of stress. I am after all a health care professional, I would handle it well I had imagined. Well, no.

Despite working in non-COVID areas, there is still a chance of getting infected. We all know that we have to isolate ourselves while working in COVID areas, but what about all the other times? Can I go hug my mom? Can I have dinner with my grandparents? Can I sleep in my room? These questions were always at the back of my mind. I went about things with small exceptions; moved to a back room of the house, limited contact with my elderly family members, and standard precautions at work place.

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A SUSPECT IN THE FRONTLINE contd…

That morning started off like any other day. I had been to a milk booth, met a friend on the way and we had walked back together. It first started as myalgia and a headache. I thought it was just the heat and some dehydration. I checked my temperature to be sure… it was 102 F. Now what? I could feel some throat irritation. My mind raced to all the times I had been in contact with patients over the last 5 days. There were innumerable. I had done a whole bunch of day and night shifts. I had a mask on, but I had interacted with nurses and my colleagues. We had lunch, tea, coffee and the legendary bun, together in the common dining area. I had paid the vegetable vendor and the milk booth man. Putting that aside I took a paracetamol, waited for the fever to subside and drove to the hospital. While driving I could already imagine the headlines. “ICU closed as X hospital doctor tests positive” or “Doctor infects X people, Y hospital shut” or “X people in quarantine after Doctor tests positive”. I could imagine the Whatsapp forward detailing where all I had been and where I lived. I had heard of BBMP marking people’s houses when they tested positive or if they were under home quarantine. They even released a list of addresses, somewhat vague though, where people had been quarantined, all for public consumption. It sounded surreal and almost Orwellian, even at the time. I felt terrible my family and colleagues may have to go through that. The guilt that comes out of all this can be overwhelming.

Filled with these thoughts, I made my way over to the COVID screening area. The admission process was fairly simple. I was happy to say the whole process was quite streamlined. “Come na, we will send your BAL sample”, the ER doctors teased me. We laughed at the monkey who wandered around to the sink outside for a swig of water. The monkey knew perfectly well how to operate the tap. I momentarily abandoned my overthinking. They swabbed me in the designated area. The doctor who swabbed me, (it was their first time doing it) was seemingly quite terrified. He/she knew the steps but kept asking me for confirmation. I confirmed that he/she was doing it right. The nasal swab is particularly unpleasant. “Please don’t sneeze on me”, he/she requested. I reassured him/her that I would not sneeze or cough without indicating that I needed to.

After that, time became a void. It was just waiting. Self-monitoring for temperature and saturation. Wondering at every itch and scratch in my throat. There was no interaction with anyone except when they knocked on my door to indicate that food was left on the chair outside. There were calls from duty doctors to enquire how I was.

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A SUSPECT IN THE FRONTLINE contd…

A friend was sweet enough to drop off some essentials (read: chocolates). The nurse called twice a day to remind me to take my pills. As I waited for the report, I realized that tens of people would know before I did. The reports were being shared in groups. There was no privacy or confidentiality whatsoever. Is it wrong to expect privacy in a pandemic? Would the government contact and quarantine my family before I even knew my report, I wondered. A nurse called asking me to verify my address for the Community Medicine department. The guilt and paranoia kept building through this. When the report finally came, the relief was immense. I stepped out with a spring in my step. As I walked through the corridor, a senior looking nurse smiled at me. I didn't know her. "Oh you got discharged already?" she asked. I was puzzled, but I nodded. The next day as I entered the lift, a similar encounter. Except this person knew a lot more details about me than I would care for a stranger to know. He/she said they were collecting some data for surveillance. Was it necessary to include my name, I wondered. Had I consented for this dissemination of my personal information? I wasn't sure and I still am not.

I understand that the circumstances are exceptional. This is a public health crisis. However it seems we tend to forget that all of us, including our patients are dealing with it as individuals. The social stigma and ostracism has become immense. In a lot of cases, patients are being treated like criminals by the media and society. We must do all that is within our power to maintain patient confidentiality. We must share reports with individuals only on a need-to-know basis instead of sharing on large groups for convenience. Information is important. However, data collected from anyone, including a healthcare professional must be done so after telling them who is doing it and who will have access to it. I am certain it is possible to mask the identity of each person while collecting this data.

There are times when people ask me, "How many patients admitted inside COVID ICU?". A lot of times I am happy to say, "I have no idea". They ask me, "How many positive patients inside?" I have no idea as I have not worked inside in a few weeks. However a lot still needs to be done to preserve confidentiality. This needs to be there across all our departments, wards and set ups. These are exceptional circumstances, yes, so the amount of care must also be exceptional. We must discuss patient details only with those involved in their management. We need to be more responsible and mindful when we talk to families and our body language around them. "It" may take away our way of life, basic freedoms we took for granted and even our time with loved ones. But let "It" not dilute our empathy and our Practice.

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Hope in the time of corona

Filled with dreadful fear and eerie fright
Corona day is followed by a covid night

Lakhs and lakhs all around the globe
Falling prey to this vicious microbe

After a circuitous route in many a nation
Corona virus is now in India in circulation

The whole country is in lockdown mode
Hardly a soul in any gully or lane or road

In distress I gazed out from my brick villa
And lo!I spotted the buds of bougainvillea

Magenta florets pleasant and endearing
Surprise sight after three years in waiting

If flowers can bloom in a shrub infecund
Hope and pray is what my mind reckoned

The pink bracts are none but leafy foliage
Shielding the white blossoms from damage

Staring at the flowery boughs in the sky
Hope surrounds me and reflects in my eye!

- *Dr Jyothi Idiculla*
(Professor & Head, Medicine)

CONTENTS

Laughter is the best medicine

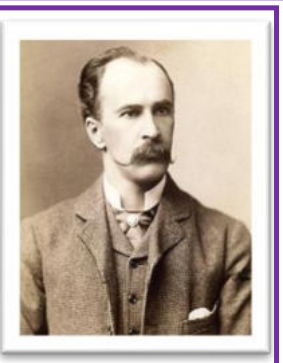
Something fishy Sir! He complains of blackouts, uneasiness, chest pain and swears he is not a minister!

Ah, removed it! But this is happening once too often. I advise you resign from politics...

CONTENTS

Best of RK Laxman, Times of India

THE QUOTABLE OSLER



SIR WILLIAM OSLER

Find Happiness through work and colleagues.

Happiness comes to many of us and in many ways, but I can truly say that to few men has happiness come in so many forms as it has come to me. Why I know not, but this I do know, that I have not deserved more than others, and yet, a very rich abundance of it has been vouchsafed to me…. I have had exceptional happiness in the profession of my choice, and I owe all of this to you. I have sought success in life, and if, as some one has said, this consists in getting what you want and being satisfied with it, I have found what I sought in the estimation, in the fellowship, and friendship of the members of my profession.

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

MEDICINE DIS MONTH

A Bird's Eye View…..

Speech can generate droplets and aerosols which could be infective.

Aerosols and droplets generated during speech have been implicated in the person-to-person transmission of viruses. Whereas large droplets fall quickly to the ground, small droplets can dehydrate and linger as "droplet nuclei" in the air, where they behave like an aerosol and thereby expand the spatial extent of emitted infectious particles. Using laser light scattering, speech-generated oral fluid droplets were visualised. It was found that when the person said "stay healthy," numerous droplets ranging from 20 to 500 µm were generated. The number of droplets were highest when the "th" sound in the word "healthy" was pronounced. Hence it seems imperative to wear masks while talking to cut down transmission. Watch Video!

- Anfinrud et al, NEJM**. 2020.**

Tetravalent Dengue Vaccine for children was safe and efficacious

In a large phase 2 double blind placebo controlled trial of TAK-003 vaccine in 1800 children between the age groups of 2 to 17 years. 3 different regimes were studied against placebo. It was found that TAK-003 elicited antibody responses against all four serotypes, which persisted to 48 months post-vaccination, regardless of baseline serostatus. No important safety risks were identified. There was long-term reduction in risk of symptomatic dengue virus disease in vaccinees.

- Zunyou Wu et al JAMA. 2020.

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REFERENCE 1: MEDICINE DIS WEEK

CORRESPONDENCE

Visualizing Speech-Generated Oral Fluid Droplets with Laser Light Scattering

TO THE EDITOR: Aerosols and droplets generated during speech have been implicated in the person-to-person transmission of viruses,[1,2] and there is current interest in understanding the mechanisms responsible for the spread of Covid-19 by these means. The act of speaking generates oral fluid droplets that vary widely in size,[1] and these droplets can harbor infectious virus particles. Whereas large droplets fall quickly to the ground, small droplets can dehydrate and linger as "droplet nuclei" in the air, where they behave like an aerosol and thereby expand the spatial extent of emitted infectious particles.[2] We report the results of a laser light-scattering experiment in which speech-generated droplets and their trajectories were visualized.

The output from a 532-nm green laser operating at 2.5-W optical power was transformed into a light sheet that was approximately 1 mm thick and 150 mm tall. We directed this light sheet through slits on the sides of a cardboard box measuring 53×46×62 cm. The interior of the box was

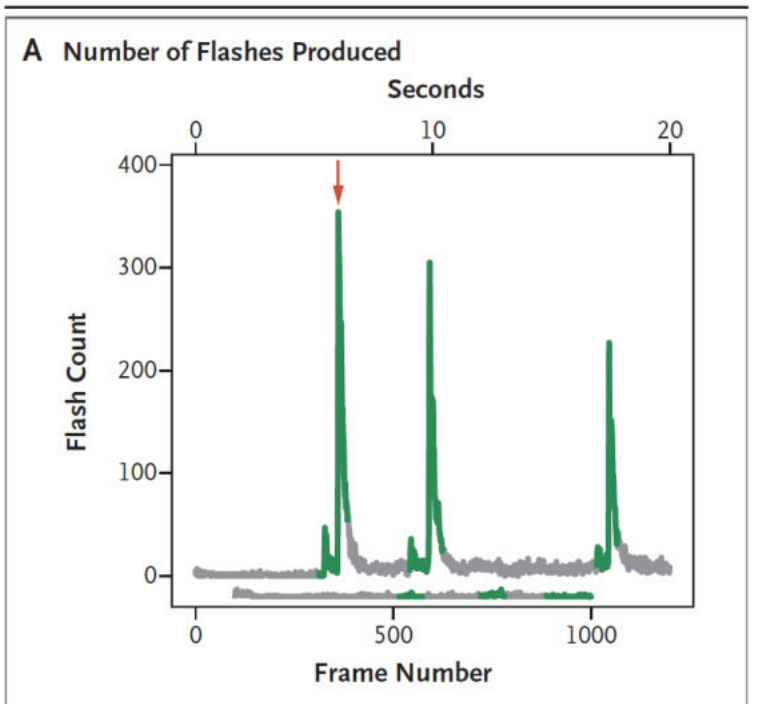

Figure 1. Emission of Droplets While a Person Said "Stay Healthy."

Droplets generated during speech produced flashes as they passed through the light sheet in this experiment. Panel A shows the flash count during each frame of a video produced at a rate of 60 frames per second, with and without a damp cloth covering the speaker's mouth. Green indicates spoken words. The number of flashes was highest (arrow) when the "th" sound in the word "healthy" was pronounced. The trace offset below the graph shows that when the speaker's mouth was covered with a damp cloth, there was no qualitative increase in the flash count during speech over the background level observed before the first trial of speech. The flash count during the silent periods between the spoken phrases remained above the background level, a finding that suggests that some of the speech droplets lingered inside the box for some seconds. Panel B shows frame 361 from the video, which corresponds to the red arrow in Panel A and to the highest number of speech droplets visualized in an individual frame of the video recording. The spots vary in brightness because of the differences in the size of the particles. Some of the spots are streaked, which suggests that the rate of 60 frames per second was insufficient to freeze the motion of the droplets. The feature highlighted by a dashed yellow circle corresponds to the tip of a very thin wire positioned just behind the light sheet; this wire provided a reference for setting the camera focus and gain before recording. (See the video, available at NEJM.org.)

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Safety and immunogenicity of a tetravalent dengue vaccine in children aged 2–17 years: a randomised, placebo-controlled, phase 2 trial

Vianney Tricou, Xavier Sáez-Llorens, Delia Yu, Luis Rivera, José Jimeno, Ana Cecilia Villarreal, Epiphany Dato, Onix Saldaña de Suman, Nathali Montenegro, Rodrigo DeAntonio, Sonia Mazara, Maria Vargas, Debbie Mendoza, Martina Rauscher, Manja Brose, Inge Lefevre, Suely Tuboi, Astrid Borkowski, Derek Wallace

Summary

Background An unmet clinical need remains for an effective tetravalent dengue vaccine suitable for all age groups, regardless of serostatus. We assessed the immunogenicity and safety of three different dose schedules of a tetravalent dengue vaccine (TAK-003) over a 48-month period in children living in dengue-endemic countries.

Methods We did a large, phase 2, double-blind, placebo-controlled trial at three sites in the Dominican Republic, Panama, and the Philippines. Healthy participants aged 2–17 years were randomly assigned 1:2:5:1 using an interactive web response system with stratification by age to receive either a two-dose primary series (days 1 and 91), one primary dose (day 1), one primary dose plus booster (days 1 and 365), or placebo. Participants and relevant study personnel were masked to the random assignment until completion of the study at month 48. To maintain masking, TAK-003 recipients were administered placebo doses when appropriate. The primary objective was assessment of neutralising geometric mean titres for each serotype to month 48 assessed in the per-protocol immunogenicity subset. Secondary safety endpoints included proportions of participants with serious adverse events and symptomatic virologically confirmed dengue. This study is registered with ClinicalTrials.gov, NCT02302066.

Findings Between Dec 5, 2014, and Feb 13, 2015, 1800 children were randomly assigned to the following groups: two-dose primary series (n=201), one primary dose (n=398), one primary dose plus 1-year booster (n=1002), and placebo (n=199). Of them, 1479 (82%) participants completed the 48-month study. Immunogenicity endpoints were assessed in 562 participants enrolled in the immunogenicity subset, of whom 509 were included in the per-protocol subset. At month 48, antibody titres remained elevated in all TAK-003 groups compared with placebo, irrespective of baseline serostatus. At month 48, geometric mean titres were 378 (95% CI 226–632) in two-dose, 421 (285–622) in one-dose, 719 (538–960) in one-dose plus 1-year booster, and 100 (50–201) in placebo recipients against DENV 1; 1052 (732–1511), 1319 (970–1794), 1200 (927–1553), and 208 (99–437) against DENV 2; 183 (113–298), 201 (135–298), 288 (211–392), and 71 (37–139) against DENV 3; and 152 (97–239), 164 (114–236), 219 (165–290), and 46 (26–82) against DENV 4; and tetravalent seropositivity rate was 89% (79–96), 86% (80–92), 97% (93–99), and 60% (47–72), respectively. Virologically confirmed dengue was recorded in 37 (2%) TAK-003 and 13 (7%) placebo participants, with a relative risk of 0·35 (0·19–0·65). No vaccine-related serious adverse events or severe dengue virus disease were reported.

Interpretation TAK-003 elicited antibody responses against all four serotypes, which persisted to 48 months post-vaccination, regardless of baseline serostatus. No important safety risks were identified. We observed a long-term reduction in risk of symptomatic dengue virus disease in vaccinees. Results from this study provide a long-term safety database and support assessment of the vaccine in the ongoing phase 3 efficacy study.

Funding Takeda Vaccines.

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See Online/Comment
https://doi.org/10.1016/S0140-6736(20)30603-6

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Introduction

Dengue fever, primarily spread by female *Aedes aegypti* mosquitoes, is endemic in more than 100 countries worldwide.[1] Incidence of dengue fever has increased rapidly since 1970, with around half of the global population currently living in areas at risk of infection.[1] Dengue fever is also increasingly contracted by travellers visiting endemic regions.[2] The four serotypes of the dengue virus (DENV 1–4) now co-circulate in most endemic areas. Infection with any of the serotypes can cause a dengue illness that ranges from subclinical to life-threatening, with estimates of 390 million infections per year, of which 96 million are symptomatic.[3] Infection with one serotype provides lifelong immunity to that serotype, but increases the risk of severe dengue from secondary infection with a different serotype, owing at least in part to antibody dependent enhancement.[4,5]

CYD-TDV (Dengvaxia, Sanofi Pasteur, Lyon, France), a tetravalent dengue vaccine based on a yellow fever backbone, has been approved in 20 countries with endemic

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PEARLS OF WISDOM

Don't worry about a thing because every little thing is gonna be all right.

- *Bob Marley*

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Life moves forward. If you keep looking back, you won't be able to see where you're going.

- *Charles Carroll*

The only person you are destined to become is the person you decide to be.

- Ralph Waldo Emerson

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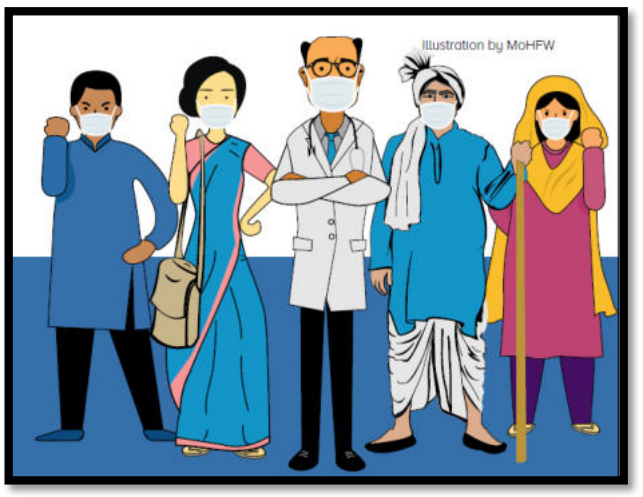
REF: 365 Days of Wonder: R.J.Palacio.

Did you Know?

Analyses show that if 50% of the population were to wear masks, only 50% of the population would be infected by the virus. Once 80% of the population wears a mask, the outbreak can be stopped immediately.

Yan. J etal, Risk Anal. 2019;39(3):647-661.



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