Does COVID-19 trigger Guillain-Barré syndrome?

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ABSTRACT

Introduction: Guillain–Barré syndrome (GBS) is characterized by progressive motor weakness, areflexia, and albumin cytologic dissociation. The most frequent symptoms respiratory and gastrointestinal manifestations of GBS are well defined however the clinical neurological spectrum of Guillain–Barré syndrome GBS-associated COVID-19 is reported less. We document a case of a COVID-19-affected patient related to acute GBS.

Case Report: A 20-year-old female, from Dhankuta, was admitted to the emergency ward of Tertiary Care Hospital of eastern Nepal on July 2021 at 7:00 pm. She was in her usual state of health in the last 2 days ago when she developed weakness of the body which was insidious in onset, gradually progressive, and severe enough to disturb her daily physical activities. It was associated with headaches and about 3-4 episodes of vomiting containing recently taken food particles. She also developed abnormal jerky movements of her hands which were focal and lasted for a few seconds, with multiple episodes associated with blurry vision.

She was admitted to the local hospital with a history of COVID-19 status for the last 6 weeks with symptoms of diarrhea where she was managed conservatively with intravenous (IV) fluids and Tab Paracetamol 500 mg thrice a day.

Acute Inflammatory Demyelinating Polyneuropathy (AIDP) suggestive of COVID-19-associated GBS diagnosis was suspected and referred to our hospital for intensive care and ventilatory support.

Conclusion: Guillain–Barré syndrome related to COVID-19-affected patients should be distinguished from critical neuropathy and myopathy. A high index of suspicion should be maintained during the Covid-19 pandemic.

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Prevalence of diabetes mellitus and its associated factors: a retrospective study among Gurkha Veterans in Nepal

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ABSTRACT

Introduction: Diabetes is a chronic metabolic disorder caused by increased blood sugar or hyperglycemia that occurs when the pancreas does not produce enough insulin or when the insulin produced cannot be used efficiently by the body. Diabetes can lead to damage to the heart, blood vessels, eyes, kidneys and nerves over time. **Objective:** To assess the prevalence of diabetes mellitus and its associated risk factors among Gurkha veterans. **Rationale:** The occupation is a significant risk factor for diabetes. Armed forces personnel are more likely to acquire cardiometabolic syndrome due to their particular lifestyles and exposure to stressful conditions. A body of evidence revealed that, as compared to the overall population, this occupational group had a greater prevalence of metabolic disorders, including diabetes. Other occupational aspects, like dietary regimens, unusual physical activity, long work hours, social isolation, and ergonomic issues, also have a negative impact on the health of armed forces members.

Method: A descriptive, cross-sectional, retrospective study was conducted among Gurkha Veterans visiting clinics in the Gurkha Welfare Trust Nepal Area Welfare Centres all around the country from June 2021-May 2022. The data were made available from Gurkha Welfare Trust Nepal's electronic medical record system (MIS). Descriptive analysis was used to describe the study variables: frequencies and percentages. Chi square test was applied to see the associated factors for diabetes mellitus. A $p<0.05$ was considered statistically significant. **Ethical Consideration:** Written consent was taken from the Gurkha Welfare Trust Nepal along with administrative clearance. Information were collected for healthcare purposes and were analyzed in an anonymized form. In addition, information obtained in each course of the study was kept confidential.

Result: The median age of the study population was found to be 75 years. The prevalence of Diabetes Mellitus among the participants was found to be 52.5%. BP were found to be significantly associated with diabetes mellitus at a p-value of $p<0.05$. Participants who were <50 years of age were less likely to have DM in comparison to participants among the age group 61-80. Similarly, participants who had low blood oxygen saturation were more likely to develop DM. In addition, study participants with increasing systolic and diastolic blood pressure level were likely to have DM.

Conclusion: Findings showed the social-demographic determinants influencing the prevalence of diabetes mellitus. Age, hypertension and blood oxygen saturation were significantly associated with diabetes mellitus among Gurkha veterans.

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Role of general practice led observation ward to support emergency ward to improve the outcomes at a major hospital in Kathmandu, Nepal

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(Published in the Journal. Shakya, YM (2023). Audit of observation ward supporting emergency room at tertiary care hospital: Kathmandu, Nepal. J Gen Pract Emerg Med of Nepal, 10(15):63-6. https://doi.org/10.59284/jgpeman233)

ABSTRACT

Introduction: Tribhuvan University Teaching Hospital is a tertiary care hospital located in Kathmandu, Nepal. An average of 118 cases per day visit to emergency room of this hospital. After initial acute management with basic investigation & treatment in the emergency room, patients are shifted to observation ward for post-emergency care. This observation ward is under the Department of General Practice. The observation ward continues the appropriate treatment of patients who need hospital care after emergency care for a short duration or till they get admitted to their respective other departments.

This audit report was carried out to know the disease pattern and outcomes of patients admitted in our observation ward. It helps to know the result of the work being carried out in this ward and also to plan strategies for further improvement of the services.

Method: This is an audit of admission to the observation ward at Tribhuvan University Teaching Hospital (TUTH) from 17 August to 16 September 2022. The observation ward at TUTH is a 23 bedded area where patients can be observed or have early investigation/ management within the Emergency. Patients are admitted to this area with an expectation of discharge within 24 hours. All patients admitted to the observation ward were included in the study. Data on outcome of patient like discharge, shifted to other wards of hospital, shifted to emergency, referred, etc. was collected from discharge register. Data collected were entered in Excel sheets of Microsoft Office Package. Length of stay and Turnover rate were calculated using following formula. LOS (i.e. length of stay) of patient= total length of stay of all patients divided by total no. of patients. Turnover rate is = 1/LOS X100 for sample disease.

Result: Total of 205 patients were admitted to observation ward, 16 (7.8%) were later on transferred in various other wards of hospital and 189 (92%) patients were admitted in the observation ward. After 24-48 hours observation at observation ward, 175 (85.36%) patients were discharged,16(7.8%) patients were shifted back to emergency, and 14(6.8%) were discharged on patient's request. The bed occupancy was 94.42% and the patient turnover rate was 32.25%. Average duration of stay for the patient who were discharged was 3.1 days. Infectious cause was the most common diagnosis for admission to observation ward, Maximum LOS was 4.6 day for Diabetes Mellitus and minimum of 1 day for gastrointestinal symptoms. Turnover rate of observation ward was 32.26%.

Conclusion: For those patients presenting in emergency room, observation ward is better alternative for continuing medical care after getting emergency care.

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Bedside lung ultrasound for the diagnosis of pneumonia in children presenting to an emergency department in a resource-limited setting

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(Published in the Journal: Amatya Y, Russell FM, Rijal S, Adhikari S, Nti B, House DR. Bedside lung ultrasound for the diagnosis of pneumonia in children presenting to an emergency department in a resource-limited setting. Int J Emerg Med. 2023 Jan 9;16(1):2. DOI: 10.1186/s12245-022-00474-w. PMID: 36624366; PMCID: PMC9828356.)

ABSTRACT

Introduction: Lung ultrasound (LUS) is an effective tool for diagnosing pneumonia; however, this has not been well studied in resource-limited settings where pneumonia is the leading cause of death in children under 5 years of age. The objective of this study was to evaluate the diagnostic accuracy of bedside LUS for diagnosis of pneumonia in children presenting to an emergency department (ED) in a resource-limited setting. This study will help in expeditious diagnosis of pneumonia in children especially where the x-ray setup is challenging.

Method: This was a prospective cross-sectional study of children presenting to an ED with respiratory complaints conducted in Patan Hospital, Nepal. The study was performed from May 2018 to March 2020 when the study was stopped due to the COVID-19 pandemic. Ethical approval was obtained from the Patan Academy of Health Sciences Institutional Review Committee. We included all children under 5 years of age with cough, fever, or difficulty breathing who received a chest radiograph. A bedside LUS was performed and interpreted by the treating clinician on all children prior to chest radiograph. The criterion standard was radiographic pneumonia, diagnosed by a panel of radiologists using the Chest Radiography in Epidemiological Studies methodology. The primary outcome was sensitivity and specificity of LUS for the diagnosis of pneumonia. Diagnostic test characteristics for lung ultrasound were calculated, including sensitivity, specificity, and positive and negative predictive values, and likelihood ratios. A receiver operator curve analysis was performed to evaluate the diagnostic accuracy of lung ultrasound for the diagnosis of pneumonia. All LUS images were later reviewed and interpreted by a blinded expert sonographer. Kappa analysis was done to determine the inter-rater reliability.

Result: Three hundred and sixty-six children were enrolled in the study. The median age was 16.5 months (IQR 22) and 57.3% were male. Eighty-four patients (23%) were diagnosed with pneumonia by chest X-ray. Sensitivity, specificity, positive and negative likelihood ratios for clinician's LUS interpretation was 89.3% (95% CI 81–95), 86.1% (95%CI 82–90), 6.4, and 0.12 respectively. LUS demonstrated good diagnostic accuracy for pneumonia with an area under the curve of 0.88 (95% CI 0.83–0.92). Interrater agreement between clinician and expert ultrasound interpretation was excellent (k = 0.85).

Conclusion: Bedside LUS when used by ED clinicians had good accuracy for diagnosis of pneumonia in children in a resource-limited setting.

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Tracheal rupture following intubation: a case report in a tertiary care hospital

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ABSTRACT

Introduction: Tracheal rupture is a rare but serious complication associated with endotracheal intubation, occurring in only 0.005% of intubations. These injuries typically involve the pars membranacea of the cervico-thoracic trachea in the midline. This case report discusses a recent occurrence of tracheal rupture following intubation in a tertiary care hospital, aiming to shed light on the importance of proper technique, and prompt recognition of complications associated with airway management.

Case Report: A 64-year-old female patient was admitted to the emergency department of our tertiary care hospital with a history of stiffening of the body and frothing from mouth multiple episodes in last 1 hour (Acute Respiratory Distress Syndrome with Dilated Cardiomyopathy? Seizure disorder secondary to ? Hypoxia. The decision was made to proceed with endotracheal intubation to secure the airway and facilitate mechanical ventilation. The intubation process was uneventful, and the patient was planned for transfer to the intensive care unit for further management.

Approximately 2.5-hour post-intubation, the patient exhibited signs of subcutaneous emphysema. A chest X-ray revealed free air in the subcutaneous tissue in the chest wall, confirming the suspicion of tracheal perforation. CT scan of the thorax confirmed the presence of a tracheal tear.

The patient's family opted against further escalation of treatment, and a conservative management approach was carried out. Tragically, the patient succumbed to septic shock resulting from aspiration pneumonia.

Discussion: Tracheal rupture is a rare but life-threatening complication of endotracheal intubation. Several factors contribute to the risk of tracheal perforation, including patient characteristics, operator experience, and the use of inappropriate equipment. It is essential to acknowledge that while intubation is a common and often life-saving procedure, complications such as tracheal rupture can occur.

In our case, we presume that the tracheal injuries were caused by over-inflation of the cuff and sudden movement of the tube by positional change.

Conclusion: Tracheal rupture following intubation is a rare but severe complication that demands careful consideration and management. This case report underscores the importance of recognizing risk factors, ensuring proper technique during intubation, and maintaining vigilance for signs of complications post-procedure. Healthcare providers must be aware of the potential adverse events associated with airway management and be prepared to address them promptly.

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Upper gastrointestinal endoscopy in rural setting: an experience of a trained general practitioner in himalayan region of Nepal

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ABSTRACT

Introduction: Gastrointestinal disorders are common in general population. Upper Gastrointestinal (UGI) Endoscopy plays an important role in evaluating oropharynx, esophagus, stomach and proximal duodenal problems. UGI endoscopy is utilized for various diagnostic and therapeutic purposes. Patients in rural Nepal are primarily served by General Practitioners (GPs) and have limited access to specialists and endoscopes, a study was initiated to assess the spectrum of diseases, outcomes and complications of UGI endoscopy performed by a trained GP in Tsho-Rolpa General Hospital, Dolakha, Nepal.

Method: This study was a retrospective observational study conducted at Tsho-Rolpa General Hospital, Dolakha, Nepal. A general practitioner was trained in India initially and got 3 months training with a GI surgeon to perform UGI endoscopy. Whole sampling method was used. Records of UGI endoscopy book were reviewed and analyzed from Jan 2023 to Dec 2023. Data entry and descriptive analyses were done.

Result: A total of 436 Upper Gastrointestinal Endoscopy were performed by a trained General Practitioner over a period of 1 year. Among them, 307 (70%) were females and 129 (30%) were males. The mean age of population studied was 41.6 years (SD 14.56). One third of the patients were of the age group 35-44 years. Notably, 267 (61%) cases had the commonest problem of gastritis and interestingly 14% had normal findings. Epigastric pain was the major complaint among 226 (52%) cases., 159 cases (36.5%) presented from Bhimeshor municipality of Dolakha where the hospital lies and 19 (4.3%) cases were referred from other districts. No major complications were noted during and after the procedure.

Conclusion: A trained general practitioner can perform upper gastrointestinal endoscopy in rural setting. Gastritis was the major finding with epigastric pain as the most common presenting complaint. Significant proportion of people had normal findings. Further research is needed to assess quality control of endoscopy performed by GP in rural setting.

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Assessing COPD patient management face to face: alignment with gold guidelines and optimization of treatment strategies

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ABSTRACT

Introduction: GOLD guidelines recommend using symptom - Dyspnea (Modified medical Research Council-mMRC and COPD Assessment Test-CAT) and exacerbation history to classify into categories ABCD, along with Absolute Eosinophil Count/AEC and Asthma COPD Overlap Syndrome/ACOS to guide treatment decisions along with stepwise increase or decrease in therapy. This study aimed to access treatment status of participants as per Gold guidelines and optimizes their treatment

Method: This is a "before-after" cohort study of a simple intervention conducted at primary care outpatient facility at the Area welfare center, Kaski. The OpenEpi open-source sample size calculator cross-sectional and cohort studies suggested sample size of 60-170 for 95% confidence interval. Convenient sampling technique was used. . Verbal consent was taken for all patients for the study project.

Data was retrieved from the Medical Information System (MIS). All patients saved as COPD patients (from July 1st 2019 to July 30 2020) were included along with patients using Rotacaps, Metered Dose Inhalers, Nebulization, ICS not saved as COPD patients. The Complete blood count for Absolute Eosinophil count (AEC) is valid for 1 year. So those who have complete blood count reports from July/ August 2020, the eosinophil count is converted to Absolute eosinophil count by a simple formula, Absolute Eosinophil count= WBC*Eosinophils/100 Cells/ micro L). For those who didn't have complete blood count reports, they were called for phlebotomy for AEC by nurses. The baseline data was extracted and analyzed in January 2021.

All COPD patients were followed up via telephone consultation and then asked to visit face to face to categorize them into GOLD ABCD groups and then their treatments were compared with GOLD guideline recommendations and categorized as optimum, over or under treatment. Interventions were then implemented to optimize treatment. In person consultation was done between end of May to mid Aug 2021.

Result: The COPD patients in group A were 54.4%, group B-27.7%, group C-1.9%, group D-15.8%. In group A 70.9% patients were over treated, 21.8% were optimum, 7.2% were undertreated. In group B, 82.1% were over treated, 7.1% were optimum, 10.7% were undertreated. In group C, 100% were over treated, in Group D 6.25% were over treated, 56.2% were optimum treated and 37.5% were under treated. 38.6% of COPD patients didn't use SABA as rescue medication. Over treatment with LABA/ICS and LAMA, triple therapy, was observed in 20.4% of patients in Group A and 86.9% in Group B. Overtreatment with LABA/ICS was seen in 20.5% of patients in Group A, and 8.6% in Group B and in 100 % in Group C. Those with optimum treatment were 22.7%, while interventions involving de-escalation and escalation of treatment were implemented for the remaining 77.2%.

Conclusion: We reported a low proportion of patients in GOLD group C and triple therapy with ICS/LABA + LAMA and ICS/LABA was most prescribed over treatment. **Limitation and recommendation:** Though Pulmonary Function Test (PFT) was not done for all patients for COPD diagnosis, it is recommended to do PFT for diagnosing COPD. GOLD has revised COPD groups to ABE in 2023, as also in our study Group C was low proportion.

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Time duration from presentation at emergency department of Patan Academy of Health Sciences to CT scan in stroke patients

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ABSTRACT

Introduction: Stroke is the second leading cause of death worldwide and leaves half of its survivors with chronic disability and functional dependency with reduced quality of life. The diagnosis and determination of stroke type can be done with neuroimaging. Treatment of stroke is a time-sensitive matter where time is considered as brain. The key driver for this time-sensitive management depends on how fast one acts for imaging with guidelines calling for 25 minutes or less time for Emergency door to imaging time (DIT). As this sensitive issue deals with one's mortality and lifelong morbidity directly affecting the disability adjusted life years, our study aimed at finding the time from presentation of patients with stroke symptoms and imaging at Patan Academy of Health Sciences.

Method: This study is a prospective cross sectional study done at Emergency department of Patan academy of health sciences. This is an ongoing study which was started from November 2023 and plans to complete by October 2024 with total duration of 1 year. A Study done at Scotland showed that 20% of the patients presenting to Emergency Department with stroke symptoms will have their CT Scan by 20 minutes. As the ideal time of the door to imaging time in stroke cases is less than 25 minutes as stated by American Stroke Association, we calculated the sample size based on above mentioned study. At 95% CI, the sample size was calculated as 246. The recorded data were entered in the MS excel sheet. Mean and percentage variables were calculated.

Result: This is an ongoing study and the preliminary results are being presented here. Total of 38 patients were enrolled in the study. Out of them, 44.7% (n=17) of the patients were of age group >70 years and 52.7% (n=20) patients were female. Maximum number of patients, 47.4% (n=18) patients presented in the time frame of 4.5-24 hours and only 31.6% (n=12) presented in thrombolysis window (<4.5 hours). 55.3% (n=21) patients had their CT scan in less than 25 minutes.

Conclusion: More than two third of the cases were presented within the intervention window (thrombolysis/ thrombectomy) with imaging of half of the cases being done in less than 25-minutes time frame.

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Implementing a cervical cancer screening program in a defined population in Nepal

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ABSTRACT

Introduction: Cervical Cancer remains the 4th commonest cause of cancer death in women worldwide, with the majority of deaths occurring in low- and middle-income countries which do not implement strong screening systems .Cervical cancer can largely be prevented by screening and WHO recommends that 90% of girls are vaccinated against HPV, 70% of women are screened and 90% of screen positives treated. In Nepal, less than 10% of women have ever been screened. We examined the factors that influenced the success of a systematic cervical screening programme which the Gurkha Welfare Trust introduced in 2021. The programme uses a two-phased approach for screening, similar to the NHS in the UK, with samples being tested for HPV first (PCR) and only HPV-positive samples being examined cytologically (liquid-based cytology).

Method: This was a qualitative study conducted for a MSc dissertation. We examined the study question ("What factors represented facilitating factors or barriers to successful program implementation?") by interviewing health professionals who had been actively involved in the programme. Ethical clearance was obtained both from the researcher's university (University of Sheffield) and from the Nepal Health Research Council Ethical Review Board. 15 online interviews with participants from 5 different locations (GWT's key Area Welfare Centre clinics in Kathmandu, Butwal, Pokhara, Dharan and Damak) were conducted over a period of 3 months in 2023. Participants included nurse sample takers, nurse receptionists, nurse managers and doctors. Interviews were recorded and transcribed and themes were extracted and coded. Further interviews were conducted and coded until no new themes emerged. A descriptive phenomenological approach was used, with semi structured interviews and analysis of themes following a framework approach as described by Ritchie and Spencer.

Result: The study found themes relating to five categories: 1. Patients / Population, 2. Staff, 3. Environmental / External, 4. Management / Operations and 5. Leadership / Teamwork. It was noted that there were a number of themes which had not previously been described, especially in the staff, management/operations, and leadership / teamwork categories. – Examples of themes are: 1. Patients / Population: Urban vs rural and younger vs older patients, importance of peer-to-peer advice; previous experience pleasant or negative. 2. Staff: Motivation, belief in the screening and acceptance of the programme; female staff role-modeling by having screen themselves; new experience and skills perceived as positive. 3. Environmental: Contrast to other services; difficulty in reaching patients. 4. Management & Operations: The importance of staff accountability, effective scheduling and planning, consistent messaging, and reliability of the service. 5. Leadership & Teamwork; Guidance, support and monitoring of services by senior and local leadership, setting targets, use of data to monitor progress, and contributions of whole teams rather than individual staff**.**

Conclusion: The cervical screening programme implemented by the Gurkha Welfare Trust may be unique in Nepal by attempting full coverage of a defined but disseminated population. Examination of the factors that affected the success of the programme in various centres revealed a number of themes that were not previously described in the literature. More attention to these system factors may be helpful for enhancing the reach of cervical screening in Nepal and other low income countries.

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Nurse-led intervention in diabetes management: better outcome, lower cost

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ABSTRACT

Introduction: Diabetes is chronic, common, increasing and costly to the patient, family and society. Effective management, pharmacological and non-pharmacological, can improve quality of life, prevent death, reduce morbidity and reduce financial burden. Interventions (lifestyle modifications and pharmacological) aimed at reducing HBA1C are effective at reducing mortality and morbidity. Despite interventions being costly, it is possible to improve diabetes care through Chronic Disease Management (CDM) programs. Usually, CDM programs involve multidisciplinary approaches involving doctors, nurses, dieticians, pharmacists and allied professionals. This analysis aims to demonstrate the possibility and effectiveness of such an approach in low resource settings such as Nepal. Gurkha Welfare Trust Nepal (GWTN) has a large diabetic population. We analyzed the effectiveness of our CDM Diabetes program. **Aim:** It is aimed that the CDM process will improve HbA1c, thus helping reduce death and morbidity, as well as to reduce cost. This assumption was tested by way of a retrospective study of data at Gurkha Welfare Trust Nepal.

Method: The CDM activity consisted of nurse-patient consultations lasting 40 minutes where lifestyle factors such as diet, exercise, tobacco and alcohol usage were discussed, and targets agreed. The nurse also took observations such as blood pressure, height, weight, BMI. They would also do a diabetic foot examination (consisting of pulses check, neuropathy check, ulcer risk assessment), followed by referral for retinopathy check and laboratory tests including HBA1C. Data for the number of nurse sessions for each patient was not recorded but typically would be 1 to 2. This would normally be followed by a doctor consultation for review of results, medications, advice and subsequent follow-up. HBA1C tests were done at a reputable laboratory who use the high-performance liquid chromatography (HPLC) method for HBA1C measurements. Data was collected from the medical information system (MIS), data (excel maintained) kept locally at clinic Bansbari and Claims Database at Gurkha Welfare Trust Nepal for the period July 2022 – June 2023. This data was analyzed retrospectively on the CDM sessions performed at the GWT clinic Bansbari looking at HBA1C pre (with in the last 6 months) and post (after 3-6 months of CDM) for the fiscal year 2022/2023 (Financial year starts July 1). A review of outcome measurements (HbA1c pre and post, and cost) was undertaken of patients who received Chronic Disease Management (CDM) sessions with the nurse and doctor.

Result: A total of 35 patients (17 females, 18 males) underwent nurse-led CDM consultations. HbA1c data was available pre-and-post CDM (at 3 months) on 7 patients only for fiscal year 2022/2023. HbA1c reduction ranged from 0.3 – 5.7. One showed an increase (5.7 to 6.6) but was still within target HbA1c. Pre CDM HBA1C ranged from 6 – 13.1. 28 out of 35 patients who did not have post CDM HBA1C at 3 months were excluded from the analysis. It was observed that most patients did not require medication adjustments for HbA1c reduction (data not captured). Referrals and cost analysis showed a total of 171 referrals to secondary care during the study period, incurring an average cost of NRs 19,374 per patient (secondary care cost) and a total cost of NRs 33,12,899. Nurse-led CDM could potentially avoid a large proportion of these referrals, although the CDM process itself is not designed to look at the costs involved, as the costs of CDM are mostly related to staff time only.

Conclusion: Nurse-led CDM is an effective way of managing type 2 diabetes in the GWT population and we recommend more such activity. Potential cost saving is highlighted should an effective CDM program be implemented. It is hoped that care based around the CDM model is applied not just for diabetes but also for other chronic diseases at the national level.

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Qualitative analysis of use of “resident as a teacher” module in post graduate general practice residency program

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(Published in the Journal: Bajracharya S, Shrestha A, Joshi A, Maharjan R. Qualitative analysis of resident as a teacher module in post graduate general practice residency program. J Nepal Health Res Counc. 2023;20(3):786-93. DOI: 10.33314/jnhrc.v20i3.4101)

ABSTRACT

Introduction: Abstract Background: Residents need to show their proficiency in clinical and teaching skills. A good amount of their time during residency is spent teaching their juniors. Moreover, once they graduate, their roles will be clinician and teacher. Therefore, the “Resident as a teacher” module was included in the curriculum of the general practice residency program at Patan Academy of Health Sciences. This study was designed to evaluate the change in the teaching skills of residents after going through the module.

Method: This was a qualitative study where three groups were interviewed. The first group was residents who underwent ‘Resident as Teacher Training’ and were involved in teaching their juniors. The second group was junior residents who were involved as learners and the third group was faculties. The questionnaire was used for interviewing and the thematic analysis was done and the findings of these three groups were analyzed.

Result: There was a total of 25 general practice residents who were interviewed. The residents who were involved in teaching (N=11) stated that the training program increased their confidence 8(72.7%) and communication skills 8(72.7%). The residents who were learners (N=9) stated that they are more comfortable with the seniors in teaching and learning sessions. Faculties (N=5) stated that residents interacted well. Barriers to effective teaching were difficult to manage time for preparation and supervision by faculty.

Conclusion: General practice residents who went through the Resident as Teacher module stated that they were confident and had improvement in their teaching skills.

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Full-scale simulation exercise – a preparedness for trauma mass casualty incident: Nepal

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(Published in a Journal: Shrestha A, Bajracharya S. Full-scale simulation exercise – A preparedness for trauma mass casualty incident: Nepal. Am J Disaster Med. 2022 Spring;17(2):131-142. DOI: 10.5055/ajdm.2022.0427. PMID: 36494887.)

ABSTRACT

Introduction: Nepal has been facing various major and minor disasters, out of which flood accounts for 68.3 percent of total disaster followed by landslides and avalanches 9.8 percent, epidemics 9.4 percent, forest fire 4.6 percent, and weather-related 5.8 percent. This study consists of the findings of the full-scale simulation exercise done in those six hospitals.

Method: This was an observational study. Coordination, logistic, technical design, staging, and evaluation of the exercise were planned for the exercise. The exercise was conducted in six hospitals. Observations were recorded, and a validated checklist was used to score. Gaps in knowledge and skills were identified in the running incident command center, skills of patient transferal from ambulance to triage area, and external coordination

Result: Out of a total score of 220 in the evaluation sheet, the mean score was 161 ± 3.2 (73.2 percent) and the median score was 161.5. Evaluation from the expert suggested that out of six sites, one of the sites showed quick on-site response and mobilization of first responders; however, over the other five sites, there was a relative delay in onsite coordination. The skills of on-site first responders in triaging the patient and stabilizing the spine were not found to be adequate.

Conclusion: The result of this study has highlighted the fact that full-scale simulation exercises should be conducted regularly to find out the preparedness of a hospital. Hospitals should be guided to prepare disaster management plan, which needs to be tested with tabletop exercises before going into full-scale simulating exercises. Refresher training also seem to be equally important.

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Recommendations for health workforce management in Nepal's post federalization context

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ABSTRACT

Introduction: Since federalization in Nepal, the health sector has faced significant challenges in workforce planning and management, undermining overall system effectiveness. The lack of appropriate skills-based positioning, temporary recruitment, unclear career paths, and deficient data systems contributed to the obstacles. To address issues, the key recommendations proposed by a four-year longitudinal study, the Nepal Federal Health System Project, are presented in this article.

Method: A 4-year longitudinal study from Apr 2020 – Jan 2024 using 32 participatory policy analysis (PPA) workshops with Federal, provincial and local level health system stakeholders and a total of 244 key informant interviews was taken with stakeholders at all three levels. Project location for Province and local levels were selected areas of Bagmati, Lumbini and Karnali. They represent ecological area like Mountain, Hill and Terai; eastern to western; rural and urban, including Kathmandu metropolis**.**

Result: The recommendations based on the findings are: first, there is a suggestion to encourage Province-level Public Service Commissions to prioritize the health sector for faster permanent appointments, with transparent and skill-based hiring procedures. local staff appointment / recruitment in remote rural areas is also advised to improve retention, provided they meet required qualifications. Additionally, establishing clear career paths for health workers is emphasized, collaboration between the Ministry of Health and Population and the Ministry of Federal Affairs and General Administration is must. Furthermore, it is suggested to establish a functioning and proactive human resource management, data, and communication system by linking the HRH Strategy 2021-30 with health labor market analysis, conducting regular HRH data gathering, and providing training on data gathering and analysis for the local workforce.

Conclusion: In conclusion, addressing the challenges faced by the health system post-federalization in Nepal requires a comprehensive approach to HRH management that encompasses workforce planning, staff recruitment process, career development policy and data management. By implementing the recommendations tools, Nepal can foster a well-trained and adequately staffed health workforce, tailored to local needs, thereby improving the overall health system performance and outcomes.

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Does the provision of free sustainable hygienic sanitary pads improve the quality of life with menstrual and urinary symptoms in women in rural Nepal? A mixed-methods study

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ABSTRACT

Introduction: Women living in Lower Middle Income Countries (LMICs) experience poor quality of life (QoL) from menstrual & urinary symptoms. Improving access to sustainable and culturally appropriate sanitary products has been found to positively influence womens' QoL in LMICs. This is the first study that aims to perform an evaluation of Freedom Kit Bags (FKB(1)) A reusable sanitary towel product- and their impacts on QoL for women in Rural Nepalese Primary Care. The results from our study aim to encourage the use of pragmatic public health interventions to improve women's reproductive health in a limited resource setting.

Method: This is a mixed-methods study of women of reproductive age who received a FKB product >6 months prior to the survey date (N = 40) between Jan – March 2020. The data collection survey consisted of two parts- Bristol LUTS-QoL validated questionnaire, and a section for assessment of menstrual symptoms- discomfort from urinary frequency, leakage and menorrhagia for quantitative data. Patients rated the degree of QoL impact using a four-point Likert scale: never = 0, occasionally = 1, sometimes = 2, most of the time = 3, all of the time = 4. The maximum and minimum attainable QoL scores were 19 and 76, respectively, with <19 representing a better QoL and >19 representing a more significant impact on QoL. The questionnaire looked at 7 main domains- role limitations, physical limitations, social limitations, personal relationships, emotions, sleep/energy and severity scores. The second part of the questionnaire that assessed menstrual QoL impacts consisted of similar questions to the ICIQ-LUTSqol, but is not validated. Women were offered the opportunity express their views about FKBs for qualitative analysis. We did not have a comparison group survey prior to the intervention. Mean scores for both urinary and menstrual quantitative questionnaire scores were calculated, and strength of association with independent variables was assessed using Odds Ratios. Thematic analysis was performed for qualitative data. Ethical approval for this study was granted by the Nepal Health Research Council in December 2019 (ID: 818-2019). All participants provided their written consent for their participation and the anonymized publication of their data.

Result: The mean scores for the questionnaires were: 25.45 (SD = 7.11, $p < 0.05$) for menstrual symptoms, 23.67 (SD = 16.93, $p < 0.05$) for urinary symptoms. Those scores are consistent with low-moderate impacts from both menstrual & urinary symptoms on QoL for FKB users. Within our study, older women were 1.56 (OR: 1.56, CI: 1.32-1.84) times more likely to experience impacts on their QoL from menstrual symptoms despite using FKBs. The qualitative analysis demonstrated underlying themes around increased confidence and reduced symptom burden whilst using FKBs.

Conclusion: These findings are important as they highlight key areas of focus for healthcare professionals aiming to improve QoL for women with Urinary & Menstrual symptoms in LMICs using pragmatic public health interventions such as reusable sanitary towel products.

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Sustainable access to paediatric inguinal hernia repair in rural Nepal

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ABSTRACT

Introduction: Nepal is a low to middle income country where approximately 80% of the population live and work rurally, predominantly as subsistence farmers. Access to safe, elective surgery is limited in rural Nepal, due to a lack of human and financial resources. 10-20% of patients presenting to rural hospitals in Nepal, require surgical care. Paediatric inguinal hernias are common in children and require specialist paediatric surgical services, making management in rural areas more challenging. However, a significant number have to be performed by MDGP's, as families cannot access specialist services in the city, or meet the financial burden. Cases are complicated by a mortality rate of approximately 10% due to obstruction. The aim is to reduce morbidity, complications (e.g. incarceration) and improve patient care. It will consequently reduce; demand on higher centres and cost (travel/accommodation/reduced productivity) for the patient/family.

Method: MDGPs already perform paediatric inguinal hernia repair in rural Nepal. This study aims to provide training in safe surgery; to safely reduce obstructed hernias and refer to specialist services when unable to reduce safely. This is a retrospective review of surgical procedures performed by MDGPs following training and mentoring by UK Paediatric Surgeons between 2019 and 2023 at Charikot hospital. Data was collected from a prospectively maintained Electronic Health Record (EHR) system (Bahmini). Details of data collected include name of procedure, age and gender of patient and complications if any. Patients were invited for follow up and safety netted with advice to present with any adverse symptoms including recurrence. Follow up was arranged at 1 week, 1 month, 3 months, 6 months and 12 months, post operation.
All patients' data were anonymized and no consent or ethical clearance was required.

Result: 104 procedures were performed. 103 unilateral inguinal hernia repair and 1 bilateral inguinal hernia repair. The patients were aged between 2 and 16 years. 2 patients were referred to a specialist centre. Data collected at follow up revealed; no mortality, 2 patients with recurrence (within 3 years). Other than this, no complications were reported.

Conclusion: MDGPs can be mentored and supported to perform safe elective Paediatric surgical procedures, such as inguinal hernia repair, to improve access to surgical care for rural communities, whilst reducing mortality and morbidity.

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A study of thyroid function in chronic liver disease and its correlation with Child-Pugh score

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ABSTRACT

Introduction: Chronic liver disease (CLD) is a complex medical condition characterized by progressive liver damage, impacting various physiological processes. In the context of CLD, thyroid dysfunction has emerged as a significant concern, with implications for both disease progression and patient outcomes. Understanding the intricate relationship between thyroid function and the severity of liver disease is crucial for comprehensive patient management.

Method: This quantitative cross-sectional observational study included patients meeting the inclusion criteria from the general Outpatient Department, Emergency services and Medical ward at TUTH. Employing a non-probability sampling method, thorough data analysis encompassing descriptive statistics and correlation analyses, examined demographic, etiological, and thyroid function aspects. Multiple linear regression models, adjusting for confounders, assessed associations between thyroid markers and Child-Pugh Scores. The study was performed using STATA 12.0.

Result: The study participants, with a mean age of 53.1 years and 82.7% being male. Alcohol emerged as a prominent etiological factor, contributing to 88.9% of cirrhosis cases. Assessment of hepatic encephalopathy revealed that, 12.3% had Grade 1, and 3.7% had Grade 2 encephalopathy and 83.9% had no HE. Thyroid function variability was observed, with FT3 levels averaging 2.7 pg/ml, FT4 at 11.5 pmol/L, and TSH at 11.9 µU/mL. A negative correlation was observed between CTP and FT3 ($r = -0.42$, $p < 0.01$), and a significant negative correlation between CTP and FT4 ($r = -0.20$, $p = 0.01$). A positive correlation was found between CTP and TSH ($r = 0.259$, $p < 0.0009$). A highly significant negative association of FT3 with the CTP was noted ($p < 0.001$). A unit decrease in FT3 correlated with a 0.55-unit increase in the CTP (95% CI: -0.85 to -0.24).

Conclusion: Our study revealed a significant association between thyroid function and the severity of chronic liver disease among patients at Tribhuvan University Teaching Hospital. The findings indicate a robust correlation between lower Free Triiodothyronine levels and heightened liver disease severity, emphasizing the potential utility of FT3 as a key biomarker.

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A study of correlation between glycemic status and thyroid dysfunction in patients with type 2 diabetes mellitus: a cross-sectional, observational study

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ABSTRACT

Introduction: Diabetes mellitus (DM) and thyroid disorder (TD) are the two most common endocrine diseases in clinical practice. Thyroid dysfunction and diabetes mellitus are closely linked. Diabetes affects thyroid function at various levels and thyroid hormones influence carbohydrate metabolism and pancreatic functions to variable extents. Various studies have estimated the prevalence of thyroid disorder in diabetic patients, in few studies higher prevalence in diabetes has been estimated.

Method: A analytic cross sectional observational study was carried out in General practice OPD (GP OPD) and General health checkup (GHC) clinic of Tribhuvan University Teaching Hospital. Type 2 diabetes and thyroid disorders both are common endocrine disease presenting in GP OPD and GHC clinic OF TUTH which is the tertiary care hospital so it is the good place to conduct this research. The study was carried out in 7 months, that is 17 Magh 2079 to 17 Bhadra 2080 (1st Feb 2023 to 1st Sep 2023). Diagnosed patients of T2DM patients, who visited GP OPD and GHC clinic in Tribhuvan University Teaching Hospital during the study period were included Non-probability sampling method was used.

Result: There were total 209 Type 2 diabetes patients included in this study. Among these 209 cases 128 (61%) were female and 81(39%) were male. The number of female patients was higher than male patients. The mean age of these patients was 65.87 (±13.7). In our study, the prevalence of thyroid disorder is 36.8%, where hypothyroidism is 25.3% and hyperthyroidism is 11.4% and 63.3% of cases were within normal thyroid level. Mean level of T3 and T4 do not show any significant difference among the group 1 (control blood sugar level, hbA1c <7.5) and group 2 (uncontrolled Blood sugar level, HbA1c ≥7.5), whereas the mean levels of TSH are significantly high in group 2 as compared to group 1.

Conclusion: Many adults are suffering fromT2DM. The thyroid disorder is more common in T2 diabetes patients than normal population. Among them subclinical hypothyroidism is most common in T2DM patients and if Blood glucose level is uncontrolled (HbA1c≥ 7.5) the prevalence of thyroid disorder is high. Correlation between HbA1c & TSH is significant. That means if HbA1c is high then increase risk of thyroid disorder. So if patient with T2DM is screened for thyroid disorder will be better management, at least TSH level must be assessed for those who with uncontrolled Blood glucose level.

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A case report of hydrocarbon pneumonitis following ingestion of diesel

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ABSTRACT

Introduction: Hydrocarbon pneumonitis is a rare and less reported emergency medical condition caused by aspiration of hydrocarbon compounds like Diesel. It is toxic to all systems of our body. Most important toxicities occur in the lungs, brain and heart. Accidental ingestion usually involves small volume usually around five to fifteen milliliters. It can occur in occupational exposure such as fire eaters, during siphonage by automobile mechanics and accidental ingestion by children. In lungs, hydrocarbons disrupt surfactants, decrease pulmonary compliance, and cause a direct inflammatory response in the lungs.

Case: A 70-year-old farmer was brought to the Emergency Room of KIST Medical College and Teaching Hospital with an alleged history of ingestion of diesel a day before. He ingested around thirty milliliters of diesel mistaking it for alcohol after his work in the fields. There is a history of one episode of vomiting following the ingestion. The vomitus contained diesel, was watery and was not mixed with blood. There was also a history of abdominal pain over the epigastric region following the vomiting, acute on the onset, sharp, stabbing and burning type, non-radiating and without any aggravating or relieving factors.

He had a history of pneumonia fifteen years back and was hospitalized for few days.He smoked 5 pack year and quitted smoking 10 years back

On examination, the patient appeared distressed and tachypneic. His pulse rate was 72 beats per minute and regular. Blood pressure was 90/60 mmHg. He had a respiratory rate of 29 breaths per minute. Oxygen saturation was eighty-six percent in room air. There were decreased breath sounds on auscultation over the right inframammary, infra-axillary and infra-scapular area. Chest radiography revealed patchy infiltrates over the right lower zone.

A diagnosis of hydrocarbon pneumonitis following diesel ingestion was made. He was immediately started on oxygen supplementation and admitted to the ICU under the department of medicine. Supporting measures including fluid management, bronchodilators and pain control were also provided. Intravenous antibiotics Ceftriaxone and Clindamycin were started to prevent secondary infection. One dose of steroid was given for prophylaxis.

Over the course of hospitalization, the patient's respiratory symptoms gradually improved. Follow-up chest radiography showed resolution of infiltrates. Patient was advised to do a HRCT of the chest but refused. A Pulmonary Function Test was planned before discharge, but the patient was not compliant. He was discharged with appropriate instructions for follow-up and advised to avoid further exposure to diesel fuel.

Conclusion: Cases of hydrocarbon pneumonitis are less reported but are common in south Asian regions. . Acute exposures have a good outcome with early recognition and conservative supportive management. The use of steroids may improve outcomes in severe patients. Reporting of such cases can contribute to understanding the presentation and variations in hydrocarbon related lung injuries.

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Potential role of visual learning aids developed using a theoretical framework to address burnout among healthcare workers in rural Nepal

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ABSTRACT

Introduction: Healthcare provider burnout has emerged as a significant issue globally, and this has been further exacerbated by the COVID 19 pandemic. However, healthcare workers in low- and middle-income countries (LMIC), including Nepal rarely learn about burnout, let alone use strategies to address it. LMICs have a scarcity of healthcare workers, and persistent problems in the healthcare system are negatively affected by the adverse impacts of burnout among the health workforce. Various strategies and interventions have been reported in the literature with variable success and efficacy, however their acceptability and feasibility can be different for different settings. We have successfully demonstrated the proof-of-concept of an innovative approach using visual learning aids developed through a theory-guided framework to help health workers identify and address burnout. A structured framework allows development of interventions that are tailored to the needs of the target population, thus increasing acceptability and feasibility.

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Effect of low environmental temperature on blood pressure and heart rate

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ABSTRACT

Introduction: As per our experience the blood pressure in young Nepalese females and males is around 110/70 and 118/74 mm of Hg respectively. We gained those experiences after careful recording of BP in our previous studies that were mostly done in April to June sessions. Nevertheless, surprisingly we were getting high BP, especially diastolic ones during the routine clinical check-up recently (Dec 2017 to January, 2018). It was cold (below 10 degree Celsius at 9-11AM) and the subjects were also on winter clothes. So we decided to record blood Pressure in Normal young individuals in the same period when temperature was low to explore the relation between alteration of blood pressure and environmental temperature.

Method: It was a case control study. Data was collected by snow ball sampling. Statistical analysis was done by using t test. The volunteers participated were all young (age 18-25 years, n=54, 21 females and 33 males). After verbal consent of them, they were allowed to rest for 5 mins in a chair having back rest. Blood pressure was measured by using mercury Sphygmomanometer in the morning hours when the temperature was 8-10 degree Celsius. Heart rate was also recorded. The data was compared with the data recorded previously in the summer season (the temperatures was 22-25 degree centigrade at 9-11 AM). Height and weight of each individual was also measured and BMI was calculated.

Result: BMI of all the participants was within 19-22 Kg/m2 i.e. within normal range. In both male and female volunteers, higher systolic and diastolic BP and elevated heart rate was noted. Diastolic BP was found to be increased significantly in both male and female.

Present study revealed higher systolic blood pressure in winter (male=122.80±13.34mm Hg and female =113.80±13.95mm Hg) than they were in summer (male=118.66±8.07 and female=108.95±10.63mm Hg) which might be due to sympathetic stimulation by cold ambient temperature that increase the rate and force of contraction of cardiac muscle causing an increase in cardiac output leading to an increase in systolic blood pressure. A significant increase in diastolic blood pressure in both males (80.33±7.82 Vs 73.63±6.99 mm Hg) and females (85.23±10.77 vs 70.95±5.95) in winter may be due to exposure to cold that elicits a generalized cutaneous vasoconstriction leading to increased peripheral resistance and thus increased diastolic blood pressure.

Conclusion
The result of the present study corroborates with the previous studies which measure high BP in winter.

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Correlation of serum calcium with the severity of infarct in acute ischemic stroke

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ABSTRACT

Introduction: Exact data about incidence and prevalence of stroke in Nepal is lacking, but the prevalence of major risk factors for stroke in our population is high. So, a reliable prognostic marker to assess the severity of stroke is needed. Calcium plays a pivotal role in the pathogenesis of ischemic stroke. Cell calcium metabolism during and immediately after a transient period of ischemia causes ATP depletion, which leads to the shutdown of the ionic channels. This will eventually lead to depolarization and the release of glutamate, which leads to more calcium influx by activating the NMDA receptor's AMPA receptors. This free calcium causes oxidative and nitrosative injury. This study helps to explain the prognostic outcome of stroke patients, which will help the patient with early rehabilitation and a better outcome.

Method: It was a hospital-based cross-sectional observational study. Any patients fulfilling the inclusion criteria with clinical features of stroke at Gandaki Medical College, Pokhara, Nepal were included.

Written and informed consent was obtained in the prescribed form/format from the patient selected or the patient's party. Following consent, the pre-set proforma was filled with a specific history, examination, laboratory findings, CT/MRI head findings, and NIHSS score. The data entry and statistical analysis were done using Microsoft Excel 2010 in the statistical package for social sciences (SPSS) version 25 for Windows.

Only patients aged more than 40 presenting within 48 hours of the onset of stroke and diagnosed as having acute ischemic cerebrovascular stroke with clinical examination & confirmed by a computed tomography scan/MRI head were studied. The study was conducted from September 2021 to April 2023. The non-probability convenience sampling technique was used. 101 cases were enrolled in this study.

Result: In this study, there were 101 individuals, comprising 47 females and 54 males,. Out of 101 populations, 22 (40.74%) were male and 23 (48.94%) were female. In a 101-person sample, 24 (44.4%) males and 24(51.1%) females were hypertensive. The mean age of participants was 60 years, with an age range of 40 to 84 years. In a study population of 101, 14 (25.9%) males and 14 (29.8%) females had coronary artery disease. The mean infarct size is 37.99 cubic mm. The sample was divided into hypocalcemia (below 8.5 mg/dL = 2.12 mmol/L) and normal calcium levels (above 8.5 mg/dL = 2.12 mmol/L). This study investigated associations between serum calcium levels and various demographic factors, as well as established risk factors for stroke, including age, gender, diabetes, hypertension, and addictive behaviours such as alcohol consumption and smoking. There was a negative correlation between serum calcium and the severity of acute ischemic stroke.

Conclusion: The study included patients aged between 40 and 90 years. This research revealed no statistically significant correlation between serum calcium levels and various parameters such as age, diabetes, hypertension, coronary artery disease (CAD), alcohol consumption, and smoking habits. The findings suggested an association between serum calcium levels and infarct size, as well as serum calcium levels and the NIHSS. There was an inverse relationship between serum calcium levels and infarct size.

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Exploring the perspectives of health professionals in a rural district hospital in Achham, Nepal on the role of daily continuing medical education (CME)

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(Published article in a Journal: Gauchan B, Upreti A, Upreti A, Sherchan R, Schwarz D. Exploring the perspectives of health professionals in a rural district hospital in Achham, Nepal on the role of daily continuing medical education (CME): Perspectives of health professional towards CME. J Gen Pract Emerg Med Nepal. 2023;10(16):13-20. DOI: https://doi.org/10.59284/jgpeman241)

ABSTRACT

Introduction: A rural district hospital in Achham district of Nepal has daily continuing medical education (CME) sessions. These sessions are attended by health professionals from different departments providing healthcare services. Aim: This study aims to explore the perspectives of health professionals in a rural district hospital in Achham of Nepal on the role of daily CME on the quality of clinical care and on their professional development in order to find the impact of daily CME.

Method: A qualitative study was designed for above aim and objectives The study was conducted at Bayalpata Hospital. Open-ended semi-structured questionnaires were used to take interviews with health professionals meeting the inclusion criteria and were working for the hospital. A Convenient sampling method was used for the study. Health personnels of 20-60years with more than 2 uears of working at study site and providing consent were included in the study. A total of ten participants gave consent for interviews and were taken.

Ethical approval for the study was taken from Nepal Health Research Council (NHRC) and the University of Liverpool's Masters of Public Health (MPH) Virtual Programme Research Ethics Committee. Each participant was de-identified using participant codes

Semi-structured in-depth interviews using an interview guide were used as a data collection method. Pilot testing was done with 2 participants who met the inclusion criteria. Two pilot interviews were conducted following the interview guide and no issues were discovered. The pilot interviews and their data were included in the study. The interview questions were related to the participant's CME experience, their recommendations for making CME better, role of CME in their clinical practice and participation of health professionals during CME The collected data were analyzed using Thematic Content analysis, as it would help for the identification and analysis of common themes generated from different participants

Result: The majority had clear perceptions of positive impact of daily CME to refresh their knowledge, create a learning environment, improve presentation and speaking skills, learn clinical protocols, improve their professional development, share ideas to improve patient care and create a platform to share quality improvement steps. The diverse educational background of health professionals, CME curriculum, and time allocation of physicians for CME sessions remain challenges of daily CME. The participants recommended to add more topics in the CME curriculum and revise CME facilitation methods.

Conclusion: Perspectives of participants on daily CME can guide to its further improvement and are helpful to advocate for structured CME in all the rural hospitals of Nepal. All the participants of the study shared that daily CME sessions have significant influence on their professional development and are helpful in improving clinical care of patients in the hospital. Based on the findings of this study further can be designed for robust CME sessions for diverse health professionals working at the same hospital which can have relevance in Nepal, as well as other low and middle income countries globally.

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Peri-intubation cardiac arrest in emergency department of tertiary care hospital, Nepal

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ABSTRACT

Introduction: Critically ill patients present in emergency bringing various challenges such as difficult intubation, refractory shock, respiratory distress and having the highest risk of complications like failed intubation and cardiac arrest. Systemic reviews and meta-analysis suggest that up to 28% of critically ill patients undergoing tracheal intubation may experience a life-threatening complication such as severe hypoxemia, hemodynamic instability and 2.7%of procedures are complicated by cardiac arrest There are two clinical studies published from Nepal regarding intubation in emergency, these studies have however not addressed peri intubation cardiac arrest. This study may help to make protocol regarding correction of physiological compromised state in emergency intubation. We focus on understanding risk of emergency intubation and assessing interventions to mitigate adverse outcomes by optimizing hemodynamics and peri-intubation oxygenation.

Method: This is an Observational-analytic-cross sectional study from secondary data. The data source was emergency airway registry of Patan Academy of Health Sciences which started in January 2022. The available data till February 2024 was taken for the study.

Minimum sample size was 16(cases of cardiac arrest) as calculated by using Cochran's formula.Data was taken from emergency airway registry. All consecutive emergency intubation registered in the registry was taken for the study until the required sample size was achieved. Patients more than 18 years were only included.

Number of intubation attempts and cardiac arrest peri-intubation was evaluated monthly and the data was collected until the desirable sample size of cardiac arrest reached. The primary outcome of interest was peri-intubation cardiac arrest. Blood pressure was measured by resuscitation team prior to intubation in each cases and in 2 to 3 minutes difference during intubation as well as post intubation upto 15 minutes. Similarly, arterial blood gas analysis was done prior to intubation and if possible after 30-minute post intubation as well.

Data regarding peri intubation cardiac arrest, demographics data, hypotension, hypoxemia and intubation attempts were also extracted.

Result: Total 196 patient underwent emergency intubation in study period, among them 31 cases (15.8%) developed peri-intubation cardiac arrest and mean age of cardiac arrest is 56 year and male to female ratio of cardiac arrest is 1.2 : 1. First pass intubation success rate is 61.73%. 9 hypotensive cases, 12 hypoxemic cases, 8 hypotensive as well as hypoxemic cases and 2 cases of neither hypotensive nor hypoxemic develop peri-intubation cardiac arrest. Association of peri-intubation cardiac arrest with hypoxemia, association of peri-intubation cardiac arrest with hypotension and association of peri-intubation cardiac arrest with first pass success all were statistically significant with respective P values < 0.00001, 0.000608, 0.00216 i.e. <0.05.

Conclusion: This study showed that peri-intubation cardiac arrest occurs mostly in those patient with pre intubation hypotension and hypoxemia. Thus prior to emergency intubation optimization of blood pressure and oxygen saturation is very crucial. Similarly, study showed that those patients with first pass success rate has less peri-intubation complications including cardiac arrest.

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Study designs of articles published in major Nepali medical journals

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ABSTRACT

Introduction: Research is the key to evidence-based medicine practice. We are very unsure about the quality of research papers published in our journals Study designs are the factor that determines the quality of a research article. This study can help us to know where we should work to increase the level of evidence of Nepali medical research.

Method: It is a descriptive cross-sectional study. There are 47 medical journals indexed in Nepmed as of Feb 2024. Using the purposive sampling method, the latest two issues of nine journals were included in the study. Total nine journals were included: Journals of Nepal Health Research Council (JNHRC), Journal of Nepal Medical Association (JNMA) Journal of Institute of Medicine (JIOM), Kathmandu University Medical Journal (KUMJ), Journal of Patan Academy of Health Sciences (JPAHS), Journal of Karnali Academy of Health Sciences (JKAHS), Journal of BP Koirala Institute of Health Sciences (JBPKIHS), Medical Journal of Pokhara Academy of Health Sciences(MJPAHS), Postgraduate Medical Journal of National Academy of Medical Sciences (PMJN). Abstracts of articles published in these journals were reviewed to find out the study designs used in the articles published.

Result: During this study, 288 articles were included. Majority of articles were descriptive cross-sectional 130(45.14%), followed by case reports 42(14.58%). Systemic review, metaanalysis, and randomized control trial, were one each. Other articles were: analytical cross section study 32 (11.11%), view-points 25 (8.68%), prospective observational 22 (7.64%), comparative study 9 (3.13%), qualitative study 8 (2.78%), narrative review 4 (1.39%), quasi experimental study 4 (1.39%), retrospective cohort 3 (1.04%), mixed method (qualitative and quantitative) 2 (0.69%), experimental study 2(0.69%), and case-control 2(0.69%) As per five level of evidence there were no level 1 articles, level 2 articles were 16(5.56%), level 3 were 75 (26.04%), level 4 were 172 (26.04%), and level 5 were 25(8.68%).

Conclusion: Most of our research is producing level 4 evidence and only a few are up to level 3 of evidence as per five level of evidence. This study included only a few journals and their last two issues, so we need to study thoroughly to conclude. Selection bias might have occurred in this study. Robust study designs need to be done to identify problems in medical research.

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Knowledge about diabetes, its treatment, and complications along with the cost of assessment of illness amongst diabetic patients visiting at the Phul Kumari Mahato Memorial Hospital (PKMMH), Karjanha, Siraha, Nepal

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ABSTRACT

Introduction: Diabetes Mellitus (DM) is one of the most increasing non-communicable diseases worldwide. The disease prevalence has been rising steadily which affects both affluent and non-affluent societies. Outcome and compliance of treatment to the diabetic patient is much better if they have some knowledge regarding DM or information needs to be provided to them during each visit. Such study was done less or not in the rural areas of Nepal

Method: This was a hospital-based, descriptive cross-sectional study done at the rural area of Nepal. It was done to evaluate the knowledge, treatment cost, prevention of complications and target organ affected by uncontrolled DM among diabetic patients visiting at Phul Kumari Mahato Memorial Hospital. In this study we enrolled diagnosed diabetic patient who came to this center for treatment of DM at GP OPD from March 2021 to May 2021. For this study patient meeting inclusion criteria were interviewed using consecutive sampling method until the calculated sample size of 180 was met. The question was in simple language and prior to interview consent was taken. Data was analyzed using STATA software.

Result: Out of 180 patients, 111(61.88%) male and 69(38.12%) female participated. Most of them were between 41-60 years of age. 106(58.56%) were unaware of the target organ affected by uncontrolled DM. But it was statistically significant in between the organ involvement in DM with education, Eye (P=0.001), Renal (P=0.001) and Cardiac (P=0.001). Regarding the expense, 46.7% are making expense between 1000-2000.Regarding arrangement of expense for treatment 37.8% have monetary scarcity but 37.8% were free from this stress after getting insured under Government Health insurance.

Conclusion: Most of them were unaware of the visit to the concern doctor on regular follow up. The final conclusion is that patients should be given time during each visit and proper counseling is needed to make them aware of the complications of uncontrolled DM. Strategy needs to made to address such indigenous group and proper education need to enroll at school level to make coming generation about DM.

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Management of appendicular abscess in resource limited center: a case report

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ABSTRACT

Introduction: Appendicular abscess is a serious complication arising from untreated or inadequate treatment of appendicitis. This leads to the formation of pus around the appendix, encapsulated by the fibrous wall. This condition requires emergency surgical intervention. The successful resolution of an appendicular abscess requires a multidisciplinary approach of surgeons, radiologists, and many more for optimal outcomes of patient. The objective of this study is to understand disease progression and management approach of this condition.

Clinical Presentation: Mrs. [Khadka], a 73-year-old female, presented to the Outpatient Department (OPD) with a history of abdominal pain and fullness persisting for 8-10 days. She had previously experienced abdominal pain and vomiting two weeks ago, for which she sought treatment at a local clinic. On abdominal examination, a large non-mobile mass was palpated at the right iliac fossa, prompting further investigation.

An abdominal ultrasound revealed a large pocket of free fluid collection in the abdominal cavity. Considering the clinical findings, the case was diagnosed as an appendicular abscess. In the Emergency Department (ER), a USG-guided aspiration was performed, draining frank pus with a foul smell. Laboratory investigations indicated leukocytosis (TC= 18900) with a high neutrophil count (90%), supporting the diagnosis.

The patient was placed on nil per oral (NPO) status. Intravenous antibiotics, including Inj. Ceftriaxone, Inj. Metronidazole, Inj. Ondansetron, Inj. Tramadol and Inj. Ranitidine, were initiated with Intravenous fluids

After Emergency management and stabilizing, patient was advised for referral to Tertiary center for further management but due to the economic constraints, patient denied to travel 6-7 hour far from Doti. Repeated counselling was done for risk and benefit of surgery and surgery is mandatory to save her life. She had less hope of life even after surgery so she was anxious about her funeral if she goes to Dhangadhi which was expressed by patient before discharge.
High risk consent was obtained .Surgery was performed under spinal anesthesia. There was 500-600 ml of foul-smelling pus from the right iliac fossa. Peritoneal lavage with normal saline was conducted, and abdominal drainage was maintained followed by IV fluid and IV antibiotics.

Postoperative period was uneventful. She received injectable antibiotics and analgesics. Abdomen drain and sutures were removed on 6th and 7th postoperative day respectively The patient demonstrated improved clinical status, and after 8 days of hospitalization, she was discharged with a 5-day course of broad-spectrum antibiotics.

Conclusion: This case exemplifies the successful management of appendicular abscess by general practitioner in a resource-limited setting like availability of expert surgical team, Anesthesia, Ventilator and lack of ICU. Despite economic challenges, limited resources, the collaboration between the medical team and the patient's determination led to a positive outcome, demonstrating the importance of adaptability and patient-centered care in challenging healthcare environments thus successfully saving a life.

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Rural work and challenges

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ABSTRACT

On the first day after the end of Diwali, November 1st, 2023, we were in the Hospital's Emergency Room for our regular rounds. Among the patients, we encountered a man approximately 40-41 years old, seated in the Red Zone, surrounded by concerned onlookers. Upon initial assessment, it was discovered that the man had fallen under the influence of alcohol and suffered a severe injury. A 25-30 cm long stick, 4 cm in diameter, had pierced through the nasojugal groove of his maxilla, about 4 cm below the lateral canthus of his left eye tangentially piercing buccal mucosa, and exited 3 cm below the middle of his chin. Additionally, there were two to three separate pieces of wood lodged near his chin, though the bleeding had ceased, and there were no other apparent injuries.

When we spoke with the patient's sister, who identified herself as his sole caretaker after the passing of his spouse and the marriage of his daughters, she tearfully pleaded for us to save her brother, as he had no one else. Despite our limited resources and lack of general anesthesia, we felt compelled to act. After conducting the necessary investigations, preparing for surgery, and obtaining informed consent, we proceeded with the operation at 3:30 pm.

The operation presented a significant challenge: extracting the foreign object and repairing the extensive facial damage. With a team of two doctors, three nurses, an anesthesia assistant, and an office assistant, we decided to proceed with IV anesthesia and later added local anesthesia. Despite a brief scare when the patient's oxygen saturation dropped below 73%, we were able to stabilize him and continue the procedure. The operation lasted two hours and thirty minutes, during which we carefully removed the stick and other wooden pieces, suturing the damaged tissues as we progressed**.**

The successful completion of the surgery was a moment of immense relief and pride for the entire team. The patient's post-operative care included two days of fasting, and his wound showed signs of improvement. The challenging nature of the surgery, combined with the complexities of the patient's condition and the remote location of the hospital, sparked debates within the medical community. While many congratulated us for our success, others questioned the suitability and safety of such procedures in our setting.

Despite the differing opinions, one thing remained clear: our duty as medical professionals extend beyond mere treatment. It involves compassion, dedication, and a willingness to go above and beyond to help those in need. That day, as we worked tirelessly to save a life, we reaffirmed our commitment to the humanitarian aspect of our profession. Working under the auspices of the Nick Simons Institute, we take pride in our efforts to provide meaningful healthcare to underserved communities, knowing that each life we touch is a testament to our dedication and compassion.

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Unleash the potential of simulation-based education beyond the simulation lab

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ABSTRACT

Simulation is becoming increasingly popular in medical education as it is a practical, safe, and effective training strategy. However, simulation educators should weigh the benefits and costs of installing a high-fidelity simulation lab, especially in a resource-limited context. Low-cost simulation methods outside the simulation lab shall be discussed in this presentation.

In-situ simulation (ISS), blending simulation of a realistic scenario and the actual clinical working environment such as the emergency room provides a powerful tool for continuing education to enhance better patient care. It allows the real working teams to practice team dynamics and improve team performance and communication. It allows healthcare professionals to practice skills and protocols identifying system issues to uncover latent safety threats in their work environment, thus improving processes in real-time. Moreover, ISS using available equipment at the workplace limits the cost of conducting the simulation session. At the emergency department of Dhulikhel Hospital (DH), we are conducting a team-based ISS program using equipment and supplies from that area with the actual multidisciplinary staff (residents, medical officers, interns, nurses, and paramedics) to enhance their preparedness and performance in managing critical situations. Some examples are cardiac arrest management, trauma resuscitation, medical emergencies (anaphylaxis, arrhythmias, complicated myocardial infarction, diabetic ketoacidosis), and pediatric emergencies, among others. Through this article, we share our successes, lessons learned, and suggestions for those considering starting an ISS program in their center.

Besides the central hospital, we also run 21 rural outreach centers, ensuring that rural health care is accessible to the unreached. A mobile ISS and team-training program has been created to bring simulation technology directly to these satellite centers through a “portable mobile simulation unit” and locally available resources. This does not require the abstinence of the staff in the rural centers to come to DH for training sessions.

When physically unreachable, virtual simulation methods come in handy. During the COVID era, we conducted various virtual simulations for our staff, which is continued for the satellite rural centers. We also share various free online resources and platforms that can be utilized to conduct these sessions.

These novel approaches of taking simulation beyond the sophisticated simulation center can potentially reduce the simulation cost and expand medical simulation experiences thus improving technical skills / teamwork performance and uncovering any latent safety threats.

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Post intubation care in emergency department

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ABSTRACT

Endotracheal intubation is a critical procedure to secure airways in emergency. Much focus has been given in airway management strategies but post intubation care is as crucial as the intubation itself. Data from the airway registry of Patan Academy of Health Sciences (N=196) showed that cardiac arrest was observed in 10.2% post intubation whereas 55 % of patients received post intubation sedative and analgesics and ventilator was used in 29% for ventilation after intubation.

The 2012 Spice trail showed that post intubation management has major impact on mortality and length of hospital stay among intubated patients. Deep sedation within 4 hours of commencing ventilation was found to be an independent negative predictor for time to extubation, hospital death, and 180-day mortality.

"Analgesia first sedation" approach is recommended by the Society of Critical care medicine guideline with the aim to minimize pain for patients at light sedation directed by Richmond Agitation sedation scale(RASS). A study measuring hemodynamic and respiratory variables during endotracheal suctioning showed a significant increase in RASS scores, systolic, and diastolic blood pressure in mechanically ventilated patients in patients receiving sedation only when compared to patients also receiving analgesia. After absence of pain is ensured, pharmacologic sedation is indicated to help relieve discomfort, improve synchrony with mechanical ventilation and decrease oxygen requirements and overall work of breathing. In a systematic review and meta-analysis of randomized trials comparing Benzodiazepine versus nonbenzodiazepine-based sedation for mechanically ventilated among critically ill adults, Benzodiazepines lead to longer length of stay, longer ventilation time, and increased delirium. Regarding Paralysis, in many situations it is appropriate to paralyze the intubated patients. It is particularly important for transfers, the risk of extubation is reduced, ventilation is facilitated, and sudden increases in intracranial pressure caused by gagging are avoided.

Similarly, the initial ventilator setting we set for our patients in emergency can also affect the duration of ventilation and length of stay, thus it is imperative to tailor our settings as per individual patient and underlying condition. Lung protective strategy specifically developed for ARDS patients is suitable for most patients and the key is low tidal volumes.

In addition, having a post intubation checklist will enhance the optimization of post intubation management. Besides these, elevating the head end of bed to 45 degrees, decompressing stomach and subglottic suctioning lowers the rate of ventilator associated pneumonia (VAP). Cuff Pressure below 20 cm H20 is associated with increased rates of VAP. Cuffs will deflate over a few hours, so the pressures should be rechecked for any patients spending more than a couple hours in the emergency with target pressure of 20 to 30 cm H20.

Post intubation hemodynamic instability is firmly established in literatures and clinicians should be prepared to take necessary resuscitative steps for continued post intubation stabilization which should include analgesia followed by sedation approach along with Paralysis, lung protective strategy ventilator setting and Ventilator Associated Pneumonia bundle. Critically ill patients usually require a large number of interventions so head to toe approach is required to ensure all of the patient's needs are addressed.

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Integrated electronic health record system in a tertiary care centre: a single centre implementation experience

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(Published in the Journal: Agrawal PKB, Giri B, Gupta P, Khatri R, Devkota S. Integrated electronic health record system in a tertiary care centre: a single centre implementation experience. JNMA J Nepal Med Assoc. 2022 Apr 15;60(248):413-5. DOI: 10.31729/jnma.7445. PMID: 35633207; PMCID: PMC9252236)

ABSTRACT

An integrated electronic health record system is a common platform for efficient and active interaction of four major subsystems namely the medical record system, laboratory system, picture archiving and communication system and enterprise resource planning system. Barriers like knowledge and attitude of computer usage, time consumption, information technology workforce, electricity, cost of technology and devices, data safety and security deter institutions from implementation. However, implementation of this system is inevitable with its inherent advantages of efficient storage and timely retrieval, comparison of lab and imaging data over time, cash billing, institutional resource planning and finally ease of claiming and timely processing of insurance claims as the Government of Nepal is looking forward to financing public health sector through the national health insurance system. Many hospitals both in urban and rural areas struggle to implement and maintain integrated electronic health records.

We aimed to discuss the steps undertaken to integrate this system in a district hospital setting in rural Gorkha with outpatient flow of around one hundred and fifty per day and thirty clinical staffs, along with the inherent challenges and the subsequent impact. Further, we desired to understand the motivation of clinicians to complete the necessary data and also the typing challenges of the clinicians which resulted in some inevitable prescription errors and the precautions placed to prevent harm to the patients eventually.

The integration of EHR in daily clinical and logistic operation took almost one week after procurement of necessary hardware. The integration included set up of hardware, workflow management and training of employees both clinical and administrative. The number of patients attended by individual clinicians ranged from 12 to 39 at one month and 15 to 42 at nine months. The median time spent by the patients in the hospital for OPD service was 85 minutes with an interquartile range of 124 at one month and 85 minutes with an interquartile range of 130 at nine months. Completeness of patients' sheets in EHR was observed to be 30.04% at one month and 34.48% at nine months. Fifty percent of the digital prescriptions issued had some form of prescription errors at one month whereas it was reduced to 5.08% at nine months. Thirty-one percent of the patients in OPD received printed visit summaries which reduced to 4.20% at nine months. Government Health Management Information System (HMIS) reporting took one week at one month which was reduced to three days at nine months. Ten-day of OPD claims were pending for processing in the insurance management information system (IMIS) which improved to two days in nine months.

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Rethinking doctor's role in the present context: more as a clinician, lesser as a communication officer

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ABSTRACT

Communication is an integral part of patient care. As doctors, we have been counseling patients and their relatives about disease, treatment options and the outcomes. Being a general practice and emergency medicine doctor, communication could be more overwhelming for us. As we see patients from different spectrums, from critically ill in the emergency room to outpatient visits for regular medicine refills, we need to set the boundaries of what to communicate, how to communicate and how much to communicate. Can we recall some instances where we wanted to be fully present and think about the treatment course of an ill patient but were stopped with some not so relevant or even irrelevant questions? For example, you are worried about a hemoglobin drop in a patient on the second day following a cesarean section. You are rushing towards the postoperative ward but on the way stopped by the patient's relative who asks you whether the operated lady can be discharged early for some rituals at home. Have we been surrounded by anxious and angry patient relatives, who bombard us with the questions of well-being of a critically ill patient in the red area of an emergency room? How does it feel when you are doing CPR on a collapsed patient and suddenly a bystander tells you - 'if you can save the person, then do it, otherwise immediately refer.' Will you stop CPR?

Quoting the famous book 'Murtagh's General Practice', one of the important principles facilitating the communication process is - 'the message, which needs to be clear, correct, concise, unambiguous and in context'. As a clinician, are we really being able to be 'in line' with this principle when we communicate with patients and their relatives? Do the circumstances at a limited resource setting where we work really allow us to focus on clinical care of a patient? Isn't the formidable multitasking role given to GPs actually draining us?

How many times have we given medical advice or even prescribed drugs over the phone? How many times have our messaging apps been flooded with people's blood and CT scan reports? How often have we consciously chosen to reply to those queries at midnight when we are about to go to sleep after a long day? Have we texted back and tried to solve such issues from a wedding party when we are supposed to mindfully enjoy some delicious desserts?

Aren't we being too accessible? Shouldn't we break this habit? Shouldn't this trigger a discussion for the need of an all-time available communication officer in our hospital? so that we can really focus on the patient's clinical care and the assigned communication officer could facilitate issues like blood products availability, transportation, bed availability, referral procedures and all other logistic related queries of the patient's relatives.

Modality

For example, in the emergency room, one paramedic can be assigned as a communication officer for that duty shift. The communication officer would be responsible for communicating, guiding and facilitating the patient visitors for issues such as health status of the patient in detail, blood and other necessary tests with their rationale, admission and discharge procedure or referral process in case of need. The communication officer can also contact the referral center before referring the patient so that the patient's visitors could be assured and it could establish a proper way of referral. This will also help to minimize the misunderstanding and possible interruption from patient's visitors during the treatment of a patient. It will ensure the dedicated clinical care of a patient by the treating team.

This will help in proper care and management of a patient. Likewise, it will help to establish effective communication.

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