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THE CURE FOR EVERYTHING

WORLD ENVIRONMENT DAY

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MEDICATION RECONCILIATION

Check, Verify, Administer

Reports have shown adverse drug events (ADEs) to be a leading cause of injury and death within the healthcare systems, with many of these resulting from poor communication between healthcare professionals and patients and/ or caregivers during the transition of care, such as during hospital admission, transfer between wards, and during discharge.

Around half of the medication errors that occur in the hospital are estimated to occur during admission or discharge from a clinical unit or hospital and around 30% of these errors have the potential to cause patient harm. These errors can occur when obtaining the patient's medication history (e.g., on admission to hospital), when recording the medicines in the medical record, and when prescribing medicines on admission, on transfer to another ward and at discharge.

Medication reconciliation is defined as "the process of creating the most accurate list possible of all medications a patient is taking and comparing that list against the prescriber's orders. In addition, the patient's allergies, history of side effects from medications and medication aids are listed to provide correct medication to the patient at all transition points within the health care system."

GUIDING PRINCIPLES FOR IMPLEMENTATION OF MEDICATION RECONCILIATION

The basis for effective medication reconciliation is the development, maintenance and communication of a complete and accurate medication list throughout the continuum of care.

Guiding Principle 1: An up-to-date and accurate patient medication list is essential to ensure safe prescribing in any setting.

Guiding principle 2: A formal structured process for reconciling medications should be in place across all interfaces of care.

Guiding principle 3: Medication reconciliation on admission is the foundation for reconciliation throughout the episode of care.

Guiding Principle 4: Medication reconciliation is integrated into existing processes for medication management and patient flow.

Guiding Principle 5: The process of medication reconciliation is one of shared accountability with staff aware of their roles and responsibilities.

Guiding Principle 6: Patients and families are involved in medication reconciliation.

Guiding Principle 7: Staff responsible for reconciling medicines are trained to take a BPMH and reconcile medicines.

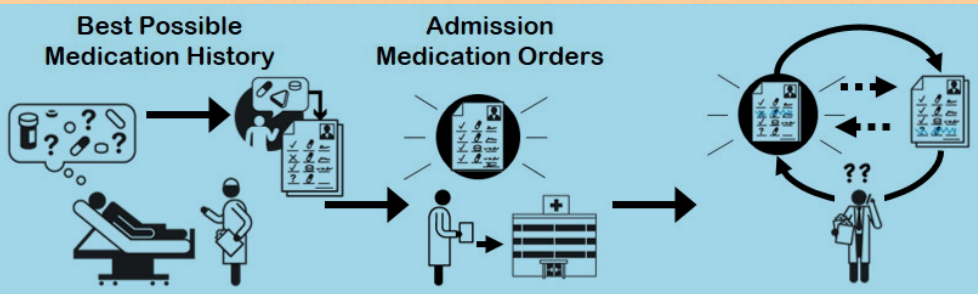
Flow chart of Medication Reconciliation Process

1. Patient admitted to the healthcare facility for care.
2. Perform medication reconciliation: Interview the patient or patient caretaker/s to obtain the current, up to date medication list of the patient.
3. Review with one additional source of information including medications/ medication records brought by the patient.
4. Create a Best Possible Medication History (BPMH)

Proactive Model — **5A**

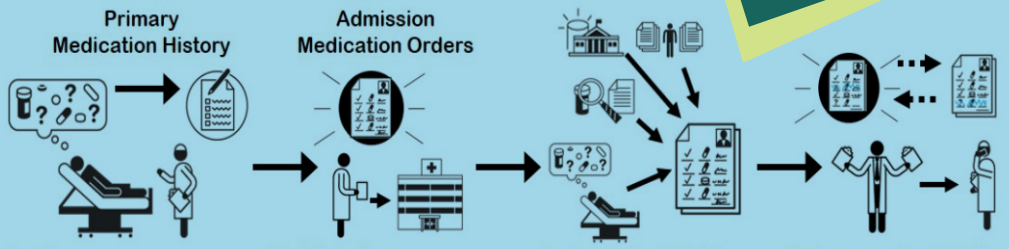
Retroactive Model — **5B**

PROACTIVE medication reconciliation model at admission



1. Create the best possible medication history (BPMH)
2. Using the BPMH, admission medication orders are written by the prescriber
3. Verify that the prescriber has assessed every medication on the BPMH, identifying and resolving any discrepancies with the prescriber, if any

RETROACTIVE medication reconciliation model



1. Primary medication history is taken
2. Admission medication orders are written by prescriber
3. Create the BPMH using a systematic process
4. Compare the BPMH against the patient's admission medication orders, identify and communicate any discrepancies to the prescriber within 24 hours of the decision to admit the patient

Categories of Discrepancies

Discrepancies between the admission medication orders and the BPMH can be divided into two categories:

Undocumented intentional – Discrepancies in which the prescriber has made an intentional choice to add, change or stop a medication but this choice is not clearly documented.

Unintentional – Discrepancies, in which the prescriber unintentionally changed, added or omitted a medication the patient was taking before admission.

Medication discrepancies and errors which commonly occur at transitions of care can lead to avoidable secondary illnesses, hospitalisation and death. Medication reconciliation serves to minimise and possibly eliminate medication discrepancies at transitions of care if the required resources are made available. This will improve patient safety throughout patients' journeys from one care setting or level to another.

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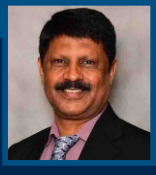

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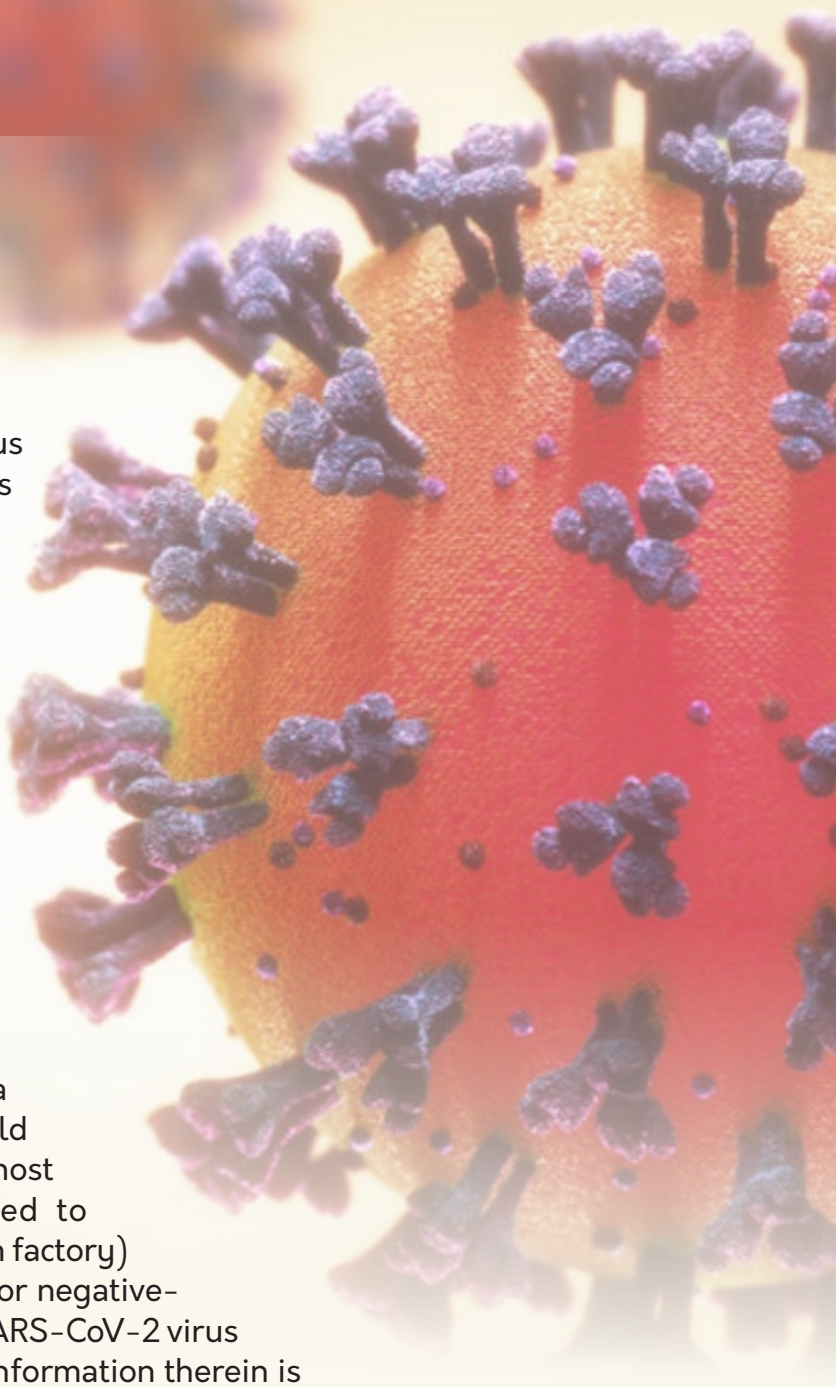
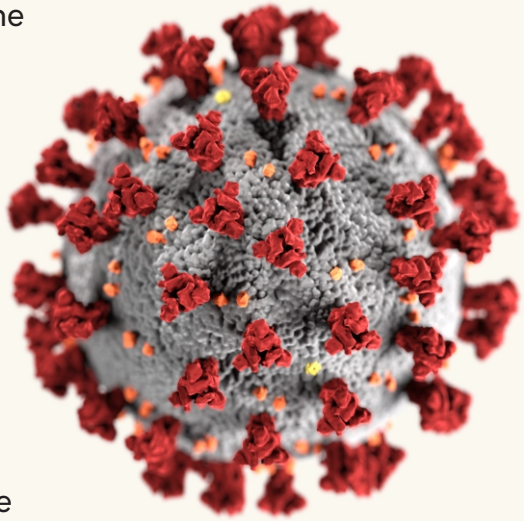
ORAL LESIONS and COVID-19



The two main portals of entry for the RNA virus SARS-CoV-2 that causes Covid-19 coronavirus infection are the nose and mouth. The entire respiratory epithelium from nostrils to the lungs is studded with ACE2 receptors. These receptors are the sites with which the Covid-19 betacorona virus locks onto - with the help of its spike proteins. After docking onto the ACE2 receptors that are located on the outer surface of the cell membrane in the respiratory system, mouth cavity and throat tissue, the virus injects its RNA (ribose nucleic acid) into the host human cell. The RNA in the coronaviruses is positive-stranded. This implies that the RNA is similar to mRNA and is immediately translated by the cellular machinery of host cells. If it is a negative sense-stranded RNA, this type should first be converted into positive sense in the host cell and then the RNA information is used to manufacture a protein in the ribosome (protein factory) of the cell. The RNA is called positive-sense or negative-sense based on the polarity of the RNA. The SARS-CoV-2 virus is a positive-sense single stranded RNA, the information therein is used easily in the host cell ribosome and new viral particles are manufactured since proteins are manufactured in the host cell ribosome. The two stand-out qualities of the coronavirus SARS-CoV-2 is that it uses host cells for viral replication and this virus also undergoes a lot of mutation creating series of variants. Mutation helps SARS-CoV-2 dodge the host body's immune system and continue to replicate in the host cells.

Infection is the invasion, multiplication and destruction of local tissue by a pathogenic (or disease-causing) microbe. Viral invasion by the SARS-CoV-2 virus causes injury to the respiratory system, mouth cavity and lungs. When viral load increases in the body, there is defense activity, which includes the secretion of inflammatory immune molecules called cytokines (these are proteins). The cytokine surge leads to a cytokine storm and the excess pro-inflammatory cytokines themselves cause damage to the lungs, there is also intravascular coagulation. Excess cytokines also damage other organs (such as the heart, liver and kidneys). This multi-organ damage leads to morbidity and mortality. Hence, it is prudent to constantly reduce the viral load in the nasal and oropharyngeal tissues. In certain hospitals, the **'jal nethi'** procedure has helped reduce Covid-19 virus load and protected doctors and nurses from contracting the virus from Covid-19 patients they are treating. Similarly, the use of suitable oral rinses for mouth rinsing and throat gargling has rendered lowering of viral load.



As per a meta-analysis of published literature in the online reference at https://pubmed.ncbi.nlm.nih.gov/33236823/ dysgeusia or distorted taste sensation is the first oral symptom of Covid-19. The other prominent sign is 'oral mucosal lesions' of various types. The tongue is the region with maximum lesions in Covid-19 patients. The next is the labial mucosa or the inner mucosal lining of the lips. The third in descending order for oral cavity lesions in Covid-19 patients is the palate or roof of the mouth. These oral lesions are commonly occurring in Covid-19 patients of both genders. Elderly patients of Covid-19 and those with severe Covid-19 disease had more incidences of oral lesions. The occurrence of oral lesions (or wounds or tissue damage) is increased with bad oral hygiene. Further, in Covid-19 cases that have weak immunity as with patients on steroids (glucocorticoids) and uncontrolled hyperglycemia (diabetes), there was an increased incidence of oral lesions. Opportunistic infections (in the mouth and other parts of the body) occur as a side effect of various drugs used in the management of Covid-19. This also includes secondary bacterial infections. These opportunistic infections cause lesions including in the inner layer of lip and roof of the mouth (palate). Steroids are useful as powerful anti-inflammatory drugs, they suppress the signs and symptoms of inflammation locally and systemically, however, the oral or injectable use of steroids (glucocorticoids) also causes a cycle of immune suppression and hyperglycemia – both these encourage opportunistic infections - both fungal and bacterial infections. Such infections are also called superinfection (for example due to steroid usage). The use of antibacterials and antivirals also interferes with carbohydrate metabolism and causes dysbiosis (ie, imbalance of microbes in the intestine and other areas of the body; resulting in the decreased level of useful microbes such as Lactobacillus species and Bifidobacterium species). This side effect in turn results in folic acid and Vit. B complex deficiency, and thereby oral lesions form. Thus we see there is a multi-modal manner in which opportunistic infections cause oral lesions.

The use of oral care products is crucial and the oral care range is an ideal adjuvant to all oral or parenteral antibiotics, antivirals and steroids. The side effects of drugs used to manage viral infections like Covid-19 and bacterial infections (primary or secondary bacterial infections) most often result in oral lesions. In such situations, oral care products help alleviate the suffering, discomfort and pain of oral lesions.

The pandemic has accentuated the role of community pharmacists as healthcare advisors and dispensers of medications. Further, pharmacists are the most accessible trusted healthcare professionals for patients. Hence, pharmacists should understand the oral manifestations such as mucosal lesions, loss or altered sense of taste in Covid-19 patients, and consequently provide counsel, and dispense suitable oral care products. This will enhance the role of the pharmacist for benefit of patients.

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Computed Tomography

Treatment or Torment

- Computed tomography (CT) was introduced in the 1970s, which has revolutionized making decisions in disease diagnosis. A vital public concern regarding the doses of ionizing radiation exposure in scanning procedures had aggravated the CT usage. It was evident through little epidemiologic and experiments that even a low – dose radiations resulted in leukaemia and solid organ damage. The link concerning oncogenesis and low-dose radiation (which is used in standard examinations of diagnosis) is unclear, yet the risk of developing cancer during an individual's lifetime was largely accepted with high doses of ionizing radiation.

- The allegation that radiation causes cancer may be exceptionally a wide statement. The effects of ionizing radiation vary widely on specific organ systems. For instance, radiosensitization greatly affects organs like the esophagus, bladder and breast, whereas the prostate, pancreas and rectum are much less sensitive. While earlier, even low doses of radiation were insisted to believe in causing a risk of oncogenesis. But it was suggested that the risk increases with an increase in cumulative doses of 100 mSv or more.

- A study by Pearce et. al., along with his members, stated the linear association between brain tumour and the dose of radiation to the brain, leukaemia and the dose of radiation received by the bone marrow. As these malignancies were more in irradiated children, the authors aimed to follow up these tumours to measure incidence following radiation therapy. This collected data was analyzed by Mathews et al. and stated that a CT scan of a minimum of one year before the diagnosis of cancer resulted in a 24% increase in cancer incidence and for about 9.5 years of follow up. Albeit these results help to define the association between radiation exposure and cancer in the pediatric population, it is still unclear as to if this can directly be attributed to adult cancer patients as the doses of paediatrics is smaller than those of adults.

- It was observed in an evaluation on American pediatric surgeons that 53% of all members accepted that abdominal – pelvic CT scan has elevated the lifetime risk of cancer. Whereas the dose delivered by this scan when compared with chest X-ray was underestimated by 75% of them. Another interesting fact observed was that most of the pediatric surgeons had not explained the potential risks regarding these scanning procedures. Surprisingly, 20 – 40% of all CT scans can be avoided if at all the decision-making is based on available guidelines.

- However, there is no clear explanation stating the relation between oncogenesis and radiation. In spite of this, the dose that is used while imaging patients should always be "as low as reasonably achievable". Imaging can be considered only when the clinical benefit outweighs the risk, regardless of the risk being clearly stated. There exist three fundamental principles of radiation according to the International Commission of Radiologic Protection. They include: Dose limits, Dose optimization and Dose justification

- Institute of Medicine (IOM) issued a report in December 2011, which stated ionizing radiation exposure is the major cause of breast cancer when compared to other environmental exposures.

- CT scanners were developed by EMI Central Research Laboratories, England, during the 1960s. Interestingly, the use of CT scanners for normal medical routines was funded by the Beatles, the parent company of EMI. Widespread use of this technology was seen in the 1980s when large sections of anatomy were imaged within seconds.

- The CT scanners emit X-rays, and the number of X-rays absorbed by each tissue type varies respectively. Detailed images of disease and anatomy will be provided at the end of the scan. These tissues emit charged ions (called "ionizing radiation") as the radiation absorbed causes the breakage of chemical bonds in them. These charged ions are capable of producing cancerous cells by damaging the DNA of the cell. Cell phones and microwave ovens are Non – ionizing radiations with low-energy radiofrequency waves which do not break the chemical bonds.

- An equivalent dose of 200 chest X – rays or a total of natural source exposure that would be obtained from most people during seven years is compared with CT radiation emission. This dosage is capable of producing free radicals, molecules and reshaping human tissues. These can result in causing chaos inside human cells. Often our human immune system can repair the damage, but when irreversible damage occurs, it leads to cancer.

- Struggles behind early attempts to quantify the danger of medical radiation by scientists were because it took anywhere between 5 to 60 years to develop cancers due to medical radiation, with additional risk factors such as age and lifestyle contributing to it. Hence to conclude that CT scan causes cancer, results from ongoing prospective studies are required. Meanwhile, cancer outcomes from other groups exposed to radiation like atomic – bomb survivors and dose-response models used to treat patients were estimated.

- The subcommittee of the National Research Council's Biological Effects of Ionizing Radiation (BEIR) released a report in 2006, suggesting the dominant risk assessment model. According to the BEIR VII model, some level of risk is always contained even in the smallest exposure, thus indicating no safe level of ionizing radiation exposure exists.

- Variations in how medical imaging is being used and adhered to better practices can be witnessed when going around the country. The factors that lead to the development of radiation exposure cancer majorly depends on the age of the individual at exposure, parts of the body exposed and gender. The amount dose of radiation absorbed is directly proportional to its estimated risk of cancer; as a matter of fact, no dose is considered safe. This conventional strategy is called the "linear non – threshold" model.

- The type of X-ray examination decides the amount of dose. For example, approximately one chance in 2000 possibilities of fatal cancer may increase with an equivalent dose of 10 millisieverts (mSv; 1 mSv = 1 mGy in case of X – rays) in CT examination. A glaring excrescence of X-ray medicine is currently spreading in India. All over the country, many centres have emerged where healthy people choose to have a complete body scan, just for prevention. Within only ten minutes, computed tomography (CT) provides 3-dimensional total body images of the person. The procedure is painless, but it comes with the inconvenience of potentially harmful exposure to X-rays.

- What one is most likely to lose in the CT tube is the pleasant sensation of feeling healthy in almost everybody; the scanners find at least a small thing even if it is most often harmless. A shadow on the lung, for example, can be the harmless scar of a previous inflammation – which the patient finds out only by enduring expensive follow-up examinations. For those reasons, the scans may cause unnecessary worry and expense and would give a false sense of security.

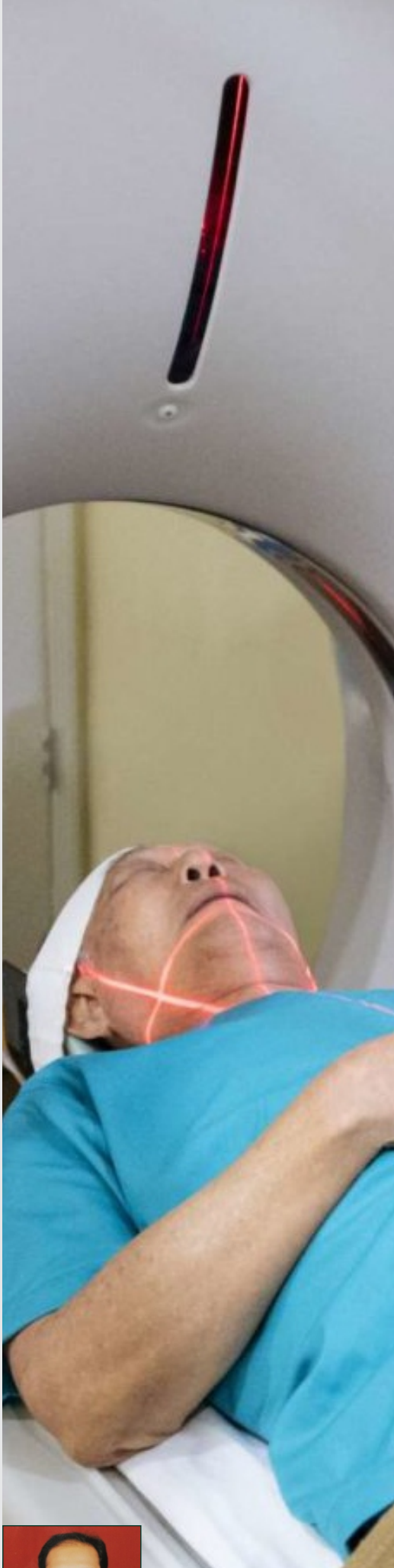
- The moment you enter a hospital with discomfort, the easiest thing for a doctor is to order various kinds of diagnostic tests. To start with is an X-ray or a CAT scan. More so in the hospital that boasts of their latest diagnostic technique as reported in an article in the Time magazine called hospital war. More often, the hospital buys expensive scanning machines on a loan basis and to meet the monthly installments of the machine; they calculate the number of scans/patients per month required to make it to the installment. This act of hospital becomes not only an unnecessary financial burden on patients but also quite damaging to the body. For instance, 64 slice whole-body CT scan provides 15.2 mSv of radiations for men, and 21.4 mSv for women (due to denser body tissue high dose to get the clear image) compare the number with the level of radiations to which the survivor of the atomic bomb explosion at Hiroshima and Nagasaki in Japan was exposed to an average between 5 mSv and 20 mSv, with 50 mSv as high.

- Radiation sickness (also called radiation poisoning or acute radiation syndrome) and even death may be caused by high exposure to doses of radiation over a minimal period. Common symptoms of radiation sickness include fainting, diarrhoea, hair loss, nausea, confusion, vomiting, bleeding, mouth and skin sores.

- CT diagnostic imaging using ionizing radiation should specifically be done only when stated required clearly. For instance, ultrasonography is often used to diagnose appendicitis, whereas minor head injuries in young children can be diagnosed and managed based on clinical findings. However, when the potential risk is overcome by clinical benefits, the necessary tests can be made regardless of a high dose of radiation (as with CT scans).

- Women of childbearing age must be considered for pregnancy before diagnostic tests as the risk of exposure to high-frequency radiations is often unrecognized during 1st trimester of pregnancy. In such cases, the uterus of women shall be shielded off. One of the major concerns in radiological protection is that the magnitude of the risk of radiation even in low doses. It is relevant to discuss the validation and justification of exposures in such medical diagnosis.

- Undoubtedly, the benefits of patient's healthcare can be attributed to medical diagnostics like X – rays and CT scans considering effective exposure of doses ranging from few microsieverts to a few tens of millisieverts



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MUCORMYCOSIS

Mucormycosis or Black Fungus is a very rare infection commonly caused by exposure to mucor mould which is commonly found in soil, plant, manure and decaying fruits and vegetables. It can even be found in soil and air and even in the nose and mucus of healthy people. It is non-contagious i.e., it cannot spread through contact between people and animals. It usually affects the brain and lungs and can be life-threatening in a certain group of people like those suffering from Diabetes, especially Diabetic Ketoacidosis, Cancer, Stem cell transplant, Neutropenia, Long-term Corticosteroid use, Iron overload/ Hemochromatosis, Skin injury due to surgery, burns or wounds.

People get mucormycosis through contact with fungal spores in the environment, example, the lung or sinus forms of the infection can occur after someone inhales the spores from the air. A skin infection can occur after the fungus enters the skin through a scrape, burn, or other types of skin injury.

The common causative organism that causes mucormycosis is the Rhizopus species, Mucor species. Other types include Syncephalastrum species, Cunninghamella Brtholletiae, Apophysomyces, Lichtheimia, Rhizomucor.

The main symptoms of mucormycosis include one-sided facial swelling, headache, nasal or sinus congestion, black lesions on the nasal bridge or upper inside of the mouth, fever. It infects the sinuses, brain, lungs, gastrointestinal tract, skin and other organ systems. Most common forms of mucormycosis infect the oral cavity or brain. If left untreated, it can result in a brain infection, paralysis, pneumonia, seizures and death.

Diagnosis is usually done by taking a medical history, symptoms, physical examinations and laboratory tests. Identification of organisms in tissue is done by histopathology with culture confirmation. Serum tests, such as the 1,3-beta-D-glucan assay and the Aspergillus galactomannan assay, are being used with increased frequency in patients suspected of having an invasive fungal infection. Imaging tests such as CT is done as the initial imaging study as it can often be obtained quickly and is more sensitive than magnetic resonance imaging (MRI) for detecting bony erosions.

Black Fungus is a serious infection and needs to be treated with the prescription of Intravenous antifungals such as Amphotericin B, Posaconazole, or Isavuconazole. Intravenous (IV) amphotericin B (a lipid formulation) is the drug of choice for initial therapy. The usual starting dose is 5 mg/kg daily of Amphotericin B and the maximum dose as high as 10 mg/kg. Posaconazole or Isavuconazole is used as step-down therapy for patients who have responded to Amphotericin B. Posaconazole or isavuconazole can also be used as salvage therapy (also known as rescue therapy, is a form of therapy given after an ailment does not respond to standard therapy) for patients who don't respond to or cannot tolerate Amphotericin B; for salvage therapy, the decision to use oral or IV Posaconazole or Isavuconazole depends on how ill the patient is, whether an initial course of Amphotericin B was able to be administered and whether the patient has a functioning gastrointestinal (GI) tract. Another treatment option considered is Aggressive surgical debridement of involved tissues as soon as the diagnosis of any form of mucormycosis is suspected. Surgical intervention with removal of necrotic tissue and debulking infection has been associated with improved survival in anecdotal clinical reviews of rhinocerebral and pulmonary infection

Prevention of Mucormycosis:

There is no vaccine to prevent mucormycosis. Other ways to lower the risk of mucormycosis:

- Protect yourself from the environment.
- Try to avoid areas with a lot of dust like construction or excavation sites. If you can't avoid these areas, wear an N95 face mask.
- Avoid direct contact with water-damaged buildings and flood water after hurricanes and natural disasters.
- Avoid activities that involve close contact with soil or dust, such as yard work or gardening. If this isn't possible:
    - i. Wear shoes, long pants, and a long-sleeved shirt when doing outdoor activities such as gardening, yard work, or visiting wooded areas.
    - ii. Wear gloves when handling materials such as soil, moss, or manure.
    - iii. To reduce the chances of developing a skin infection, clean skin injuries well with soap and water, especially if they have been exposed to soil or dust.

Do's

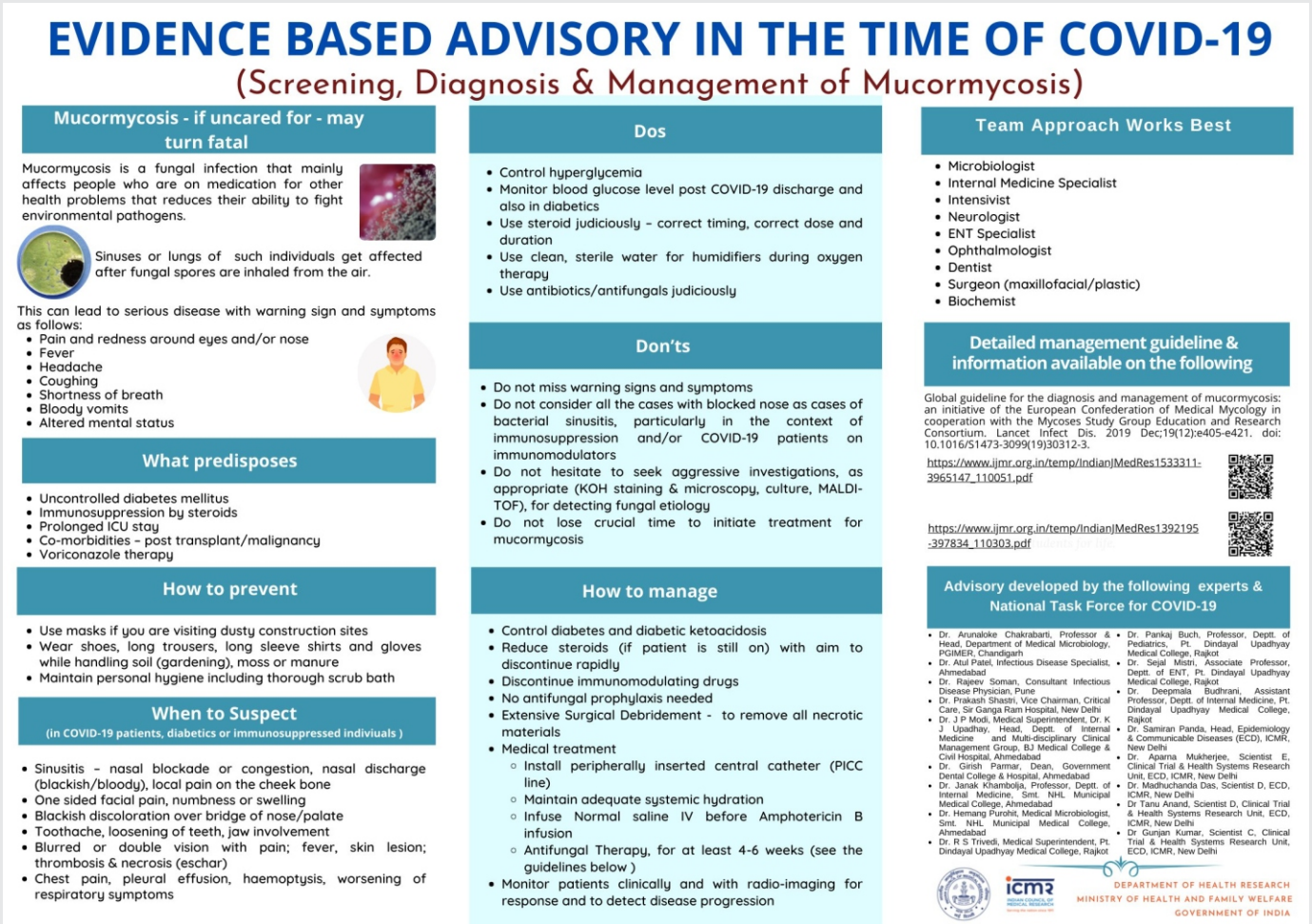
- Control hyperglycaemia
- Monitor blood glucose level post COVID-19 discharge & in diabetics
- Use steroid judiciously
- Use clean, sterile water for humidifiers during oxygen therapy
- Use antibiotics/ anti fungal judiciously

Don'ts

- Do not miss warning signs & symptoms
- Don't consider all cases of blocked nose as cases of bacterial sinusitis, especially in the cases of immunosuppression and/ or COVID-19 patients on immunomodulators
- Don't hesitate in seeking aggressive investigations as appropriate for detecting fungal etiology
- Don't lose crucial time to initiate treatment for mucormycosis

Antifungal medication:

For patients who are at high risk for developing mucormycosis for example organ transplant or a stem cell transplant or any other immunocompromised situations, healthcare practitioners may prescribe antifuncal medication to prevent mucormycosis or any other mold infections



EVIDENCE BASED ADVISORY IN THE TIME OF COVID-19

(Screening, Diagnosis & Management of Mucormycosis)

Mucormycosis - if uncared for - may turn fatal

Mucormycosis is a fungal infection that mainly affects people who are on medication for other health problems that reduces their ability to fight environmental pathogens.

Sinuses or lungs of such individuals get affected after fungal spores are inhaled from the air.

This can lead to serious disease with warning sign and symptoms as follows:

- Pain and redness around eyes and/or nose
- Fever
- Headache
- Coughing
- Shortness of breath
- Bloody vomits
- Altered mental status

What predisposes

- Uncontrolled diabetes mellitus
- Immunosuppression by steroids
- Prolonged ICU stay
- Co-morbidities – post transplant/malignancy
- Voriconazole therapy

How to prevent

- Use masks if you are visiting dusty construction sites
- Wear shoes, long trousers, long sleeve shirts and gloves while handling soil (gardening), moss or manure
- Maintain personal hygiene including thorough scrub bath

When to Suspect

(in COVID-19 patients, diabetics or immunosuppressed indiviuals)

- Sinusitis – nasal blockade or congestion, nasal discharge (blackish/bloody), local pain on the cheek bone
- One sided facial pain, numbness or swelling
- Blackish discoloration over bridge of nose/palate
- Toothache, loosening of teeth, jaw involvement
- Blurred or double vision with pain; fever, skin lesion; thrombosis & necrosis (eschar)
- Chest pain, pleural effusion, haemoptysis, worsening of respiratory symptoms

Dos

- Control hyperglycemia
- Monitor blood glucose level post COVID-19 discharge and also in diabetics
- Use steroid judiciously – correct timing, correct dose and duration
- Use clean, sterile water for humidifiers during oxygen therapy
- Use antibiotics/antifungals judiciously

Don'ts

- Do not miss warning signs and symptoms
- Do not consider all the cases with blocked nose as cases of bacterial sinusitis, particularly in the context of immunosuppression and/or COVID-19 patients on immunomodulators
- Do not hesitate to seek aggressive investigations, as appropriate (KOH staining & microscopy, culture, MALDI-TOF), for detecting fungal etiology
- Do not lose crucial time to initiate treatment for mucormycosis

How to manage

- Control diabetes and diabetic ketoacidosis
- Reduce steroids (if patient is still on) with aim to discontinue rapidly
- Discontinue immunomodulating drugs
- No antifungal prophylaxis needed
- Extensive Surgical Debridement - to remove all necrotic materials
- Medical treatment
  - Install peripherally inserted central catheter (PICC line)
  - Maintain adequate systemic hydration
  - Infuse Normal saline IV before Amphotericin B infusion
  - Antifungal Therapy, for at least 4-6 weeks (see the guidelines below)
- Monitor patients clinically and with radio-imaging for response and to detect disease progression

Team Approach Works Best

- Microbiologist
- Internal Medicine Specialist
- Intensivist
- Neurologist
- ENT Specialist
- Ophthalmologist
- Dentist
- Surgeon (maxillofacial/plastic)
- Biochemist

Detailed management guideline & information available on the following

Global guideline for the diagnosis and management of mucormycosis: an initiative of the European Confederation of Medical Mycology in cooperation with the Mycoses Study Group Education and Research Consortium. Lancet Infect Dis. 2019 Dec;19(12):e405-e421. doi: 10.1016/S1473-3099(19)30312-3.

https://www.ijmr.org.in/temp/IndianJMedRes1533311-3965147_110051.pdf

https://www.ijmr.org.in/temp/IndianJMedRes1392195-397834_110303.pdf

Advisory developed by the following experts & National Task Force for COVID-19

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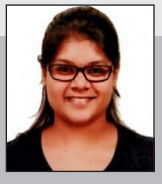
- Dr. Pankaj Buch, Professor, Deptt. of Pediatrics, Pt. Dindayal Upadhyay Medical College, Rajkot
- Dr. Sejal Mistri, Associate Professor, Deptt. of ENT, Pt. Dindayal Upadhyay Medical College, Rajkot
- Dr. Deepmala Budhrani, Assistant Professor, Deptt. of Internal Medicine, Pt. Dindayal Upadhyay Medical College, Rajkot
- Dr. Samiran Panda, Head, Epidemiology & Communicable Diseases (ECD), ICMR, New Delhi
- Dr. Aparna Mukherjee, Scientist E, Clinical Trial & Health Systems Research Unit, ECD, ICMR, New Delhi
- Dr. Madhuchanda Das, Scientist D, ECD, ICMR, New Delhi
- Dr Tanu Anand, Scientist D, Clinical Trial & Health Systems Research Unit, ECD, ICMR, New Delhi
- Dr Gunjan Kumar, Scientist C, Clinical Trial & Health Systems Research Unit, ECD, ICMR, New Delhi

DEPARTMENT OF HEALTH RESEARCH
MINISTRY OF HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA

Dr. RAVINA RAVI
Department of Pharmacy Practice
JSS College of Pharmacy, Mysuru
JSS Academy of Higher Education and Research.



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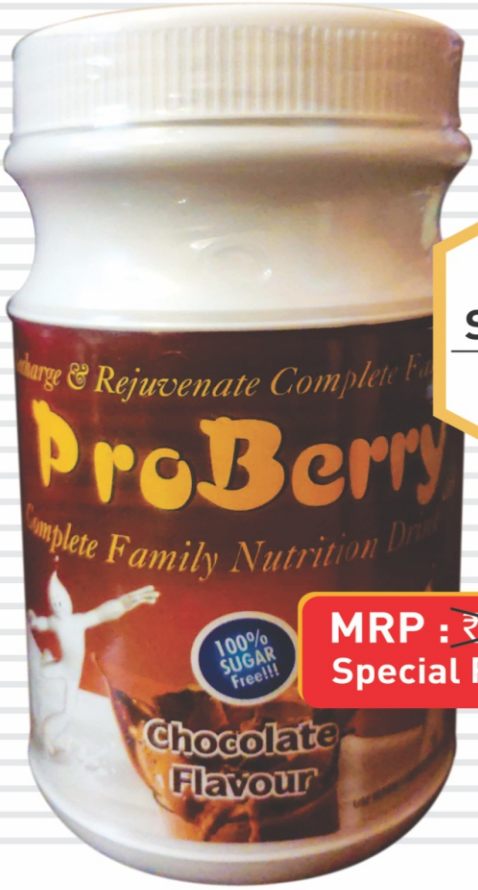

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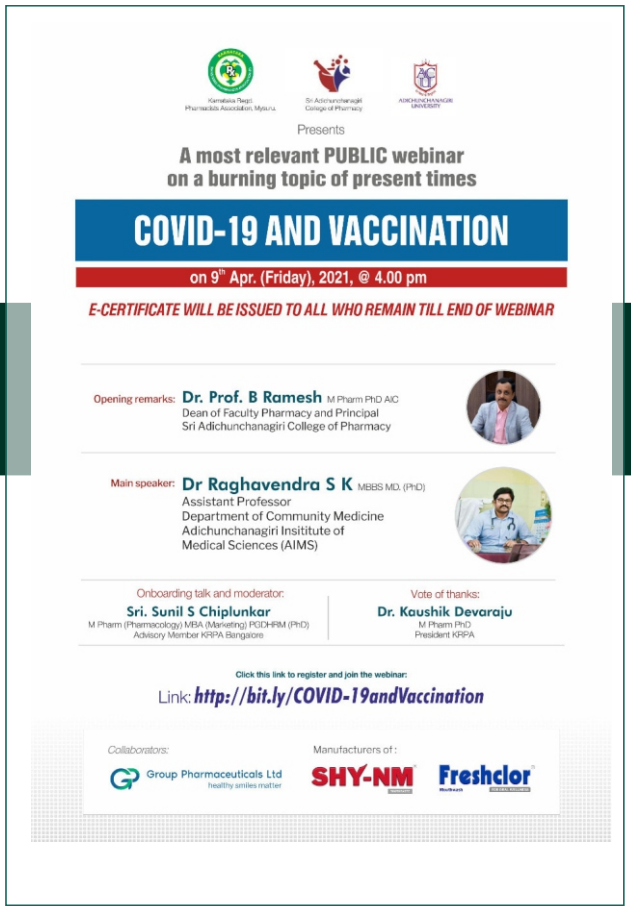
EVENTS AND ACTIVITIES

Series of webinars were conducted on various topics that motivate and help pharmacy professionals to upgrade them.



A collaborative webinar was conducted on 09.04.2021 with Sri Adichunchanagiri College of Pharmacy, B.G Nagara, on a "COVID-19 AND VACCINATION". The opening remarks were presented by Dr. Prof. B Ramesh, Dean of Faculty Pharmacy and Principal, Sri Adichunchanagiri College of Pharmacy, Adichunchanagiri University (ACU), BG Nagara, Karnataka. The chief speaker for the event was Dr. Raghavendra S K, Assistant Professor, Department of Community Medicine, Adichunchanagiri Insititute of Medical Sciences (AIMS), BG Nagara & Administrative Medical Officer, Community Health Centre, Belluru. The topic was well covered and all relevant issues were discussed by the speaker. The event was concluded with a vote of thanks presented by Dr. Kaushik Devaraju, President, KRPA, Mysuru. The entire session was moderated by Mr.Sunil S Chiplunkar, Advisory Member, KRPA

The session was well received and good feedback was provided by 450 attendees

webinar was conducted on the topic: "PHARMACISTS, MEETING THE BURNING CHALLENGE OF COVID-19" on 30.4.2021 with Farooqia college of Pharmacy,Mysuru. The main speaker was Dr. Md. Salahuddin M Pharm Ph.D, Principal, Farooqia college of Pharmacy,Mysuru. The speaker is an expert professional, who has encouraged many budding pharmacists to take up responsibilities as frontline warriors. He focused on how pharmacists should volunteer in providing service at this need of the hour. The President KRPA, Dr. Kaushik Devaraju presented the vote of thanks. The entire session was moderated by Mr. Sunil S Chiplunkar M Pharm (Pharmacology) MBA (Marketing) PGDHRM (PhD), Advisory Member, KRPA
Totally 300 participants attended the webinar.

Karnataka Registered Pharmacists Association and Adichunchanagiri University, Sri Adichunchanagiri College of Pharmacy, B G Nagara, Karnataka conducted another scientific webinar on "IN SEARCH OF A REMEDY FROM PLANTS FOR COVID-19". The expert speaker for the event was Dr. Hrishikesh Damle, Founder CEO and Managing Director, Atrimed Ltd., Bangalore

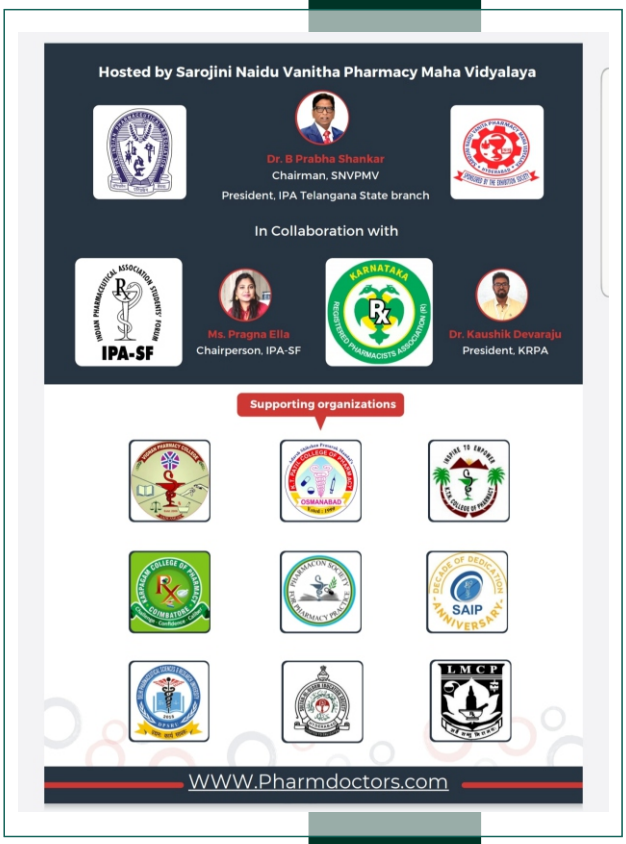
The webinar was conducted on 15th May 2021. Welcome address was presented by Dr. Prof. B Ramesh, Dean of Faculty Pharmacy and Principal, Sri Adichunchanagiri College of Pharmacy, Adichunchanagiri University (ACU), BG Nagara, Karnataka. The session was moderated by Mr. Sunil S Chiplunkar, Advisory Member, KRPA and closing remarks was given by Saleem Ahmed, Director, KRPA, Asst. Prof., Dept. of Pharmacology, Farooqia College of Pharmacy, Mysuru. Vote of thanks was given by Dr. Kaushik Devaraju, President KRPA, Mysuru. The collaborating partner was Group Pharmaceuticals, Bangalore. The event was appreciated by 650 participants.

Students of all streams were the participant for the webinar conducted by Group Pharmaceuticals, Bangalore, KRPA and Vivekananda Group of Institutions, Vivekananda College of Pharmacy, Rajajinagar, Bangalore for the webinar on TIPS FOR CAREER SUCCESS. It was an excellent webinar, covering all the essentials students require to have a successful career, starting from the opportunities available, explanation on communication skill required how to select the appropriate job. The event had three mainstream speakers, the first speaker was Mr. Sunil S Chiplunkar, the second speaker Mr. Lakshmikant Sugandhi, and the third speaker was Mr. Pacheiyappan.

Closing remark was presented by Dr. Narasimha Reddy, Principal, Vivekananda College of Pharmacy, Bangalore

A Webinar on the New Normal with COVID-19 was conducted on 22nd May 2021 in association with Krupanidhi College of Pharmacy, Krupanidhi Group f Institutions Bangalore. The Main Speaker of the Webinar was Mr. Sunil S Chiplunkar, Advisory Member, KRPA. It was an informative webinar covering the aspects of precautionary measurements while going ahead with COVID-19. The opening remarks was given Dr Kaushik Devaraju, President, KRPA, Mysuru. Prof. Prakash Mallya, Director Center for Pharmaceutical Professional Advancement, Krupanidhi Group of Institutions-Bangalore delivered the welcome address. Mr. Manohar M, Director, KRPA and Asst. Prof., Grade 1, Department of Pharmaceutics, NGSM Institute of Pharmaceutical Sciences, Nitte (Deemed to be University), Paneer, Derakatte, Mangalore gave the closing remarks and vote of thanks. About 650 participants got benefited from this event. Group Pharmaceuticals, Bangalore (Makers of Shy NM toothpaste and Freshclor oral rinse and throat gargle) was the collaborating partner for the event.

For the benefit of Pharmacists, Pharmacy Graduated and Students Webinar on Vaccinate with Confidence was organized by KRPA in collaboration with Pharm.Doctors, 3 Analytics, IPA SF, and SNVPMV on 16th May 2021. The distinguished speakers of the webinar were Mr. Sushil Jha, CEO, 3Analytics; Drf. Dharani Gokul Munirathinam, CEO, 3Analytics; Dr. Karthik Rakam, Founder, Pharm.Doctors; Dr. Manoj Swaminathan; Sr. Medical Director, 3Analytics. The webinar focused on Patient safety. About 400 participants attended the event.



media coverage

KRPA Urged the Government of India and Government of Karnataka to utilize the PharmD Graduated in the COVID-19 Management duties as PharmD Graduated are Experts in medication therapy

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KRPA urges Central & state govts to deploy Pharm-Ds for Covid-19 care to ease burden on doctors

Nandita Vijay, Bengaluru
Wednesday, May 12, 2021, 08:00 Hrs [IST]

The Karnataka Registered Pharmacists Association (KRPA) is now pressurizing the Central and state governments to deploy qualified Pharm D graduates for Covid-19 care.

The country is battling with the Covid-19 surge and high patient load, because of that the medical fraternity is under immense work burden. At this point of time, Pharm D candidates, who are already trained in hospital setting to assess patients for renewal of chronic medications, can carry out consultations on minor ailments, clarify mistaken beliefs about Covid-19 treatments, and can also contribute to the RT-PCR screening, KRPA stated.

The agonizing crisis caused by the second wave of the pandemic is seen to test the doctors and healthcare workers to the limits of their professional competence and is already taking a considerable toll on their health.

"This is where we have communicated both to the central and state governments to immediately utilize the available pool of clinical pharmacist doctors (Pharm-D graduates) as healthcare workers for Covid-19 management. The corona warrior community pharmacists and hospital pharmacists have already risen to the occasion. However, a missing piece in the jigsaw puzzle of Covid-19 management is neglecting the deployment of Pharm-D graduates for Covid-19 duties", said Dr Kaushik Devaraju, president, KRPA, Mysuru.

Noting that Pharm-D doctors are experts in drug management therapy and pharmaceutical care, Dr Devaraju said, "Pharm D personnel will help in providing safe, effective and affordable drug therapy to patients. The need of Pharm-D doctors in this form of patient care during Covid-19 becomes essential in managing chronic illness patients who also suffer from diabetes, hypertension and cardiovascular disorders making poly-pharmacy part and parcel of the overall treatment strategy."

The Pharm-D graduates' knowledge helps to maximize the clinical effects of medicines by using the most effective treatment for each type of patient and minimizing the risk of treatment-induced adverse events. They can monitor the therapy course and the patient's compliance by trying to provide the best treatment alternative for patients, he added.

Currently, Karnataka is facing acute shortage of medical doctors and other clinical personnel for Covid-19 management, and the number of cases is rising by every hour. Here KRPA reiterates that Pharma-D graduates are eager to serve the nation and rise to the occasion. We strongly recommend that the government should immediately draft a circular to bring in the well-trained pool of Pharm-D graduates for Covid-19 clinical management activities, pointed out the KRPA president.

Association to govt: Include Pharm-D grads in Covid tasks

Bengaluru: The Karnataka Registered Pharmacist Association Mysore has written to the government, suggesting Doctor of Pharmacy (Pharm-D) graduates be utilised for Covid-19 duties.

Experts in drug management therapy and pharmaceutical care, the graduates can help in managing patients with chronic illnesses like diabetes and hypertension, said the association. In a letter to the chief minister and the health minister, it said: "A Pharm-D doctor's knowledge helps maximise the clinical effects of medicine, that is, using most effective treatment for each type of patient; minimise the risk of treatment-induced adverse events, that is, monitoring the therapy course and the patient's compliance with therapy to provide the best treatment alternative for the greatest number of patients."

"In foreign countries, clinical pharmacists play a major role in the healthcare system. Our Pharma-D graduates have completed an equally intensive course of six years and can be a part of the healthcare system in this emergency situation," said Prof R Ravendra of RR College of Pharmacy. TNN

Source: Times of India

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'Utilise services of Pharm D graduates'

Pharm D doctors are experts in drug management therapy and pharmaceutical care.

Published: 12th May 2021 05:13 AM | Last Updated: 12th May 2021 05:13 AM

Representational Image. (File Photo)

By Karthik K K
Express News Service

MYSURU: At a time when the State is facing an acute shortage of medical doctors and clinical personnel for Covid-19 management, demands are heard from various corners to utilise clinical pharmacist doctors (Pharm D graduates) as health care workers (HCWs) for Covid-19 management.

The Karnataka Registered Pharmacist Association and several Pharm-D graduates have knocked on the doors of the Chief Minister's office and have also sent open letters to Health Minister Dr K Sudhakar and Union Minister of Chemicals and Fertilisers DV Sadananda Gowda appealing to them to consider utilising Pharm D graduates as HCWs.

"Pharm D doctors are experts in drug management therapy and pharmaceutical care. Their knowledge helps to maximise clinical effects of medicines, minimising the risk of treatment-induced adverse events," the members state in their open letter.

"Currently, Karnataka is facing an acute shortage of medical doctors and other clinical personnel's for Covid management ... We are reiterating that the Pharm D doctors are eager to serve the nation and rise to the occasion," Dr Kaushik Devaraju, president of the association

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Phama D students volunteer at Mysuru district's Covid Mitra centres for triage and counselling

Nandita Vijay, Bengaluru
Wednesday, May 19, 2021, 08:00 Hrs [IST]

Pharm D students pursuing their academics have now opted to volunteer at the Karnataka's Mysuru district Covid Mitra centres that provide triage and counselling to patients manifesting Covid-19 symptoms. The students chart patient details, refer them to doctors at the centres who advice the treatment protocol.

Covid Mitra Centre was devised by the Mysuru district in a bid to ensure patients showing early signs of Covid-19 could consult a doctor who provides medical advice even before getting RT PCR test results.

Currently, the three Covid Mitra centres at the Panchakarma Hospital, Seth Tulsidas Hospital and Beedi Labourers Hospital are manned by doctors and nurses besides Pharm D students as volunteers. These students fill case sheets of patient's clinical presentation, past medical and medication history. Doctors plan either for home isolation or hospital admission. Medikits are handed over and patients are counseled on drugs regime, disease manifestation and the lifestyle modifications to be adhered by them and their families.

Speaking to Pharmabiz, Prof Hanumanthachar Joshi, Principal, Sarada Vilas College of Pharmacy, Mysuru, noted that such a service was a social responsibility during this pandemic by pharmacy students. Therefore, volunteering at Covid Mitra centres by Pharm D students needs to be appreciated. Pharm D students have the knowledge about the disease and drugs which is seen to be put into practice and they are doing a fantastic job.

"There have been many students from our pharmacy college who have volunteered across various platforms. Last year too, students volunteered for Aptha Mitra---a digital helpline and mobile app for Covid assistance. When Pharm D students came forward to chip in their service, we encouraged them. They have taken permission from their parents and are tested for Covid because there is considerable involvement with the infected patients. Many NGOs and hospitals have requested the college but all cannot volunteer," said Prof. Joshi.

According to Prema Desai, pharma consultant, the voluntary service by Pharm D students is the best that could happen as it provides the desired exposure with broader insight into their subjects.

At the Covid Mitra Beedi Labourers Hospital, Kalyangiri, Mysuru, three Pharm D students: Shifa Taj, from the 5th year of Pharm D, Sarada Vilas College of Pharmacy; Shamsia Sahar, 4th year Pharm D from the Bharathi College of Pharmacy, Mandya; and Najeed S M, 3rd year Pharm D of the Sarada Vilas College of Pharmacy are now counseling patients in drug regime among others.

Stating that the ongoing pandemic is a challenging phase, Shifa Taj said that the state government's strategy to launch Covid Mitra to reach out to people and provide them right to information for addressing their concerns about the virus spread is a remarkable step.

"Our primary objective is to serve people. We are putting into practice the knowledge gathered in clinical pharmacy classes during our academics," she added.

Going by the success of the Mysuru model of Covid Mitra centres, the Karnataka government has issued an order to set up Decentralised Triage Centres (DTC) across all city corporations in the districts of Belagavi, Ballari, Kalaburagi, Hubbali-Dharwad, Mangaluru, Davanagere, Vijayapura, Shivamogga and Tumakuru with immediate effect.

Quiz

RULES

1. Correct answers will be rewarded 1 point each (10 marks)
2. Answer of the quiz will be evaluated by panel of judges and their decision is final. (Max mark:10)
3. Those who get the highest marks, their photo will be published in our next bulletin and also a cash prize of Rs.500/- will be rewarded to them
4. The answer must be sent within 20th June 2021 to this E Mail ID- krpaindia@gmail.com

A confirmation mail will be sent to you on receiving your e-mail.

1.A musty or muddy odor of the fish is attributed to:

i. The growth of Streptomyces species in the mud at the bottom of the body of water.
ii. The mud at the bottom of the body of water.
iii. The growth of Pseudomonas species in the mud at the bottom of the body of water.
iv. None of the above

2. In a chilled shrimp, the presence of _____ is chiefly responsible for spoilage

i. Achromobacter
ii. Pseudomonas
iii. Micrococcus or Bacilli species
iv. Moulds or Yeasts

3. Which of the following is a drug that interferes with the process of DNA production in the virus that causes genital herpes?

i. Erythromycin
ii. Vancomycin
iii. Amantadine
iv. Acyclovir

4. Which of the antibiotic is not used as a food preservative?

i. Pimaricin
ii. Nisin
iii. Tylosin
iv. β-lactam antibiotic

5. The most selective antibiotics are those that interfere with the synthesis of

i. Bacterial DNA
ii. Bacterial RNA
iii. Bacterial cell walls
iv. Bacterial plasma membrane

6. Which of the following disinfectant is effective against viruses?

i. Hydrogen peroxide
ii. Hypochlorite
iii. Formaldehyde
iv. All of the above

7. The sequence of nucleic acid in a variety of viruses and viral host will find more similarities

i. Among different viruses that between viruses and their hosts.
ii. Among different viral hosts than among different viruses.
iii. Among different viral hosts than between viruses and their hosts.
iv. Between viruses and their hosts than among different viruses.

8. The Redfield ratio is an index of concentration of

i. Carbon, Hydrogen and Oxygen
ii. Carbon, Nitrogen and Phosphorus
iii. Carbon, Nitrogen and Oxygen
iv. Carbon, Hydrogen and Sulphur

9. The process by which phage reproduction is initiated in lysogenized culture is called

i. Infection
ii. Integration
iii. Repression
iv. Induction

10. Which capsid symmetry is exhibited by most of the phages?

i. Helical
ii. Icosahedral
iii. Complex
iv. None of the above

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