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ORAL PRESENTATION

OP-01

Meningkatkan Peratusan Sesi Pendermaan Darah *(Mobile)* yang Mencapai Sasaran Jumlah Kutipan Beg Darah di Unit Transfusi Darah Hospital Sultanah Nur Zahirah, Kuala Terengganu

Norsuzilawati A, Noor Hamizah MH, Mohd Muhaimin K, Azlan K
Unit Transfusi Darah, Hospital Sultanah Nur Zahirah, Kuala Terengganu

PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Bekalan darah yang mencukupi diperlukan memandangkan tiada alternatif darah sintetik berupaya menggantikan fungsi darah. *Mobile* yang tidak mencapai sasaran boleh menjejaskan bekalan darah dan perawatan pesakit.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Kajian ini adalah untuk meningkatkan peratusan *mobile* yang mencapai sasaran. Standard yang ditetapkan ialah ≥ 75%.

PROSES PENGUMPULAN MAKLUMAT:

Kajian verifikasi dijalankan pada Februari 2020 (sebelum pendemik COVID-19). Sasaran pendermaan darah bagi setiap *mobile* ditetapkan berdasarkan jumlah populasi setempat, rekod pendermaan terdahulu dan sasaran penganjur. Data jumlah pendermaan darah diperolehi daripada *Blood Bank Information System*. Intervensi telah dijalankan pada November 2020 hingga Mac 2021. *Post* intervensi dijalankan pada April 2021. *Mobile* ketika Perintah Kawalan Pergerakan dikecualikan dari kajian ini.

ANALISIS DAN INTERPRETASI:

Hanya 58% daripada *mobile* mencapai sasaran sebelum penambahbaikan dijalankan iaitu ABNA sebanyak 17%. Beberapa faktor telah dikenalpasti menyumbang kepada permasalahan tersebut, iaitu perancangan program tidak optimum, promosi kurang berkesan, layanan staf kurang efektif dan kurang motivasi untuk menderma darah.

STRATEGI PENAMBAHBAIKAN:

Beberapa langkah penambahbaikan telah dijalankan seperti perubahan kaedah *Blood stock forecast*, pendermaan darah di hospital daerah ditukar dari *walk-in donation* ke *mobile* dan perubahan masa *mobile* di pasaraya dari waktu pagi kepada waktu puncak (malam). Selain itu, promosi derma darah dibuat lebih awal sekurang-kurangnya 2 hari sebelum *mobile*, anggota tambahan dari jabatan lain direkrut dan *mobile* patuh syariah dilaksanakan. Disamping itu, kaedah *post mortem* ditukar dari mesyuarat mingguan kepada *real time monitoring*. Inisiatif Program Medal Kesetiaan dan suntikan awal vaksinasi COVID-19 untuk penderma darah turut diperkenalkan.

KESAN PENAMBAHBAIKAN:

Hasil penambahbaikan menunjukkan peningkatan kepada 79% *mobile* yang mencapai sasaran. Kajian ini juga mendapati keperluan untuk menambah bilangan *mobile* akibat program sedia ada tidak mencapai sasaran dapat dikurangkan. Ini dapat mengurangkan beban tugas dan kos kewangan untuk bayaran kerja lebih masa. Selain itu, bekalan darah bertambah dan sentiasa mencukupi untuk kegunaan pesakit.

LANGKAH SETERUSNYA:

Pemantauan berterusan pelaksanaan langkah penambahbaikan akan dilaksanakan. Strategi penambahbaikan berkesan seperti Program Medal Kesetiaan dicadangkan untuk dilaksanakan ke seluruh negara.

OP-02

Improving the Percentage of Students Receiving Their Psychological Status Early

Haymalatha R, Ramesh KC, Norhayati I, Nurul Ain MB, Ross Aniza R, Azmil I
Institut Latihan Kementerian Kesihatan Malaysia (ILKKM) Sultan Azlan Shah, Perak

SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

The high expectation and busy training schedule require students' mental health surveillance to be done every six months. 96.8% of students at the Institut Latihan Kesihatan Malaysia Sultan Azlan Shah (ILKKMSAS) received their psychological assessment results within 32 working days. Delay in receiving the assessment results will delay students' consultations, the next possible therapy needed and potentially aggravate the students' psychological condition.

KEY MEASURES FOR IMPROVEMENT:

The indicator used was 90% of health science students received psychological assessment results within three working days. This is in line with the counsellor's key performance index (KPI) in reviewing results and commencing therapy.

PROCESS OF GATHERING INFORMATION:

A cross-sectional study using a survey was done involving 1000 respondents via a systematic sampling technique. A manual DASS-21 questionnaire and a checklist were used to determine the respondents' psychological status and the factors causing the delay in receiving their psychological results.

ANALYSIS AND INTERPRETATION:

In the pre-remedial phase, only 3.2% of the students obtained their psychological assessment within three working days. 96.8% of the students' results were delayed due to the time required to manually calculate and analyse the tests' results and delivered within 32 working days.

STRATEGIES FOR CHANGE:

A secure web-based DASS-21 system was created at ILKKMSAS and supervised by a counsellor. The students received the results of the computer-coded DASS-21 analysis within one working day.

EFFECT OF CHANGE:

Following remedial action, 100% of students received their psychological assessment findings within three working days compared to 3.2% previously. The strategy improved the work process and reduced the turnaround time for the result from 32 to 1 working day, exceeding the initial standard set.

THE NEXT STEP:

The Web-based DASS-21 system will be expanded to all Allied Health Training in the Ministry of Health Malaysia for psychological status evaluation throughout the students' study period using the Central Control Data system in the Training Management Division, Ministry of Health Malaysia.

OP-03

Improving Waste Transportation Process at Columbia Asia Hospital Tebrau

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Columbia Asia Hospital Tebrau, Johor

SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Manual handling of waste increased injuries to the operators, especially musculoskeletal pain. The operator needs to push a 240L wheel bin of 50kg through a 30-meter distance at a high gradient slope of 1:8 (7.13%) for 12 times/day. This overexertion routine causes injuries, slowing their movement and delaying waste transportation. This study aims to improve operators' safety and health and successively improve waste transportation time.

KEY MEASURES FOR IMPROVEMENT:

The main indicator was the percentage of repetitive injuries amongst the same operators. The target was set at 0% for the repetition of injuries.

PROCESS OF GATHERING INFORMATION:

A prospective study was carried out from September 2021-February 2022. Two operators were given questionnaires (Ergonomic Risk Assessment/ERA) to gather feedback. Transportation time was taken throughout the study.

ANALYSIS AND INTERPRETATION:

ERA results showed that the percentage of repetitive injuries increased from 58.3% to 83.3%. Injuries include neck pain, wrist/hand pain and lower back pain. The pain severity was reported on an average scale of 3.5 out of 5. The average time taken to transport waste was 20 minutes. The contributing factors identified were pushing heavy wheel bin, high gradient slope, frequent pushing/day and long distances.

STRATEGIES FOR CHANGE:

Improvement was to re-engineer the mechanism of waste transportation using an innovative vehicle to reduce the operator's burden. All-Terrain Vehicle (ATV) motor was acquired and re-engineered to fix innovated trolley to allow two units of 2-wheels bin to be carried out per trip. The ATV is operated by the operator, provided training to propel the vehicle effectively.

EFFECT OF CHANGE:

After the introduction of ATV, the ERA result successfully showed a reduction in injuries from 83.3% to 0%. Time completion of waste transportation is faster at an average of 8-10 minutes.

THE NEXT STEP:

The design of this trolley and the light vehicle was introduced to our sister company, Columbia Asia Hospital Iskandar Puteri, Johor, which is now planning to adopt our innovation.

OP-04

Using Digital Technology to Improve Daily Staff Health Surveillance and Assist in Automated Tracing of COVID-19 Positive Staff and Close Contacts

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Institut Jantung Negara (IJN) experienced ten COVID-19 clusters and an increasing trend in staff contracting COVID-19; 380 staff (16%) in 2021. The absence of a centralised mechanism to track staff health status led to intervention delays; detection of unwell staff, isolation of COVID-19 cases and identification of close contacts. Unwell staff continued working, at risk of infecting others.

KEY MEASURES FOR IMPROVEMENT:

The key improvement measure was >90% compliance to daily health declaration by staff and an improved number of contact tracings completed within 24 hours.

PROCESS OF GATHERING INFORMATION:

Staff awareness of health surveillance needs was assessed by monitoring compliance to daily health declarations. Audits were conducted to determine the number of COVID-19 clusters, the number of staff contracting COVID-19 and the time taken for contact tracing.

ANALYSIS AND INTERPRETATION:

Staff compliance to daily health self-declaration was 53% in January 2021. The number of staff contracting COVID-19 in January 2021 was 44. This placed unanticipated demands on contact tracing, which led to 150 staff redeployed to assist with calling close contacts for risk stratification. The manual nature of contact tracing took an average of 72 hours per COVID-19 case.

STRATEGIES FOR CHANGE:

IJNSurveillance, a spectrum of cloud-based applications allowing self-declaration of health from mobile devices, integrating temperature checks and attendance systems, was implemented in November 2020. It also enabled automated contact tracing, which reduced the manual processes. Data collected were accessible on a real-time centralised dashboard.

EFFECT OF CHANGE:

Staff compliance to daily health status declaration on *IJNSurveillance* increased from 53% (January 2021) to 93% (December 2021). Unwell staff were tracked and advised for medical clearance upon entering the premises. Early notification of COVID-19 led to >90% contact tracing completed within 24 hours compared to the average 72-hour time frame.

THE NEXT STEP:

The demands of the pandemic resulted in the extension of *IJNSurveillance* to submodules for different end-users, staff, patients, accompanying persons, caregivers and visitors.

OP-05

Increasing the Percentage of Patients Aged 60 Years Old and Above Receiving Removable Partial Dentures (RPD) Within 8 Weeks in *Klinik Pergigian (KP) Kulim*

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[2] *Klinik Pergigian Kulim, Kedah*
[3] *Klinik Pergigian Taman Selasih, Kedah*

SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:
Elderly patients aged ≥60 years old who requested and are suitable for RPD have prolonged total treatment durations in *KP Kulim*, which adversely impacts their quality of life. The verification study in 2018 showed only 23.9% of these patients received their dentures within eight weeks. We aimed to increase the percentage of patients aged ≥ 60 years old receiving RPD within eight weeks.

KEY MEASURES FOR IMPROVEMENT:
The indicator measuring improvement was the percentage of patients ≥ 60 years old receiving their RPD within eight weeks in *KP Kulim*. The standard was > 65% based on the State Key Performance Indicator.

PROCESS OF GATHERING INFORMATION:
A quality improvement study was conducted involving 46 patients (60 years old and above) who had requested and were found suitable for RPD from January - December 2018. Patients' denture progression data was collected via a checklist form filled out by the dental officer in charge. A questionnaire to assess contributing factors was circulated among 24 dental personnel (15 dental officers, six dental surgery assistants, and three dental technicians). Implementation of remedial measures and re-evaluation were done concurrently involving 43 patients (January 2019 - March 2020).

ANALYSIS AND INTERPRETATION:
Pre-remedial percentage of patients ≥ 60 years old who received RPD within eight weeks in *KP Kulim* was 23.9%. Contributing factors identified were an increased number of postponed appointments (79.2%) and repeated clinical steps (95.8%).

STRATEGIES FOR CHANGE:
The strategies included prioritising cases, implementing a denture progression form, updating work procedures through *WhatsApp*, conducting CDE sessions, and modifying workflows to reduce treatment time frames.

EFFECT OF CHANGE:
The percentage of patients ≥ 60 years old receiving RPD within eight weeks increased from 23.9% to 67.5%. ABNA improved from 41.1% to -2.5 %.

THE NEXT STEP:
This study was expanded to *KP Lunas* and *KP Taman Selasih*. We plan to replicate the strategies at the state level. Innovation of a bite registration technique will be introduced.

OP-06

Achieving Zero Number of Fake Braces Usage among School Children in *SMK Seri Pantai*

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[2] *Bangsar Dental Clinic, Kuala Lumpur*

SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

The usage of fake braces among school children in *SMK Seri Pantai* increased from one student (2018) to 28 students (2019), causing an increase in oral health problems which require treatment. Our project aimed to achieve zero number of fake braces usage.

KEY MEASURES FOR IMPROVEMENT:

The indicator is the number of fake braces used among school children in *SMK Seri Pantai* with the standard of zero cases.

PROCESS OF GATHERING INFORMATION:

Fake braces users in *SMK Sri Pantai* were identified and recorded in patients' treatment cards (L.P.8-1Pin.7/97). Questionnaires and interviews were used to determine the contributing factors. The pre-remedial study was conducted from June-August 2019, and for post remedial study, cycle 1 was from February-March 2020, while cycle 2 was from April-May 2020.

ANALYSIS AND INTERPRETATION:

A total of 28 students were identified using fake braces in the pre-remedial phase. A survey among all students revealed that 46.8% had the wrong information and misunderstood about fake braces. Additionally, a survey among dental officers showed that 89.2% had seen fake braces cases, but 64.9% of them did not know how to manage fake braces properly. All agreed that a guideline is required.

STRATEGIES FOR CHANGE:

Students using fake braces were referred to orthodontists for removal of fake braces, followed by a 3-months review. Awareness talks and campaigns were given to all students while parents and teachers were informed and educated via social media. Training for dental officers regarding the identification and management of fake braces was conducted by orthodontists. A checklist was developed as a guide for dental officers. Intervention implemented in collaboration with a dedicated promotion team.

EFFECT OF CHANGE:

The number of fake braces users reduced from 28 students to 21 students in cycle 1 and 8 students in cycle 2.

THE NEXT STEP:

Continuous effort and intervention will be reinforced in all dental clinics in Lembah Pantai to increase the awareness of fake braces implications.

OP-07

Reducing HIV Stigma and Discrimination (S&D) towards People Living with HIV (PLHIV) among Healthcare Workers (HCWs) at Tanglin Health Clinic

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[2] *HIV/ STI/ Hepatitis C Unit, Kuala Lumpur & Putrajaya Health Department*

SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Several complaints from PLHIV were received on the act of S&D by HCWs. This was further supported by a baseline survey where 19% of PLHIVs experienced discrimination from HCWs. This study aimed to reduce the S&D among HCWs to encourage better communication between HCWs and PLHIV, thus improving their treatment adherence.

KEY MEASURES FOR IMPROVEMENT:

To achieve the target of zero discrimination, we set a standard that 100% of PLHIV should not experience S&D when they come to the clinic as the main indicator. HCW S&D domains were also measured and monitored in this study.

PROCESS OF GATHERING INFORMATION:

Two cross-sectional studies were conducted to examine staff training, knowledge, attitude, and practice and concluded with an in-depth interview. Laboratory forms were audited to determine the 'Biohazard' labelling practice. 'My Journey Survey (MJS)' among PLHIV was conducted to identify areas associated with discrimination.

ANALYSIS AND INTERPRETATION:

HCWs without training have more fear of contracting HIV, mean=47.6%, compared to those with training, mean=38.9%. The paramedics and pharmacists had moderate to high scores on knowledge, but their attitude and practice were average. 'Biohazard' labelling was found on 67% of laboratory forms. MJS identified the bleeding room and pharmacy as areas frequently associated with the act of discrimination.

STRATEGIES FOR CHANGE:

Workshops using the HIV S&D HOPE module were conducted for the HCWs. Related posters and videos were also disseminated to the staff. System-generated laboratory forms eliminate the 'Biohazard' labelling. HIV clinic one-stop-centre, flip chart, and telegram channel were created to improve PLHIV education.

EFFECT OF CHANGE:

The percentage of PLHIV reported discrimination by HCWs reduced from 19% to 0% on the first cycle of assessment. Significant improvements in HCW S&D domains were also observed mainly after the second assessment.

THE NEXT STEP:

The study's findings were presented to the national and state HIV/AIDS sectors. Intervention modules are now used as a reference for other health facilities in Kuala Lumpur & Putrajaya for HIV S&D intervention in their facilities.

OP-08

Reducing the Percentage of Returned Analgesic Medications in the Outpatient Pharmacy Department (OPD) of *Institut Kanser Negara (IKN)*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:
Chronic pain is highly prevalent among IKN cancer patients. However, RM52,847.18 worth of analgesic medications provided to these patients was returned to OPD unused in 2018, which had to be disposed of for concern of safety and efficacy.

KEY MEASURES FOR IMPROVEMENT:
The indicator was the percentage of returned analgesic medications over the total of analgesic medications dispensed. The standard is a 30% reduction, according to Bekker et al., 2018.

PROCESS OF GATHERING INFORMATION:
A verification study was done from 01/01/2019 till 30/04/2019 to determine the percentage of returned analgesics and identify the contributing factors. A data collection form was used to record the quantity and reason for return. Implementations of remedial measures were conducted from 01/10/2019 till 31/01/2020. The returned analgesic medications were reassessed from 01/02/2020 till 31/05/2020.

ANALYSIS AND INTERPRETATION:
Pre-remedial returned analgesic medications were RM27,630.09 and the reasons were unused medications (60%), discontinued medications (24%), side effects (8%), non-compliance (4%), patient deceased (2%) and others (2%). Only 36% of patients knew that returned medications couldn't be reused for another patient. The ABNA was 1.87%.

STRATEGIES FOR CHANGE:
An awareness campaign was held in OPD. A replica of returned medications was put together with a poster exhibition. Pharmacists were stationed at the campaign booth to engage with the patients actively. A pledge board was put up for patients to pledge to check their medications before leaving the pharmacy. Pharmacists in OPD were reemphasised to check the patient's medications' balance and dispense accordingly. Medication reconciliation was done to ensure patients comply with taking their medications.

EFFECT OF CHANGE:
Returned analgesic medications were reduced from RM27,630.09 (6.24%) to RM21,559.48 (5.45%). The ABNA was 1.08% at the end of the study.

THE NEXT STEP:
More out-of-the-box solutions such as utilising a mobile app to track the balance of patients' medications can be used to complement the conventional solutions to achieve a lesser number of returned analgesic medications.

OP-09

Reducing the Heavy Usage of Controlled Antibiotics in *Hospital Seberang Jaya*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Hospital Seberang Jaya (HSJ) was listed as the highest user of antibiotics in Penang since 2018. It has led to a prevalence of resistant microorganisms and increased antibiotics expenditures. Therefore, it was an attempt to improve the antibiogram and cost savings by reducing the heavy usage of controlled antibiotics.

KEY MEASURES FOR IMPROVEMENT:

The standard was to reduce the defined daily dose (DDD) by more than 30% from the upper limit (UL). The percentage was computed by dividing the average UL and the DDD by the average UL.

PROCESS OF GATHERING INFORMATION:

The study was conducted from July 2019-December 2021 through convenience sampling. A total of 3 cycles were performed. The sampling tools were controlled antibiotic order form, antimicrobial stewardship database and knowledge assessment questionnaires.

ANALYSIS AND INTERPRETATION:

The DDD was above the UL (~17%). The contributing factors were an incomplete review of antibiotics after 72 hours (84%), inappropriate selection of antibiotics during initial therapy (61%) and after review (88%), pending relevant culture results (36%) and unclear SOP in supplying the antibiotics (49%). The ABNA was 25.5%.

STRATEGIES FOR CHANGE:

Besides continuously educating the healthcare professionals, formulation of new antibiotic guidelines and formulary restrictions development of electronic antibiotic applications were among the strategies developed.

EFFECT OF CHANGE:

The ABNA reduced from 25.5% to below 0% (up to 37% reduction of DDD from the UL). Improvement in MOGC seen as appropriate selection of antibiotics during initial therapy from 39% to 99%, and after review from 12% to 82%, active tracing of relevant results from 64% to 100%, active review of antibiotics from 16% to 100% and proper supply of antibiotics as SOP from 51% to 87%. Approximately RM 165,000.00 of cost savings were accomplished. The antibiogram had shown an increase in sensitivity rate.

THE NEXT STEP:

Several strategies will be expanded to other hospitals, like electronic antibiotic application, which will be extrapolated to other drugs requiring local purchase (LP) form.

OP-10

Improved Care through Better Nutrition: Value and Effects of Medical Nutrition

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

The absence of a multidisciplinary nutrition support team (NST) in addressing malnutrition issues and optimal nutritional care to severely ill patients for nutrition assessment, determination, recommendations and monitoring of nutrition therapy led to an improper prescribing pathway for Parenteral Nutrition (PN).

KEY MEASURES FOR IMPROVEMENT:

The indicator of this study is the percentage of prescribing and administration errors of Parenteral Nutrition in surgical wards and Intensive Care Unit (ICU), with the standard set as 0%.

PROCESS OF GATHERING INFORMATION:

Retrospective pre-interventional data were collected using patient charts for indication of PN, duration of therapy, blood parameters, and demographic data and incurred costs based on PN supply in surgical wards and ICU.

ANALYSIS AND INTERPRETATION:

During the pre-intervention phase, 80% of the prescribing errors and 58% of the administration errors of Parenteral Nutrition were reported. The contributing factors identified were the absence of a dedicated team in managing PN therapy, untrained personnel, and inadequate nutrition assessment.

STRATEGIES FOR CHANGE:

A multidisciplinary nutritional support team was assembled to have weekly ward rounds on patients receiving Total Parenteral Nutrition (TPN) and enteral nutrition in the surgical wards and critical care units with nutritional support education and plans, referencing the European Society of Parenteral and Enteral Nutrition (ESPEN) guidelines. Interventions made by the team were logged and reviewed during nutritional support subcommittee meetings for physician oversight.

EFFECT OF CHANGE:

During the post-intervention, the percentage of prescribing errors of Parenteral Nutrition was reduced to 35%, and percentage of administration errors reduced to 10%. The achievable benefit not achieved (ABNA) gap has been reduced by 45% for prescribing errors and 48% for administration errors.

THE NEXT STEP:

These strategies will be continued to ensure the sustainability of the improvement done. We plan to expand these strategies to other clinical areas. We are also in the process of collaborating with other government hospitals to provide Home PN services for patients at home.

OP-11

Menurunkan Kadar Anemia dalam kalangan Ibu Hamil pada Usia Kandungan 36 Minggu di KKIA Betong, Sarawak

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Anemia merupakan masalah kesihatan yang lazim dialami oleh ibu mengandung di seluruh dunia. Peratusan anemia dikalangan ibu hamil pada 36 minggu di KKIA Betong iaitu 17.7% (2015), 13.4% (2016) dan 16% (2017) menunjukkan prestasi yang tidak memuaskan dan melebihi sasaran *Key Performance Index (KPI)* kebangsaan 2018, iaitu 7.2%. Hal ini akan meningkatkan risiko kelahiran pramatang, kelahiran bayi kurang berat badan serta kematian perinatal.

PENGUKURAN UTAMA UNTUK PENAMBAHBAIKAN:

Projek ini bertujuan untuk menurunkan kadar kejadian anemia dalam kalangan ibu hamil pada usia kandungan 36 minggu.

PROSES PENGUMPULAN MAKLUMAT:

Maklumat untuk projek ini diperolehi melalui buku rekod kesihatan ibu, reten KIB201A Pind.2/2007, dan buku rekod KIB 107. Kajian soal selidik dilakukan untuk menilai data demografik, pengetahuan, amalan pengambilan pil hematinik dalam kalangan ibu hamil yang berdaftar di KKIA Betong dalam tempoh Januari-Mac 2018.

ANALISA DAN INTERPRETASI:

Didapati hanya 9.5% ibu hamil memahami sepenuhnya mengenai anemia dan 55.6% ibu hamil mengambil pil hematinik dengan cara yang salah. Peningkatan peratusan ibu hamil yang anemia pada usia kandungan 36 minggu di KKIA Betong dapat dilihat pada tahun 2012 (19.1%), 2013 (22.5%), 2014 (25.8%), 2015 (17.7%), 2016 (13.4%) dan tahun 2017 (16%).

STRATEGI PENAMBAHBAIKAN:

Penerapan pengendalian kes ibu hamil berdasarkan *Model of Good C*are di KKIA Betong telah dijalankan. Pendidikan kesihatan mengenai pencegahan dan rawatan anemia diberi kepada ibu hamil. Satu inovasi Kad Celik Anemia diwujudkan untuk memberi pendedahan anemia kepada ibu hamil.

KESAN PENAMBAHBAIKAN:

Pengetahuan ibu hamil berkaitan dengan anemia meningkat kepada 90.5% selepas intervensi serta cara pengambilan pil hematinik yang salah dapat dikurangkan kepada 20.6%. Pencapaian ibu hamil anemia pada usia kandungan 36 minggu KKIA Betong berjaya diturunkan sehingga 3.5% bagi 2018, 2019 (1%), 2020 (2.7%) dan 3.7% pada tahun 2021.

LANGKAH SETERUSNYA:

Pemantauan secara berterusan perlu dilakukan bagi memastikan semua ibu hamil anemia diberi rawatan dan mendapat pengurusan lanjut dari doktor. Pendidikan kesihatan yang berterusan mengenai cara pengambilan ubat dan pemakanan ibu hamil anemia hendaklah dilakukan oleh semua petugas kesihatan di KKIA Betong.

OP-12

Improving HbA1c Control among Newly Insulin Initiated Type 2 Diabetes Mellitus (T2DM) Patients in *Klinik Kesihatan Kelana Jaya (KKKJ)*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

HbA1c is an important indicator of glycaemic control as it correlates with the risk of long-term diabetes complications. In 2017, 82.6% of T2DM patients in KKKJ who were newly initiated on insulin had failed to reduce at least 1% in HbA1c after six months. It contributed to 40.93% having diabetic nephropathy, 48.6% with diabetic neuropathy and 20.1% with diabetic retinopathy.

KEY MEASURES FOR IMPROVEMENT:

Our study indicator is the percentage of T2DM patients who achieved at least a 1% reduction in HbA1c after six months of insulin initiation. A standard of more than 80% was set during the 2018 non-communicable disease meeting in KKKJ.

PROCESS OF GATHERING INFORMATION:

A quality improvement study (intervention cycles 1-3) was conducted using a universal sampling method from July 2018 to July 2020. Data was collected using a questionnaire to healthcare professionals, an audit checklist and a patient's assessment form during each clinic visit.

ANALYSIS AND INTERPRETATION:

During the verification study, the achievement was 23.81%. Reasons for a low reduction in HbA1c were poor patient adherence to insulin, lack of awareness in HCP on the latest guideline, lack of multidisciplinary team coordination, lack of self-monitoring of blood glucose and self-adjustment on insulin dose and patient's non-adherence to lifestyle intervention.

STRATEGIES FOR CHANGE:

Remedial measures were the "One Sweet Centre" program - a dedicated clinic with multidisciplinary involvement that emphasised patient education, self-empowerment and individualised patient care. Glucometers were loaned to patients with financial issues and poor insight. In addition, phone calls and instant drive-through services were offered during the COVID-19 pandemic.

EFFECT OF CHANGE:

Post intervention showed improvement from 23.81% in the verification cycle, 50% in cycle 1, 70% in cycle 2 to 83.3% in cycle 3.

THE NEXT STEP:

We plan to extend this service to all diabetic patients, set up a peer support club, partner with a non-governmental organisation in community empowerment and share our remedial actions with other clinics.

OP-13

Improving the Appropriate Use of Clopidogrel in Primary Care Setting

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

43% of clopidogrel was inappropriately prescribed in primary care setting, PKD Klang, wherein 31.6% of this was without appropriate documentation of diagnosis and duration. This resulted in long-term side effects and high purchasing costs.

KEY MEASURES FOR IMPROVEMENT:

The indicator was the percentage of patients with appropriate use of clopidogrel with a standard of 90%. Appropriate use was defined as clopidogrel prescribed according to recommended indications and duration.

PROCESS OF GATHERING INFORMATION:

A quality improvement study involving a verification study and two post-interventional cycles using a universal sampling method were conducted. A pre/post-test was used to explore knowledge amongst healthcare providers. A validated questionnaire and audit checklist helped establish the factors of inappropriate use and rate of the appropriate use of clopidogrel, respectively.

ANALYSIS AND INTERPRETATION:

Verification study disclosed that 57% of clopidogrel was appropriately prescribed. The contributing factors included lack of review and interventions by doctors (94%) and pharmacists (84%), incomplete clopidogrel indication on discharge letters (74%) and demand from patients (58%).

STRATEGIES FOR CHANGE:

Clinical audit findings regarding incomplete clopidogrel discharge letters were shared with discharging tertiary hospitals. An in-house clopidogrel guideline, assessment and counselling checklist with leaflets were developed to assess patients, improve communication between healthcare providers, and enhance patients' understanding of the importance of appropriate clopidogrel duration. Documents containing diagnosis, initiation date, and duration were made accessible to relevant healthcare providers via a QR code and patients via a record book. These helped shorten assessment and prescription screening time.

EFFECT OF CHANGE:

The appropriate use of clopidogrel increased from 57% to 87% in cycle 1 and 94% in cycle 2. Achievable benefit not achieved was improved from 43% to 13% and 6% in cycle 2. The cost of clopidogrel purchased was reduced from RM63,874.00 (2018) to RM 13,284.00 (2019) and RM 1,404.00 (2020).

THE NEXT STEP:

To empower the sustainability of appropriate clopidogrel use in primary care by ensuring all disciplines adhere to algorithms and guidelines.

OP-14

Reducing the Percentage of Adult Patients Experiencing Moderate and Severe Pain during Local Anaesthesia Administration in *Klinik Pergigian Chemor*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

An audit conducted at Klinik Pergigian Chemor in 2019 showed that 77.5% of adult patients experienced moderate and severe pain during local anaesthesia administration. Pain during the procedure may significantly impact patient satisfaction and delay patients seeking dental treatment, leading to poor oral health care. The aim was to reduce the percentage of adult patients experiencing pain during local anaesthesia administration in Klinik Pergigian Chemor.

KEY MEASURES FOR IMPROVEMENT:

The key indicator for improvement was measured using the percentage of patients with moderate and severe pain during local anaesthesia administration. The standard is ≤20% based on the consensus of Oral Maxillofacial Surgeon Hospital Taiping.

PROCESS OF GATHERING INFORMATION:

A cross-sectional study was conducted from 1st November to 31st December 2019. A convenient sampling method was used. The data were collected from patient records, questionnaires and interviews to identify the contributing factors and daily pain assessment reports using pain as a fifth vital sign (P5VS) scale.

ANALYSIS AND INTERPRETATION:

The pre-remedial study showed only 22.5% of patients experienced pain-free during local anaesthesia administration. The causes included patients not receiving physical comfort before injection (100%), no standard operating procedure of local anaesthesia administration (100%), speed of injection (83%), and fear of needles (92%).

STRATEGIES FOR CHANGE:

The remedial measures include introducing ice sticks, providing a clear standard operating procedure of local anaesthesia administration, training sessions for dental officers to perform local anaesthesia according to the guidelines, turning on the radio while treating the patient, and indiscreet instruments set-up.

EFFECT OF CHANGE:

The percentage decreased from 77.5% to 18.3% in cycle 1 and dropped to 17.1% in cycle 2. This showed that the measures were effective and sustainable. All contributing factors had improved, and the model of good care was up to the standard.

THE NEXT STEP:

We will implement the standard operating procedure of local anaesthesia administration in other health facilities in the Kinta district to meet the gold standard of care.

OP-15

Increasing the Percentage of Paediatric Thalassemia Patients on Iron Chelation Therapy with Serum Ferritin Below 1000mcg/L in *Hospital Tengku Ampuan Afzan (HTAA)*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Serum ferritin level is targeted below 1000mcg/L to prevent iron overload complications. Unfortunately, one paediatric patient died due to iron overload complications in HTAA, whose serum ferritin was 4295.6mcg/L. Therefore, this study is necessary to prevent iron overload complications and death.

KEY MEASURES FOR IMPROVEMENT:

The key indicator for improvement is the percentage of paediatric patients on iron chelation therapy with a serum ferritin below 1000mcg/L. The standard is 75%.

PROCESS OF GATHERING INFORMATION:

A quality improvement study was conducted in 2019 using a universal sampling of 38 patients and eight pharmacists. Data to identify contributing factors was collected by using audit forms and validated questionnaires. Re-evaluation was done in two cycles in 2020.

ANALYSIS AND INTERPRETATION:

The pre-remedial study showed that only 16% of paediatric patients on iron chelators had serum ferritin below 1000 mcg/L. The ABNA was 59%. The contributing factors were inadequate counselling (n=38), poor compliance with medications (n=26), and poor compliance with diet restrictions (n=22).

STRATEGIES FOR CHANGE:

A detailed counselling checklist and an all-inclusive counselling flipchart were prepared. More pharmacists were allocated during clinic sessions, bedside teaching was organised, and the counselling review form was reconstructed. The importance of compliance was emphasised during counselling. Patients were registered in pharmacy value-added service for a medication refill. Comprehensive counselling in managing side effects and correct administration techniques was delivered. Information on the food label, high iron-content food, food that increases iron absorption, and proper cookware was highlighted.

EFFECT OF CHANGE:

The percentage increased from 16% to 32%, then improved to 39%. The ABNA was reduced from 59% to 43% and 36%. Adequate counselling was delivered to all patients. Successful delivery of information regarding medications and diet restrictions helps patients understand the importance of compliance. Patients' compliance with medications improved, and patients' compliance with diet restrictions enhanced as well.

THE NEXT STEP:

We plan to develop a module to establish a Medication Therapy Adherence Clinic for Paediatric Thalassemia.

OP-16

Inisiatif Pergudangan Farmaseutikal Halal Angkatan Tentera Malaysia: Yang Pertama Di Dunia

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Amalan patuh syariah adalah keutamaan seorang muslim. Situasi terkini menunjukkan tiada stor farmaseutikal dipersijilkan halal JAKIM di Malaysia. Inisiatif bagi mendapatkan pengiktirafan halal tersebut amat penting sebagai menyokong Pelan Tindakan Perkhidmatan Kesihatan ATM 2030 yang terkandung empat komponen Amalan Baik Perolehan, Pergudangan, Pengagihan dan Penggunaan Ubat (4P) dalam Prinsip Amalan Farmasi Patuh Syariah (PAFPS).

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Bilangan stor yang akan dipersijilkan halal JAKIM melalui pematuhan Standard Malaysia, Sistem Pengurusan Rantaian Bekalan Halal – Pergudangan (MS 2400-2:2019).

PROSES PENGUMPULAN MAKLUMAT:

Kajian ini dilaksanakan dari November 2020 hingga Mac 2022 di tujuh buah stor yang menguruskan 1465 produk farmaseutikal dan bekalan logistik perubatan. Kaedah penentuan kategori halal produk berdasarkan kod warna hijau/kelabu/merah menggunakan *Halal Pharmaceutical Decision Tree (HPDT)* adalah suatu yang nobel dan dibangunkan hasil perbincangan bersama *Halal Subject Matter Experts. HPDT* menganalisa sumber bahan aktif dan eksipien yang berpotensi bersumber daripada haiwan dan bahan yang haram dimakan berdasarkan prinsip syariah Islam. *Halal Critical Points (HCP)* merupakan titik/prosedur yang perlu dikawal bagi menjamin integriti halal produk dan proses.

ANALISIS DAN INTERPRETASI:

1465 bilangan produk dianalisa menggunakan *HPDT* menunjukkan sebanyak 94% produk adalah berstatus hijau, 4% kelabu dan 2% merah. Pengasingan yang jelas bagi memelihara integriti halal semasa proses 4P melibatkan sebanyak 13 *HCP* dikenalpasti dan dipantau ketat melalui Pelan Pengurusan Risiko Halalan Thoyyiban.

STRATEGI PENAMBAHBAIKAN:

Kesemua produk yang dikategorikan sebagai item hijau/kelabu/merah dibuat pengasingan yang jelas semasa proses 4P. Penambahbaikan dibuat secara serentak bagi kesemua tujuh stor terhadap pengendalian produk berdasarkan kategori halal produk tersebut.

KESAN PENAMBAHBAIKAN:

Implementasi MS2400-2:019 membenarkan produk farmaseutikal dan bekalan logistik perubatan yang ditadbir 93DPPAT berlandaskan PAFPS serta menjamin integriti halal. Tujuh stor 93DPPAT termasuk Stor Farmaseutikal Depot dipersijilkan halal JAKIM pada 16 April 2022 yang merupakan fasiliti kerajaan pertama seumpamanya di dunia.

LANGKAH SETERUSNYA:

Memastikan semua rakan rantaian pembekal dan stor unit dalam fasiliti kesihatan ATM mengadaptasi serta membudayakan Sistem Pengurusan Rantaian Bekalan Halal melalui kitaran *Plan-Do-Check-Act* (PDCA) yang ditetapkan dalam PAFPS.

OP-17

Reducing the Percentage of Metered Dose Inhaler (MDI) Salbutamol Exchange among Patients with Asthma in Health Clinics under *Pejabat Kesihatan Daerah Port Dickson (PKDPD)*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:
In 2019, the percentage of patients who came for an exchange for their MDI Salbutamol was high in the health clinics in PKDPD (68.27%). This could indicate that the patients overused their reliever inhalers, which may worsen the progression of the disease. Therefore, this study aimed to reduce the percentage of MDI Salbutamol exchange to ensure the patient has a good understanding of using MDI to ensure good asthma control.

KEY MEASURES FOR IMPROVEMENT:
The key indicator was measured using the percentage of MDI Salbutamol exchange among patients with MDI Salbutamol in PKDPD. The standard is to reduce the exchange percentage to 35% based on consensus in the Asthma Committee Meeting 2018.

PROCESS OF GATHERING INFORMATION:
A cross-sectional study was conducted using random sampling in five health clinics in PKDPD with 158 subjects. Data to identify contributing factors were collected using a validated questionnaire (Test of Adherence to Inhalers Questionnaire).

ANALYSIS AND INTERPRETATION:
The pre-remedial study showed that the percentage of MDI Salbutamol exchange among patients was 68.27%. The causes included poor technique (63%) and poor compliance with preventers (37%).

STRATEGIES FOR CHANGE:
The strategies were the establishment of the Modified Inhaler Technique Checklist and Asthma Assessment Form, adapted from the Respiratory MTAC. In Cycle 1, we looked into improving the inhaler technique. In cycle 2, we worked on the compliance to preventer inhalers and monitored patients' asthma control.

EFFECT OF CHANGE:
The patient's inhaler technique improved from 8.86% to 20.89%. Patients' compliance with preventer inhalers increased from 50% to 79.7%. Patients with good asthma control improved from 1.26% to 5.06%. MDI Salbutamol exchange percentage was reduced from 68.27% to 62.35% in cycle 1 to 45.55% in cycle 2. Achievable benefit not achieved (ABNA) was narrowed from 33.27% to 27.35% and finally to 10.55%.

THE NEXT STEP:
In cycle 3, we will incorporate a Multilanguage Visual Counselling Aid (Malay, Mandarin, and Tamil) to ensure better understanding.

OP-18

Improving the Image Quality of Cervical Spine Radiographs in the Radiology Department, *Hospital Melaka*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

A suboptimal cervical spine radiograph may result in delayed diagnosis. Thus, the quality of cervical spine radiographs can be improved by implementing certain measures.

KEY MEASURES FOR IMPROVEMENT:

Our indicator is the percentage of optimal cervical spine radiographs with a standard of 70%.

PROCESS OF GATHERING INFORMATION:

This was a cross-sectional study in two phases. Pre-remedial was from 21st September 2020 to 2nd October 2020. All the cervical spine radiographs were included (47 cases), using two checklists. The patient's understanding was assessed based on the ability of a patient to follow >50% of the instructions during the procedure. This was followed by a post-remedial study from 1st May 2022 to 6th May 2022, with 30 cases collected.

ANALYSIS AND INTERPRETATION:

There were 70.3% of suboptimal cervical spine radiographs. The percentage of optimal lateral (LAT) radiographs was low (29.8%), but the percentage of optimal anteroposterior (AP) radiographs was acceptable (70.2%). The contributing factors for the suboptimal study were the rotated position of the patients in LAT (61.7%), selection of supine position (81.8%), patient's body weight >60 kg (93.3% - 100%) and poor patient understanding of the procedure (72.2%).

STRATEGIES FOR CHANGE:

We introduced a Neck Board with a Flexible Strap and Power Tank to improve the techniques of performing radiographs. Explanatory videos/flip charts are introduced to the patients to improve understanding.

EFFECT OF CHANGE:

The optimal cervical spine radiograph improved from 29.7% to 46.7%. The Achievable Benefit Not Achieved (ABNA) reduced from 40.3% to 23.3%. The percentage of LAT radiographs with the rotated position was reduced (from 61.7% to 10.0%). The percentage of optimal radiographs on standing/sitting was improved (32.0% to 92.3%) with no improvement in the supine position. The optimal radiographs improved (6.7% to 53.9%) in patients >60-80 kg. In patients with good understanding, the percentages of optimal radiographs improved (31.0% to 78.6%).

THE NEXT STEP:

We have introduced additional remedial measures and more detailed steps in the process of care.

OP-19

Mengurangkan Pembaziran Hidangan Protein (HP) di Kalangan Pesakit yang Memerlukan Diet Tinggi Protein (DTP) di Wad Pembedahan dan Onkologi

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Pesakit yang menjalani pembedahan dan rawatan onkologi memerlukan DTP. Pesakit dihidang 3-4 HP dalam satu waktu makan. Pembaziran didapati berlaku daripada praktis ini dan boleh menyebabkan kerugian kerana kos DTP lebih mahal (RM10) berbanding diet normal (RM7).

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Kajian ini mengukur peratus jumlah pembaziran HP dengan standard ≤26% berdasarkan kajian pembaziran diet dan strategi perubahan oleh Peter & Karen, 2011.

PROSES PENGUMPULAN MAKLUMAT:

Kajian hirisan lintang dijalankan untuk menilai jumlah pembaziran HP dan mengenalpasti faktor penyebab pembaziran. Subjek kajian adalah pesakit yang menerima hidangan DTP di wad pembedahan dan onkologi. Borang kaji selidik digunakan untuk mendapat maklumat pesakit dan maklumbalas diet. HP ditimbang sebelum dan selepas pesakit makan bagi mengukur jumlah pembaziran.

ANALISIS DAN INTERPRETASI:

Jumlah pembaziran HP sebelum langkah penambahbaikan adalah 63.5% (ABNA=37.5%). Faktor penyumbang yang dikenalpasti adalah pemberian DTP secara automatik tanpa rujukan pegawai dietetik, pesakit tidak dapat menghabiskan HP yang banyak dalam satu masa, pesakit makan diet dari luar dan tahap kepuasan pesakit yang rendah terhadap diet.

STRATEGI PENAMBAHBAIKAN:

Porsi HP diagihkan kepada empat waktu makan berbanding dua waktu makan sebelum kajian dijalankan. Pesanan diet secara automatik telah dibatalkan dan semua pesakit perlu dirujuk kepada pegawai dietetik untuk mendapatkan DTP. Pesakit yang menolak diet hospital diberikan minuman berkhasiat. Menu dan resepi piawai ditambahbaik. Ceramah mengenai kepentingan DTP diberi kepada anggota sajian dan wad. Kempen makan diet hospital turut dijalankan.

KESAN PENAMBAHBAIKAN:

Jumlah pembaziran telah berkurang dari 63.5% kepada 27.5% (ABNA=1.5%) selepas langkah penambahbaikan dilaksanakan. Jumlah kos yang terbazir juga berkurang daripada 51.4% kepada 16% dimana nilai pembaziran dapat dikurangkan daripada RM 1.50 kepada RM 0.35 per HP.

LANGKAH SETERUSNYA:

Kaedah penambahbaikan perlu diteruskan di semua wad. Pembatalan pesanan DTP bagi pesakit yang telah menerima 70% tenaga daripada minuman berkhasiat, sistem pesanan diet atas talian, pelekat pembatalan diet pada tiket pesakit (BHT) dan buku menu di wad perlu diwujudkan.

OP-20

Improving Utilisation of Parenteral Iron Therapy for Treatment of Iron Deficiency Anaemia (IDA) in Medical Wards of *Hospital Kuala Lumpur*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Blood transfusion has been used routinely for the treatment of IDA. However, there is an urgency to conserve blood due to a marked decline in blood donation rate during the COVID-19 pandemic. Parenteral iron is proven to be an efficacious alternative in treating IDA. A verification study showed only 9.3% of IDA patients received parenteral iron.

KEY MEASURES FOR IMPROVEMENT:

The key indicator for improvement was measured using the percentage of IDA patients who received parenteral iron. The standard is 40% based on haematologist consensus and practice in tertiary hospitals abroad.

PROCESS OF GATHERING INFORMATION:

A quality improvement study was conducted using convenience sampling in five medical wards from September 2020 until July 2022 in two consecutive phases. All IDA patients with traceable records were included, with a total of 182 subjects. A survey was conducted among healthcare providers (HCP) to identify contributing factors to the underutilisation.

ANALYSIS AND INTERPRETATION:

The pre-remedial study revealed only 9.3% of IDA patients received parenteral iron. Main contributing factors include lack of confidence in using parenteral iron (52.8%), cost concerns (20.2%), lack of trained staff for monitoring (15.7%) and no protocol to guide its use (15.7%).

STRATEGIES FOR CHANGE:

Parenteral Iron Infusion Protocol (PREFER) was developed. Several continuous medical and nursing education sessions were conducted for training and to introduce PREFER. More strategies were building a PREFER website with the feature of a smart dose calculator, poster displays in wards and adding a newer formulation of parenteral iron to the hospital formulary.

EFFECT OF CHANGE:

The percentage increased from 9.3% to 20.6% in cycle 1, then improved to 33.3% in cycle 2. Achievable benefit not achieved improved from 30.7% to 20.6% and finally to 6.7%. We have successfully conserved 100 pints of blood and saved RM7580.00 per month by utilising parenteral iron therapy.

THE NEXT STEP:

We plan to expand the study to other disciplines and publish PREFER at the state and national levels.

OP-21

Reducing the Percentage of Fissure-filled Teeth Failure among Primary Schoolchildren in Perlis

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Fissure sealant covers tooth fissures to prevent caries in children. A verification study showed that only 15.6% of fissure-filled teeth were intact after six months of application among primary schoolchildren in Perlis. Failure of fissure sealant leads to caries of vulnerable teeth and worsening clinical outcomes.

KEY MEASURES FOR IMPROVEMENT:

The key indicator for improvement was measured using the percentage of fissure-filled teeth failure after six months of application among primary schoolchildren. A standard of 15% was set based on expert consensus.

PROCESS OF GATHERING INFORMATION:

Data were collected from January 2018 to December 2020 involving three phases: i) verification study, ii) implementation of remedial measures (2 cycles) and iii) re-evaluation post-intervention (2 cycles). The study population includes primary schoolchildren in Perlis. Data were collated from clinical oral examination and patient records.

ANALYSIS AND INTERPRETATION:

The pre-remedial study showed that 84.4% of fissure-filled teeth failed after six months of application. Potential contributing factors include improper isolation technique (30.8%), use of inferior retention material (81.5%), 2-handed dentistry practice (30.8%) and incorrect tooth selection (49.2%).

STRATEGIES FOR CHANGE:

Remedial measures include a checklist designed for fissure sealant application procedure, conducting continuous dental education (CDE) and chair-side training on proper sealant application techniques, redistribution of portable suction to the dental school team, and the introduction of our innovative product – a dental suction anchorage instrument (Suction Anchorage Utility Holder – SAUH) to aid in 2-handed dentistry in a limited-resource setting.

EFFECT OF CHANGE:

The first cycle of evaluation observed an inadequate percentage reduction of fissure-filled teeth failure from 84.4% to 43.1%. Upon implementing the SAUH project and redistribution of portable suction, further reduction to 10.8% was achieved, exceeding the standard set of ≤ 15%.

THE NEXT STEP:

The developed procedural guideline and training module will be continued at the state level. We aim to have our SAUH project replicated at the national level to benefit facilities with limited resources in providing high-quality dental care.

POSTER PRESENTATION

PP-01

Mengurangkan Pembaziran Produk Susu Enteral di Hospital Tawau

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Pemberian susu enteral adalah sokongan pemakanan yang diberikan kepada pesakit untuk memperbaiki dan mengekalkan keseluruhan nutrisi pesakit. Sokongan pemakanan membantu mengoptimakan keperluan nutrisi pesakit bagi membantu proses penyembuhan pesakit di wad. Oleh itu, kekurangan produk enteral boleh menyebabkan gangguan ataupun kelambatan proses penyembuhan pesakit. Kajian ini bertujuan untuk mengurangkan masalah pembaziran produk enteral di Wad Pembedahan dan Perubatan Hospital Tawau.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Indikator bagi kajian ini ialah jumlah harga produk enteral yang dibazirkan. Standard yang ditetapkan adalah pembaziran tidak melebihi RM1000.00.

PROSES PENGUMPULAN MAKLUMAT:

Satu kajian verifikasi dengan menggunakan borang audit bekalan enteral telah dilakukan pada bulan Mac sehingga Ogos 2019 mendapati jumlah pembaziran adalah sebanyak RM5,879.00. Kajian selepas penambahbaikan kitaran pertama telah dilakukan pada Julai sehingga Disember 2021.

ANALISIS DAN INTERPRETASI:

Melalui data dan pemerhatian yang diperolehi, faktor utama pembaziran adalah faktor pesakit seperti pesakit discaj, pesakit bertukar jenis produk dan pesakit berpuasa. Selain itu, jenis pembungkusan yang tidak sesuai, faktor staf di wad dan tiada sebarang pendedahan kepentingan produk enteral.

STRATEGI PENAMBAHBAIKAN:

Bagi mengatasi masalah ini, langkah penambahbaikan yang telah dilaksanakan adalah dengan menjalankan audit 2 kali sebulan, menggunakan plastik yang lebih tebal untuk pembungkusan semula, penggunaan semula produk enteral, produk diberikan kepada pesakit yang discaj untuk digunakan di rumah, memberikan ceramah berkaitan pengurusan produk enteral kepada para jururawat.

KESAN PENAMBAHBAIKAN:

Selepas intervensi dijalankan, jumlah pembaziran pada Julai sehingga Disember 2021 dapat dikurangkan kepada RM198.00.

LANGKAH SETERUSNYA:

Kami bercadang untuk mengaplikasikan langkah penambahbaikan dalam amalan kerja harian dan dilakukan secara berterusan di Hospital Tawau untuk mengurangkan lagi pembaziran produk enteral.

PP-02

Increasing the Percentage of Postnatal Modified Glucose Tolerance Testing (MGTT) among Patients with Gestational Diabetes Mellitus in *Klinik Kesihatan Sitiawan*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Post-natal diabetic screening among patients with Gestational Diabetes Mellitus (GDM) is low in *Klinik Kesihatan Sitiawan*. In 2019 only 78.9% GDM patients had postnatal MGTT. This may lead to late detection of Diabetes Mellitus and complications. This study aims to increase the percentage of post-natal MGTT among GDM patients in *Klinik Kesihatan Sitiawan.*

KEY MEASURES FOR IMPROVEMENT:

The indicator is the percentage of post-natal MGTT done at 6-8 weeks post-natal period. The standard is 100%.

PROCESS OF GATHERING INFORMATION:

This is a cross-sectional study using universal sampling. Sample sizes during the pre-remedial phase (1/7/2020-31/12/2020) and post-remedial phase (1/7/2021-31/12/2021) were 148 and 139, respectively. Data on determining the contributing factors, including knowledge among patients and staff, documentation and time factor, were collected using questionnaires and reviewed antenatal records.

ANALYSIS AND INTERPRETATION:

Pre-intervention, only 88.6% of GDM patients underwent post-natal MGTT. Contributing factors identified were poor knowledge (27.7%), misperceptions of MGTT as time-consuming amongst GDM patients (71.0%), poor knowledge and misunderstood the importance of a timely MGTT amongst staff (27.5%).

STRATEGIES FOR CHANGE:

Training sessions and monthly card audits were carried out to improve the knowledge among staff. Health education to GDM patients was given during antenatal and post-natal to enhance knowledge and awareness. A reminder system and defaulter tracing were implemented for better compliance. Fast registration helps shorten the MGTT procedure. Health education includes sharing information regarding MGTT using website links with infographics.

EFFECT OF CHANGE:

The percentage of post-natal MGTT among GDM patients during the post-remedial phase had increased to 100%. Improving knowledge and increased awareness among patients helps achieve the target. Health education includes sharing information regarding MGTT using website links with infographics. Post remedially, only 29% of patients perceived MGTT as time-consuming.

THE NEXT STEP:

The Quality Assurance (QA) study's strategies will be replicated in other health clinics in Manjung.

PP-03

Menurunkan Kejadian Anemia pada Akhir Kehamilan di Daerah Setiu

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Di seluruh daerah Setiu, peratus anemia pada akhir kehamilan iaitu paras hemoglobin kurang daripada 11.0gm/dl ketika usia kehamilan 35-37 minggu dan 6 hari pada Januari-Jun 2019 meningkat kepada 9% berbanding 5.9% pada 2018 dan telah melebihi standard ≤ 7.0%.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Projek ini dijalankan untuk melihat faktor-faktor penyumbang kepada peningkatan kes anemia bagi merangka strategi penambahbaikan untuk mengurangkan kejadian anemia pada akhir kehamilan. Indikator bagi projek ini ialah peratus pesakit mempunyai anemia pada akhir kehamilan dengan standard ≤7.0%.

PROSES PENGUMPULAN MAKLUMAT:

Satu kajian retrospektif telah dijalankan untuk menentukan peratus anemia pada akhir kehamilan berdasarkan reten KIB201A pada Julai 2019 serta kajian hirisan lintang untuk melihat tahap pengetahuan anggota serta pengetahuan, sikap dan praktis pesakit dengan menggunakan borang kaji selidik. Kajian selepas intervensi dijalankan semula pada Jun 2021.

ANALISIS DAN INTERPRETASI:

Analisis kajian verifikasi dibuat dengan merujuk Reten KIB201A. Didapati pada Januari hingga Jun 2019 kes anemia di daerah Setiu tinggi iaitu 9%. Faktor penyumbang dikenal pasti seperti rawatan tidak optima, anggota kurang pengetahuan tentang pengendalian anemia, pesakit kurang pengetahuan serta tidak patuh terhadap tatacara pengambilan zat besi.

STRATEGI PENAMBAHBAIKAN:

Proses kerja pengendalian kes anemia ditambahbaik termasuk pengambilan serum ferritin yang lebih awal serta penggunaan intravena *iron sucrose* yang diberi di Hospital Setiu. Perbincangan dan pembentangan kes anemia dijalankan pada setiap bulan. “Kit anemia” yang terdiri daripada roda anemia, risalah, kad tablet zat besi serta carta hematinik digunakan sebagai alat bantuan pengurusan anemia.

KESAN PENAMBAHBAIKAN:

Peratus anemia pada akhir kehamilan di daerah Setiu menurun daripada 9% (Januari-Jun 2019) kepada 0.95% (Januari-Jun 2021). Tahap pengetahuan anggota meningkat daripada 21% kepada 89%. Kepatuhan pengambilan zat besi meningkat daripada 43% kepada 85%. Hanya 28% sahaja pesakit yang mempraktikkan pengambilan teh dan kopi bersama hidangan utama. Pengetahuan pesakit tentang makanan tinggi zat besi meningkat dari 51% kepada 85%.

LANGKAH SETERUSNYA:

Ujian *serum ferritin* perlu dijalankan lebih awal dan penggunaan intravena *iron sucrose* diperluaskan dan dibenarkan diberi di semua klinik kesihatan.

PP-04

Meningkatkan Peratusan Pemulihan Kes *Positional Talipes* di Hospital Tuanku Fauziah

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Pemantauan mendapati proses pemulihan kes *positional talipes* adalah perlahan di Hospital Tuanku Fauziah di mana pesakit memerlukan tempoh rawatan melebihi tiga bulan di Unit Pemulihan Carakerja (UPCK) sebelum discaj. Kajian verifikasi menunjukkan hanya 45.0% pesakit mencapai posisi normal dalam tempoh tiga bulan rawatan.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Indikator utama ukuran penambahbaikan adalah peratusan pencapaian posisi normal kes *positional talipes* dalam tempoh tiga bulan penerimaan rawatan di UPCK. Standard ditetapkan pada ≥80%.

PROSES PENGUMPULAN MAKLUMAT:

Kajian keratan lintang dijalankan dalam dua fasa dari 1 Jun 2018-30 November 2018 dan 1 Januari 2019-30 Jun 2019. Penilaian kepatuhan rawatan di rumah dan kerjasama ibu bapa/penjaga ditentukan melalui borang kaji selidik waris, penilaian tahap pengetahuan kakitangan dalam rawatan *positional talipes* ditentukan melalui borang kaji selidik terapis, manakala penilaian kemahiran kakitangan dalam rawatan *positional talipes* ditentukan melalui senarai semak seliaan. Penilaian diteruskan secara tahunan sehingga 2021 bagi menentukan kelestarian projek.

ANALISIS DAN INTERPRETASI:

Dapatan kajian pra-intervensi (*n*=62) menunjukkan 55% pesakit tidak mencapai posisi normal dalam tempoh tiga bulan menjalani rawatan. Antara faktor penyebab yang dikenalpasti adalah ketidakseragaman amalan kerja di kalangan kakitangan (100%), kakitangan kurang kompeten (64%), kurang kepatuhan rawatan di rumah (58%) dan kurangnya komitmen ibu bapa (33%).

STRATEGI PENAMBAHBAIKAN:

Penstrukturan semula sistem pengurusan rawatan dilaksanakan dengan mewujudkan garis panduan setempat, seliaan terapis baru, latihan untuk terapis, mewujudkan risalah dan video untuk pendidikan penjaga, penjadualan temujanji susulan yang sistematik, ‘*personal coaching*’ bagi penjaga kurang mahir dan bermasalah menghadiri temujanji serta mewujudkan kumpulan sokongan keluarga.

KESAN PENAMBAHBAIKAN:

Penilaian semula (*n*=66) mendapati peratusan kes *positional talipes* mencapai posisi normal meningkat daripada 45% kepada 88%. Faktor penyebab seperti ketidakseragaman amalan kerja di kalangan kakitangan (20%), kakitangan kurang kompeten (20%), kurang kepatuhan rawatan di rumah (15%) juga menurun. Kajian tahap kepuasan pelanggan menunjukkan peningkatan 20% selepas intervensi dilakukan.

LANGKAH SETERUSNYA:

Tatacara perawatan dan strategi penambahbaikan yang dijalankan wajar dilestarikan dan dikembangkan ke peringkat nasional bagi memastikan pengurusan kes *positional talipes* yang berkesan di seluruh negara.

PP-05

Reducing the High Incidence of Phlebitis among Children in General Paediatric Ward *Hospital Pulau Pinang*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Cannula insertion is the commonest procedure in a general paediatric ward. Data from January 2019 showed that 8% of hospitalised children in our ward developed phlebitis. Children with phlebitis endured pain and prolonged hospitalisation with additional antibiotic use, thus incurring additional costs to the Ministry of Health (MOH).

KEY MEASURES FOR IMPROVEMENT:

This project aimed to reduce the incidence of phlebitis to ≤2.5%. Phlebitis is determined by Visual Infusion Phlebitis (VIP) score of ≥2 among hospitalised children.

PROCESS OF GATHERING INFORMATION:

A quality improvement study of 3 phases (1 pre-remedial and 2 cycles post-remedial) was carried out in December 2019-February 2021. Patients requiring cannulation within the first seven days of admission were included. Daily scoring of VIP charts was used to determine the incidence of phlebitis, observational checklists to evaluate cannula care and cannula anchoring and stabilising techniques and a questionnaire to assess caregivers' awareness of phlebitis.

ANALYSIS AND INTERPRETATION:

The pre-remedial phase of phlebitis incidence was 8.8%. Shortfalls include inappropriate anchoring and stabilising of cannula (60%) and non-compliance to aseptic technique (50%). Only 16.7% of parents were aware of cannula care, 27.3 % of nurses complied with standard cannula care and 30% used the VIPS chart.

STRATEGIES FOR CHANGE:

A standardised way of anchoring with new anchoring material (tubular fixator) was introduced to ensure visibility of the insertion point. Monthly house officers' teaching was organised on the aseptic cannulation technique. Cannula care also became a compulsory topic during nurses' CNE teaching. Parents were educated upon ward orientation on cannula care and reminded via posters.

EFFECT OF CHANGE:

Post-remedial, the incidence of phlebitis reduced from 8.8% to 1.2%. Contributory factors were improved as compared to the pre-remedial phase; parents' empowerment (6.7% to 70%), early detection (30% to 100%) and new anchoring material with compliance to the aseptic technique (50% to 75%).

THE NEXT STEP:

We aim to share these strategies with other hospitals and perform a regular audit cycle to ensure sustainability.

PP-06

Improving Patient Adherence to Diabetes Medication Therapy Adherence Clinic (DMTAC) Follow-up Appointments in *Hospital Kuala Lumpur (HKL)*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Regular follow-up appointments with DMTAC pharmacists ensure patients' treatment responses are monitored and interventions can be performed if needed. However, a verification study revealed only 14.8% of patients attended four or more DMTAC visits in 6 months. Patients who defaulted visits will lead to poor medication adherence and worsening clinical outcomes.

KEY MEASURES FOR IMPROVEMENT:

The indicator was measured using the percentage of patients who attended at least 4 DMTAC appointments in 6 months. The standard is 100% set by the Pharmaceutical Services Division, Ministry of Health.

PROCESS OF GATHERING INFORMATION:

A quality improvement study (pre- and post-remedial) was conducted from December 2019 until July 2021 using universal sampling for 53 subjects who meet the inclusion criteria. Contributing factors were identified by interview and data for indicators was collected from Pharmacy Information System (PhIS).

ANALYSIS AND INTERPRETATION:

A verification study revealed that 85.2% of patients did not achieve at least 4 DMTAC appointments in 6 months. Contributing factors of defaulted scheduled appointments included busy with work (23%), logistic issues (20%), reluctance to attend due to the COVID-19 pandemic (20%) and forgetfulness (17%).

STRATEGIES FOR CHANGE:

Strategies include conducting DMTAC sessions using Tele-Smart service. Patients will send their self-monitoring blood glucose (SMBG) readings through smartphone messaging applications before being counselled by telephone, so they do not need to come to the hospital. Reminders of upcoming DMTAC appointments were given through calls or texts. DMTAC contact number is highlighted inside revised SMBG booklets to make it convenient for patients to call if they are unable to come and to get new appointment dates.

EFFECT OF CHANGE:

The percentage of patients attending at least 4 DMTAC visits increased from 14.8% to 61.5% post-remedial. Achievable benefit not achieved improved from 85.2% to 38.5%.

THE NEXT STEP:

Video phone call counselling will be introduced in Cycle 2. We plan to share these remedial actions with other MTAC services in HKL and to further investigate on factors affecting glycaemic control.

PP-07

Increasing the Percentage of Pap Smear Screening among Women Aged 30-65 Years Old in Tanah Puteh Health Clinic (KKTP)

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Pap smear (PS) screening can detect the earliest signs of cervical cancer. However, from 2017-2021, KKTP failed to achieve the PS screening target for women aged 30–65.

KEY MEASURES FOR IMPROVEMENT:

The percentage of women aged 30-65 who performed PS screening from the total eligible women attending KKTP in 2022 with a standard of 40%.

PROCESS OF GATHERING INFORMATION:

Cross-sectional studies were done to determine the percentage of screening done from 2017 to 2021, level of knowledge, attitude and practice (KAP) on PS among 70 women aged 30-65 who visited KKTP and 81 health care providers (HCP) who were involved in PS service. The survey was done using a validated questionnaire. A list of staff with credentialing and privileging (C&P) to perform PS and *e-Masa* analysis to evaluate waiting time for the procedure was also determined.

ANALYSIS AND INTERPRETATION:

Pre-remedial data showed that the percentage of PS screening was <17% since 2017. The mean score for KAP on PS among patients was 65.57%, 89.86% and 95%. Average KAP scoring among HCP showed that attitude and practice scored lower than knowledge. The mean waiting time was 105 minutes. Only 37% of nurses have C&P for PS.

STRATEGIES FOR CHANGE:

Strategies include monthly campaigns using pamphlets, posters and social media, implementing score cards as a reminder system for HCP to promote PS, creating a fast lane for patients to access the dedicated team for PS and having an internal C&P system.

EFFECT OF CHANGE:

The percentage of screening during the study period increased from 9.56% to 51.22%. The mean scores for patients' KAP were improved to 81.29%, 92.71% and 97.57% and from 78.52%, 63.09%, 47.6% to 90.61%, 71.6%, 53.36% for HCP. Mean waiting time was reduced to 17 minutes.

THE NEXT STEP:

We aim to replicate the strategies in other clinics, create a module for internal C&P and empower the use of score cards as a reminder system for HCP.

PP-08

Reducing the Percentage of Medication Error (ME) Involving Antibiotics Requiring Renal-Dose Adjustment in Orthopaedic Ward *Hospital Melaka*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

One of the most crucial aspects of patient safety is medication safety. A pilot study conducted in Hospital Melaka in December 2020 has shown that the incidence of ME involving antibiotics requiring renal dose adjustment in Hospital Melaka was 8.7%.

KEY MEASURES FOR IMPROVEMENT:

The indicator for this study is the percentage of ME involving antibiotics requiring renal dose adjustment in the Orthopaedic Ward with the standard of 0 ME.

PROCESS OF GATHERING INFORMATION:

The intervention studies were done from 22/2/2021 to 5/3/2021 (cycle 1), followed by 8 to 21/4/2021 (cycle 2), to evaluate the effectiveness of the remedial measures. Prescriptions of antibiotics requiring renal-dose adjustment were screened and those with ME detected were reported in Medication Error Reporting System (MERS) Form.

ANALYSIS AND INTERPRETATION:

The post-remedial studies showed a reduction in the number of ME from 7.7% (cycle 1) to 0% (cycle 2). The contributing factors identified were inadequate knowledge among healthcare workers, an incomplete prescribing policy of antibiotics and incomplete Standard Operational Procedure (SOP) in dispensing antibiotics.

STRATEGIES FOR CHANGE:

An antimicrobial renal adjustment quick guide was developed and placed in the patient's medication profile. Prescriptions were amended by adding a column for creatinine clearance and hemodialysis status. Continuous medical education among healthcare workers was carried out periodically.

EFFECT OF CHANGE:

ABNA shows a reduction in the percentage of ME detected. All healthcare workers are more alert to check for patients' renal profiles upon prescribing, preparing, dispensing and administering antibiotics to patients.

THE NEXT STEP:

To standardise prescription form with additional columns for creatinine clearance and dialysis status for all wards in Hospital Melaka and eventually nationwide.

PP-09

Reducing the Incidence of Near Miss Chemotherapy Errors in Oncology Department of *Hospital Kuala Lumpur*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Chemotherapeutic agents have a narrow therapeutic window; any errors can lead to significant harm or even death. Between 2018 to 2020, the Oncology Department reported six cases of actual chemotherapy errors that caused adverse events to patients. Reducing near miss chemotherapy errors can minimise the risk of actual errors that may harm patients.

KEY MEASURES FOR IMPROVEMENT:

Near-miss errors are errors that did not reach the patient either by chance or intervened during medication use. The standard of near miss chemotherapy errors in the Oncology Department was set at 0.6%, based on a previous study from the literature review.

PROCESS OF GATHERING INFORMATION:

Errors detected or intervened during prescribing, preparation, dispensing or before administration of chemotherapy were recorded in a data collection form. A survey to identify factors leading to chemotherapy errors was conducted concurrently with the pre-remedial study in August 2020. Subsequently, remedial measures were carried out in two cycles in November 2020 and March 2021, after which a cross-sectional study was conducted for two months at the end of each cycle.

ANALYSIS AND INTERPRETATION:

The verification study revealed that the rate of near miss chemotherapy error was 1.15% prior to remedial measures. Incomplete documentation, no standardisation of practice, staff inexperience, and lack of counterchecking contributed to the problem.

STRATEGIES FOR CHANGE:

The strategies taken in the first cycle were updating the current cytotoxic drug reconstitution (CDR) request form and conducting continuous medical, pharmacist, and nursing education. In the second cycle, further improvement to the CDR request form was made, and the “check-it-right” checklist was introduced during chemotherapy dispensing.

EFFECT OF CHANGE:

After Cycle 1, the percentage of near-miss chemotherapy errors reduced to 0.83%. It was further reduced to 0.52%, achieving the target set after implementing Cycle 2 remedial measures.

THE NEXT STEP:

A multidisciplinary effort is essential in ensuring 0% chemotherapy error. These strategies can be expanded to all wards using chemotherapy in Hospital Kuala Lumpur.

PP-10

Increasing the Attendance of Antenatal Mothers in Need of Dental Treatment from Maternal and Child Health Clinic, *Klinik Kesihatan Bandar Alor Setar* (MCH KKBAS) to *Klinik Pergigian Alor Setar* (KPAS)

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

The attendance of antenatal mothers needing dental treatment from MCH KKBAS to KPAS is important to reduce undesirable oral health effects. Pre-intervention study in 2019 showed only 16% of attendance. We aimed to increase attendance among antenatal mothers by identifying the possible causes of low attendance and implementing appropriate remedial measures.

KEY MEASURES FOR IMPROVEMENT:

The indicator was measured as the percentage of attendance of antenatal mothers in need of dental treatment from MCH KKBAS to KPAS. Standard is >90% based on State Key Performance Indicator.

PROCESS OF GATHERING INFORMATION:

A quality improvement study was conducted in two consecutive phases from April 2019 to December 2019. We distributed questionnaires to 187 antenatal mothers, 12 MCH nurses and 18 KPAS officers to identify contributing factors to low attendance.

ANALYSIS AND INTERPRETATION:

Pre-intervention, 75% of antenatal mothers showed dissatisfaction with the quality of dental care services; 64% had misperceptions about the safety of dental treatment during pregnancy; 61% had a dental phobia. 67% of dental officers were less knowledgeable in antenatal dental care services, and 58% of MCH nurses had a misperception about referring antenatal patients needing dental treatment to KPAS.

STRATEGIES FOR CHANGE:

The implemented strategies for change include: (i) Modified workflow for MCH nurses; (ii) a Mini dental clinic set up at MCH for oral health education and simple dental treatments; (iii) Reminder calls before appointments; (iv) Antenatal CPD courses for dental officers.

EFFECT OF CHANGE:

The percentage of dental attendance increased from 16% to 66%. There was a significant decrease in dissatisfaction, misperception, and fear among antenatal mothers. Dental officers' knowledge was improved. Referrals from MCH staff were increased. Achievable benefit not achieved was reduced from 74% to 24% and later 21%.

THE NEXT STEP:

Strategies of change will be continued, and replication proposed to all dental clinics. We plan to collaborate with *Majlis Agama Islam Negeri Kedah* for the inclusion of antenatal oral health education during the pre-marriage course.

PP-11

An Improvised Strategy to Improve Glycaemic Control among Diabetic Women of Reproductive Age Under Follow-Up at Health Clinics in Perlis

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Pre-pregnancy care (PPC) is an important part of diabetic care among women in the reproductive age group. However, the verification study in October 2021 showed that 77.8% of diabetic women registered in the PPC program had poor glycaemic control (HbA1c ≥6.5%). Poor optimisation of the glycaemic index may worsen clinical and feto-maternal outcomes if these women become pregnant.

KEY MEASURES FOR IMPROVEMENT:

The key measure for improvement was the percentage of diabetic women in PPC with HbA1c reduction ≥0.5%. The standard was ≥35% of diabetic women, based on an interventional study that re-emphasised lifestyle modification to patients and the State Diabetes Clinical Meeting consensus.

PROCESS OF GATHERING INFORMATION:

Questionnaires were used to assess Knowledge, Attitude, and Practice among staff and patients to identify the contributing factors. Implementation of remedial measures was conducted from November 2021-March 2022. A post-intervention evaluation was performed in April 2022 by auditing patients' diabetic records and HbA1c readings.

ANALYSIS AND INTERPRETATION:

The pre-remedial percentage of diabetic women of reproductive age registered in the PPC program with good glycaemic control was only 22.2%. The main contributing factors were poor patient diabetes knowledge (58.9%), poor self-care behaviour among patients (57.0%) and lifestyle modification intervention not being given (51.2%).

STRATEGIES FOR CHANGE:

A lifestyle modification intervention program was conducted involving a multidisciplinary team. Patients were invited into a broadcasting information WhatsApp group and enrolled on a Self-Monitoring Blood Glucose (SMBG) program. An education kit, available as printed and e-documents, was created to aid medical personnel in educating about diabetes and pregnancy. Staff training was conducted to empower staff in facilitating the lifestyle modification intervention.

EFFECT OF CHANGE:

Analysis showed that post-intervention, 31.8% of diabetic women showed a reduction of HbA1c reading ≥0.5%.

THE NEXT STEP:

Further measures to strengthen the lifestyle intervention diabetes program are needed to ensure diabetic women achieve good glycaemic control. Community involvement in the KOSPEN programme would ensure its sustainability as a patient-centred community-based program.

PP-12

Increasing the Percentage of Discharge Prescriptions Dispensed through Bedside Dispensing in *Hospital Kajang*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Medication discrepancies were commonly observed among patients discharged from the ward, leading to potential adverse drug events (PADEs). This can be avoided via Bedside Dispensing (BD). However, the total discharge prescription dispensed through BD was only 30.6%.

KEY MEASURES FOR IMPROVEMENT:

The indicator measured is the percentage of the discharged prescription dispensed through BD. The standard is set at 50% based on the 2018 Plan of Action (POA) of the Pharmaceutical Services Division, Ministry of Health Malaysia (MOH).

PROCESS OF GATHERING INFORMATION:

A quality improvement study was conducted using universal sampling. The percentage of BD was collected from all wards utilising a data collection form.

ANALYSIS AND INTERPRETATION:

During the verification study, only 28% of discharged prescriptions were successfully dispensed through BD. This low percentage is mainly due to BD services being provided to limited wards (28%), specialists deciding to discharge a patient after prescription collection time (19%), doctors prescribing after prescription collection time (18%) and patients not being keen to wait (17%).

STRATEGIES FOR CHANGE:

Remedial strategies were developed based on verification study findings, including expanding the services from one session (10 am – 12 pm) to 8 am – 5 pm working hours and creating notification stickers for BD. Amenities such as Medstocks and BD-Wheels were created to shorten the medication counselling process time. All the remedial measures were done together with awareness training activities.

EFFECT OF CHANGE:

The percentage of BD improved from 28% to 38% in cycle 1 and successfully achieved more than the standard set (≥50%), which was 68% in cycle 2. The patient satisfaction survey improved to 83%. 29 PADEs were able to be avoided during BD. BD also indirectly improved the percentage of patient waiting time in the Pharmacy Outpatient Department as discharged prescriptions received during peak hours were reduced.

THE NEXT STEP:

To introduce a mobile discharge pharmacy which can be done at a single checkpoint.

PP-13

Improve Dietetic Care for Dietary Consultation among Gestational Diabetes Mellitus (GDM) Inpatients in *Hospital Tuanku Ja'afar Seremban* (HTJS), Negeri Sembilan

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

GDM patients should receive individualised Medical Nutrition Therapy to control their blood sugar profile and reduce complications. From 2018-2019, the number of GDM inpatients seen by the dietitian and time consumption for individual dietary consultation increased to 19.8%. As a part of the improvement in dietetic care, this study aimed to reduce time consumption for dietary consultation.

KEY MEASURES FOR IMPROVEMENT:

The indicator was the total monthly time consumed for dietary consultation among GDM inpatients with the standard of ≤2100 minutes per month which is 50% of the average time consumption in the past two years as agreed by the Department Head and group members.

PROCESS OF GATHERING INFORMATION:

A cross-sectional study was conducted among GDM patients in the Obstetrics and Gynaecology wards in two phases. Data was collected from the monthly dietetic census, and a data collection form was created to identify contributing factors.

ANALYSIS AND INTERPRETATION:

From January-March 2020, an average of 98 GDM patients were seen for individual dietary consultations with total time consumption of 4395 minutes per month.

STRATEGIES FOR CHANGE:

Three standardised modules were developed and implemented from July-November 2020 for GDM structured focus group (SFG). The patients were given a meal plan and pictorial handout and needed to answer the knowledge assessment questionnaire. A simplified version of Dietetic Care Notes was attached to the bed head ticket and antenatal book.

EFFECT OF CHANGE:

The average time consumed for dietary consultation per month was reduced to 1782 minutes (59.5%). On average, GDM patients who received dietary consultation increased to 128 patients (30.6%). The impact of SFG GDM has proven a good result, with an average percentage of 83.2% of patients achieving knowledge assessment ≥ 60%.

THE NEXT STEP:

During the pandemic, a virtual structured focus group is expanded to the whole Negeri Sembilan. Another research is conducted to determine the effectiveness of SFG modules among GDM patients via focus group education versus individual counselling (NMRR-20-2467-5665).

PP-14

Increasing the Percentage of Basic Periodontal Examination among Adult Outpatients in *Klinik Pergigian Batu Pahat*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Basic Periodontal Examination (BPE) has been recommended in primary healthcare since 2018. However, only 1.73% of patients received BPE screening in January-June 2019 in *Klinik Pergigian Batu Pahat (KPBP)*, which may cause an increase in the number of patients with periodontal problems without intervention.

KEY MEASURES FOR IMPROVEMENT:

The indicator was the percentage of new adult outpatients receiving BPE in KPBP. The standard was set at 30%.

PROCESS OF GATHERING INFORMATION:

This study was conducted from July 2019-December 2021. A self-administered questionnaire on BPE knowledge and observation of procedural conduct were assessed among 68 dental officers in KPBP. The percentage of BPE performed was obtained from the patient log.

ANALYSIS AND INTERPRETATION:

Despite adequate BPE knowledge, suitable pressure (35.3%) and the required teeth for examination (36.8%), questions were the most incorrectly answered. The main reasons for poor BPE practice were time limitation for BPE (50%) and chairside counselling (86.8%), increased workload (44.1%) and difficulty in establishing a routine (41.2%). Most respondents took >2 minutes to perform BPE (58.8%) and oral health education (OHE) (88.2%).

STRATEGIES FOR CHANGE:

The first phase of intervention includes the BPE Procedure Workshop to improve officers' knowledge, the introduction of the BPE wheel guide and the Gum Care Alert Centre (GCAC) for OHE. A BPE card was attached to the treatment card to familiarise the staff with BPE practice. In the second phase, guidelines for GCAC and designated scaling room were provided. A memo letter was introduced in the third phase to improve referral to GCAC.

EFFECT OF CHANGE:

The percentage of BPE screening increased to 14.19% (July-December 2019) and 26.04% (January-December 2020) following the first and second phase intervention. The pre-set standard was successfully exceeded, with 52.57% BPE performed in December 2021, following the third phase intervention.

THE NEXT STEP:

We plan to continue BPE performance monitoring regularly and replicate our strategies at the state level to ensure effective BPE practice in all primary healthcare.

PP-15

Towards High Percentage of Complete Fluoride Varnish Application (FVA) among Toddlers in *Klinik Pergigian Raub* (KPR)

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Fluoride varnish application (FVA) is applied to prevent dental caries among toddlers. Incomplete FVA may pose a higher risk of early childhood caries, causing severe pain and leading to weight loss and malnutrition. However, the percentage of complete FVA in KPR was low.

KEY MEASURES FOR IMPROVEMENT:

The indicator used was the percentage of complete FVA among toddlers, with a standard of ≥30%. A complete FVA is defined as receiving four FVAs within 1.5 years.

PROCESS OF GATHERING INFORMATION:

A quality improvement study was conducted from February 2020 to February 2022. Study instruments include a self-administered questionnaire to dental operators and parents, a dental observation form, and a dental treatment card review.

ANALYSIS AND INTERPRETATION:

The pre-remedial study showed that 12% of toddlers received complete FVA. The causes included inefficient recall system (57%), uncooperative children (57%), lack of parental awareness and support (49%), poor anticipatory guidance (AG) (48%), lack of committed operators (46%), and unreachable parents' contact numbers (33%).

STRATEGIES FOR CHANGE:

Strategies implemented include a tailored toddler's follow-up book, custom FVA stickers, and a recall system through the Whatsapp Business application. Checklists, dental puppets, and reinforced education for operators were used to improve AG. More parental education sessions and *Hari Anakku* were implemented to improve parental awareness. The active promotion was delivered via the clinic's Facebook page, flyers, and video sharing. Behavioural management techniques were reinforced for toddlers with post-treatment rewards.

EFFECT OF CHANGE:

The percentage of complete FVA among toddlers increased from 12% to 19% in cycle 1, then improved to 24% in cycle 2. Achievable-benefit-not-achieved improved from 18% to 11% and finally to 6%. We successfully improved our recall system, the operator's commitment to the FVA programme, and parental awareness.

THE NEXT STEP:

We aim to continually improve FVA promotion, AG sessions, and recall system to reach the standard set at 30%.

PP-16

Impact of Central Line Maintenance Bundle on Catheter-Related Blood-Stream Infection in Critical Care Areas

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Healthcare-Associated Infections prevalence has increased by 1.2% due to an influx of Catheter-Related Bloodstream Infections (CRBSI) in Critical Care Areas (CCA). A quality improvement initiative using the Plan-Do-Study-Act model was commenced from April to December 2021 in all CCA.

KEY MEASURES FOR IMPROVEMENT:

The main goals were to reduce the risk for CRBSI in CCA from 4.4 per 1000 line-days to 3.9 per 1000 line-days.

PROCESS OF GATHERING INFORMATION:

Daily laboratory and clinical surveillance were carried out during pre-implementation (July 2020 to March 2021) and post-implementation (April to December 2021) to assess outcomes from patients with relevant clinical indicators. A compliance audit of the care bundle was conducted to assess staff performance.

ANALYSIS AND INTERPRETATION:

Fifty-one cases were identified from 11,903 patients with lines-days from July 2020 to March 2021. Non-adherence to line care management was an influencing factor in patients acquiring CRBSI. Gaps in practice were observed with 84% bundle compliance. 650 staff did not carry out at least one of the six bundle elements; hand hygiene and daily review of line necessity and line care. Other contributing factors were increased admission of critically ill patients with multiple comorbidities, prolonged length of stay and multiple readmissions from ward to CCA.

STRATEGIES FOR CHANGE:

Action plans included revising components of the Central Line Maintenance Bundle, conducting education programs, regular bedside teaching, developing education videos, optimising antimicrobial selections for CRBSI patients, regular audits, daily assessment of line care maintenance and good hand hygiene practices. Implementing a structured care bundle and standardisation of audit methodology has improved staff understanding.

EFFECT OF CHANGE:

CRBSI rate was reduced to 3.6 per 1000 line-days from April to December 2021 (43 cases from 11,965 patients with line-days). Staff adherence to the revised care bundle increased from 84% to 86%.

THE NEXT STEP:

Continuous monitoring and auditing of staff compliance to ensure the improvement is sustained. We are planning to expand the improvement strategies to all wards.

PP-17

Prevention and Intervention Measures towards Reducing Fall Incidents at Avisena Healthcare

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Fall incident was one of the highest 2019 incidents in Avisena Healthcare, with 14 falls involving inpatients. This study aimed to prevent fall incidents which may lead to prolonged hospitalisation and additional medical expenses for patients.

KEY MEASURES FOR IMPROVEMENT:

The indicator is calculated from the total patient falls over the total admission from 2019 to 2021. The standard is set at zero incident rate.

PROCESS OF GATHERING INFORMATION:

Data were compiled for falls in Paediatric, Medical and Surgical Wards using the Patient Safety Incident Report Form. The study was conducted from 2019-2021. Analysis was performed using London Protocol Root Cause Analysis Investigation Tools. Fall incident was discussed in the Incident Report meeting and cascaded to the departmental level for awareness and learning points.

ANALYSIS AND INTERPRETATION:

Eighteen toddlers and 16 adults' fall incidents were recorded in 2019-2021. All toddler falls happened while patients were inside their room with their parents at a rate of 0.035%. All adult patients fall of their own accord despite reminders to call for assistance, involving one post-surgery patient with a rate of 0.0019%. Thirteen patients with co-morbidities at the rate of 0.025%, and two adult patients fall due to faulty fittings at the rate of 0.003%.

STRATEGIES FOR CHANGE:

Strategies implemented since 2019 include a briefing on fall prevention to patient and guardian upon admission, display of posters in patient's room and close supervision for elderly and post-surgery patients. A pilot project installing anti-slip materials was implemented in 2021 to prevent falls inside patients' toilets.

EFFECT OF CHANGE:

The total fall incidents were reduced from fourteen in 2019 to thirteen in 2020 and seven in 2021. It is equivalent to a fall rate of 0.09% in 2019, reduced to 0.08% in 2020 and reduced further to 0.04% in 2021.

THE NEXT STEP:

Avisena Healthcare will continue to monitor the effectiveness of fall preventive measures toward sustainable reduction in fall incidents in subsequent years.

PP-18

Reducing the Contamination Rate of Urine Culture among Infants in *Klinik Kesihatan Ketereh*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

A contaminated urine culture is defined as the presence of more than one organism at ≥100,000 CFU/ml. The verification study showed a contamination rate of 60.8%. The consequences will generally affect parents' satisfaction and patients' management.

KEY MEASURES FOR IMPROVEMENT:

The key indicator used was the percentage of contaminated samples among infants and the standard set was 40% as per the College of American Pathologists (CAP).

PROCESS OF GATHERING INFORMATION:

A cross-sectional study was conducted using convenience sampling with 76 samples in two phases. Data to identify the contributing factors were collected using a validated questionnaire given to 40 staff in *KK Ketereh*. The non-compliance with sample rejection procedures by *Makmal Kesihatan Awam Kota Bharu (MKAKB)* staff was identified from the laboratory forms.

ANALYSIS AND INTERPRETATION:

The pre-remedial study showed a urine contamination rate of 69.2%. The causes were due to poor knowledge (5%), never attending CME on urine management (75%), improper practice on urine collection (95%), storage (37.5%), and transportation (32.5%). Furthermore, 82.5% preferred using urine bags rather than the clean-catch urine method for collection. Thirteen (13) samples fulfilled the criteria for sample rejection but proceeded for culture.

STRATEGIES FOR CHANGE:

The strategies were CME and practical sessions on managing urine culture and bladder stimulation techniques in infants. Flyers, CDs, and posters were also distributed. Other strategies used were creating awareness during '*Hari Bersama Pelanggan MKAKB*', discussion with their Family Medicine Specialist (FMS), and conducting an audit at their laboratory. The MKAKB staff have been monitored regularly to comply with the rejection procedure.

EFFECT OF CHANGE:

The contamination rate decreased from 69.2% to 43.2% in cycle 1, then improved to 40.6% in cycle 2. Similarly, Achievable Benefit Not Achieved (ABNA) has improved from 29.2% to 3.2% and 0.6%.

THE NEXT STEP:

We plan to expand this study and all the strategies to other health clinics in Kelantan.

PP-19

Reducing the Percentage of Inappropriate Tramadol Prescribing in the Emergency & Trauma Department (ETD) of *Hospital Tuanku Ampuan Najihah (HTAN)*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Tramadol usage in ETD HTAN increased by 45.7% from 2018 to 2020. Tramadol is considered a safe analgesic but is also associated with common and serious side effects. A verification study showed that 76.6% of tramadol prescribing in ETD HTAN was inappropriate.

KEY MEASURES FOR IMPROVEMENT:

The indicator was the percentage of the total number of tramadol prescriptions not following ETD pain management guidelines with a standard of 20% based on the consensus in pharmacy and ETD department meetings. Inappropriate tramadol prescribing in ETD was defined as tramadol prescribed in ETD not in accordance with the Pain Management in ETD Guideline.

PROCESS OF GATHERING INFORMATION:

A cross-sectional study was conducted using universal sampling in an Emergency Pharmacy. A data collection form was used to collect data from ETD prescriptions, while an online questionnaire was distributed to doctors and pharmacists.

ANALYSIS AND INTERPRETATION:

The pre-remedial study (October to December 2020) showed inappropriate tramadol prescribing rate was 76.6%. The achievable benefit not achieved (ABNA) gap was 56.6%. The main causes were not following ETD pain management guidelines among doctors and pharmacists (100%), common prescribing practice among doctors in ETD (86.7%), lack of intervention by pharmacists (77.8%) and low awareness of ETD pain management guidelines among doctors and pharmacists (48.3%).

STRATEGIES FOR CHANGE:

The strategies were the establishment of ETD Pain Management Quick Note, online continuous medical education (CME), and focus group discussions with the Head of ETD for standardising the prescribing practice among doctors according to the guideline.

EFFECT OF CHANGE:

The post-remedial study (September 2021-February 2022) revealed a reduction of inappropriate tramadol prescribing from 76.6% to 18.5%, with ABNA reduced to 0%.

THE NEXT STEP:

We plan to expand the study to ETD in other cluster hospitals. Besides, continuous monitoring and education under the orientation module will be carried out.

PP-20

Reducing High Failure Rate of Computed Tomography Pulmonary Artery/Contrast Enhanced Computed Tomography (CTPA/CECT) Thorax Examinations in Children in *Hospital Seberang Jaya*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

High failure rate of CTPA/CECT Thorax examinations in children (50%) was identified in Radiology Department at Hospital Seberang Jaya in 2019. Consequently, it had led to delayed/inappropriate management and unnecessary radiation dose to the patients due to repeated studies.

KEY MEASURES FOR IMPROVEMENT:

The indicator used was the percentage of failure rate of CTPA/CECT Thorax examinations in children with a standard of <10%.

PROCESS OF GATHERING INFORMATION:

This descriptive cross-sectional study was conducted from January 2019 to January 2022 through a universal sampling method targeting all CTPA/CECT Thorax examinations in children 18 years old and below. Observational and knowledge/performance checklists were utilised to collect the required data and subjected them to further analysis.

ANALYSIS AND INTERPRETATION:

The failure rate of CTPA/CECT thorax examinations in children from May to July 2019 was 40%. The contributing factors were the failure of radiographers in performing optimal CTPA/CECT Thorax (100%), poor image post-processing (90%), poor patient preparation (30%) and equivocal radiologist report (5%). The ABNA was 30%.

STRATEGIES FOR CHANGE:

Dual bolus intravenous contrast injection (DBI) technique is the main new intervention. We also implement continuous CME and training for radiographers, supervision of radiographers, revision of paediatric sedation protocol and reporting CTPA in children under supervision.

EFFECTS OF CHANGE:

The failure rate of CTPA/CECT thorax examinations in children has reduced to 9% in January 2022. Improvement in MOGC is seen as a success in performing CTPA/CECT Thorax (100%), optimum image post-processing (100%), adequate patient preparation (97%) and accurate radiologist report (100%). It helps in procedure cost saving, avoiding unnecessary radiation to patients, providing accurate diagnosis and management, reducing patient's anxiety, parents' absenteeism in the workplace and staffs' workloads.

THE NEXT STEP:

DBI technique has been implemented in the Radiology Department, *Hospital Pulau Pinang* and successfully reduced the failure rate of CTPA examinations in children. We wish to introduce the DBI technique to Radiology Department in other states.

PP-21

Improving Hand Hygiene in Bagan Specialist Centre's Clinical and Non-Clinical Services

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

The hand hygiene compliance in Bagan Specialist Centre (BSC) was not good in 2019, with compliance below 75%. Poor compliance with hand hygiene practice poses a risk of hospital-associated infection and when COVID-19 hits Malaysia, it strengthens the need for hand hygiene compliance among healthcare workers in BSC.

KEY MEASURES FOR IMPROVEMENT:

Hand hygiene compliance at five key moments, as set out by the World Health Organisation (WHO), is the metric employed. The goal was to achieve 80% compliance in all clinical and non-clinical services.

PROCESS OF GATHERING INFORMATION:

Data were acquired using the WHO method for direct observation of "Five Moments for Hand Hygiene". Observations have been done since January 2019 up to the current date.

ANALYSIS AND INTERPRETATION:

The compliance rate in 2019 was 69%, where the rate of non-compliance was higher among consultants and inconsistent compliance rate among the nurses and allied health staff. The key factors identified were sensitivity towards alcohol-based hand rubs, lack of hand hygiene facility and awareness.

STRATEGIES FOR CHANGE:

Multimodal interventions were executed, such as changing the alcohol sanitiser to suit those who are allergic, improving access and readability of the hand hygiene facility, staff training and reward program. The Non-Conformance Report was issued to those services that were unable to achieve a target above 80%, whilst the unit with the lowest level of compliance due to negligence was penalised.

EFFECT OF CHANGE:

Data collected shows that the overall hand hygiene percentage improved from 69% (2019) to 78% (2020) and 88% (2021). Most of the services showed improvement except for the Central Sterile Service Department and housekeeping. Some services manage to maintain >85% compliance. Several critical areas experienced reductions.

THE NEXT STEP:

The next target is to attain the largest percentage of compliance in the critical area. Additional research will be conducted to improve the respective services.

PP-22

Increasing the Percentage of Correct Medication Administration via Nasogastric Tube in *Hospital Kajang*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Incorrect medication administration reduces medication effectiveness, increases adverse effects, causing various interactions and clogging feeding tubes. These subsequently cause increased morbidity, mortality and hospitalisation cost. The pre-remedial study showed 0% of medication was correctly administered via nasogastric tube (NGT).

KEY MEASURES FOR IMPROVEMENT:

The study aimed to increase the percentage of correct medication administration via NGT to the standard of 100%. A medication administration is correct only when all the criteria of prescribing, screening, supplying, preparation and administration in the audit form are fulfilled.

PROCESS OF GATHERING INFORMATION:

A quality improvement study was conducted using universal sampling in ICU. Data on medication administration was collected using an observational audit form for 210 samples. A validated self-administered questionnaire was distributed to 158 healthcare professionals to assess their knowledge and identify the barriers.

ANALYSIS AND INTERPRETATION:

The pre-remedial study showed that 93.3% of NGT medications were prescribed correctly, 0% of inpatient pharmacists screened and supplied the prescriptions by considering NGT status and 0% of medication was prepared and administered via NGT correctly. From Pareto analysis, 80% of the contributing factors were unavailability of appropriate equipment, no Standard Operational Procedure (SOP), no local guidelines and lack of awareness. The mean score of knowledge was 46.9%.

STRATEGIES FOR CHANGE:

NasoCare Integrated Programme was implemented by developing strategies such as NasoMed guidelines with QR code, M&M kit containing innovative medication crushing equipment, SOP on medication administration technique, PinkCard to tag NGT patients, daily NGT patient list for inpatient pharmacist and customised courses.

EFFECT OF CHANGE:

Correct medication administration via NGT was successfully increased from 0% to 92.3%. Achievable benefit not achieved (ABNA) was reduced from 100% to 7.7%. The mean score of healthcare professional knowledge increased to 82.3%.

THE NEXT STEP:

This study will be expanded to all wards in Hospital Kajang and shared with other healthcare facilities in Malaysia. A reference guide will be developed to educate the caretaker on NGT medication administration at home.

PP-23

Increasing Patient Safety through Reduction of Actual Medication Error

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

In 2019, a total of 31 errors were reported at Bagan Specialist Centre, of which 22 were documented by Pharmacy Services. This potential adverse drug event poses a patient safety risk if it is not averted from the outset. The study aimed to reduce these errors in order to improve patient safety.

KEY MEASURES FOR IMPROVEMENT:

The indicator used was the number of medication errors which includes errors in labelling, medication, strength, verification, quantity, and dose in Pharmacy Services. The target was set as 0 medication errors in the Pharmacy Services.

PROCESS OF GATHERING INFORMATION:

Data was collected through departmental data collection and incident reports. Data were analysed and validated. Audits were used to check on the compliance of intervention activities.

ANALYSIS AND INTERPRETATION:

Out of the 12 medication errors recorded till June 2019, the most commonly reported medication errors were wrong verification (4 cases) and wrong medication (2 cases). Strategies were implemented in July 2019, with monthly audits done throughout the year. The post-intervention evaluation was carried out throughout 2020 and 2021.

STRATEGIES FOR CHANGE:

Few strategies were executed targeting system improvements, such as the use of brand names followed by their ingredients in all drug descriptions in the system. Drug descriptions for injections were revised by putting strength, followed by the total volume of injection. In addition, the Electronic Medical Record verification assessment and the accuracy check assessment for the Out-Patient Department were developed.

EFFECT OF CHANGE:

Medication errors had decreased following the adoption of the preventive measures taken but still occurred in certain months due to non-compliance with verification procedures. Actual medication errors decreased from 22 cases (2019) to 19 (2020) and further to 12 (2021).

THE NEXT STEP:

For further improvement, we will focus on reducing human errors by enhancing staff competency.

PP-24

Pengurangan Masa Pendiagnosan Makmal bagi kes Malaria di ILKKM Kuala Lumpur

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Berdasarkan pemerhatian menggunakan senarai semak berstruktur, ditemui 100% pelatih semester akhir program Diploma Teknologi Makmal Perubatan mendiagnos kes Malaria melebihi masa piawai iaitu melebihi tempoh 60 minit yang ditetapkan oleh Kementerian Kesihatan Malaysia (KKM). Masalah ini dipilih kerana telah memberi kesan terhadap tempoh masa amali dan menyebabkan kelewatan mendiagnos sampel pesakit apabila mereka berkhidmat kelak.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Indikator bagi mengukur kesan penambahbaikan adalah peratus pelatih yang dapat melakukan pendiagnosan Malaria dalam tempoh 60 minit seperti ditetapkan oleh KKM.

PROSES PENGUMPULAN MAKLUMAT:

Kajian keratan rentas menggunakan instrumen pemerhatian berstruktur dan soal selidik dengan saiz sampel 44 orang pelatih semester akhir sesi Januari-Jun 2021 dilakukan dari Januari hingga Mei 2021. Setelah mengetahui purata masa setiap langkah, keseluruhan proses pendiagnosan dan peratus pelatih yang mengambil masa lebih dari 60 minit untuk mendiagnos kes Malaria, satu soal selidik berkaitan kemungkinan-kemungkinan penyebab kelewatan dijalankan bagi mengetahui punca kelewatan.

ANALISIS DAN INTERPRETASI:

Sebelum penambahbaikan dilakukan, 100% pelatih mengambil masa yang lama untuk pendiagnosan malaria dengan nilai purata 90 minit, berpunca daripada penyediaan larutan tampan phosphate yang mengambil masa paling lama iaitu 28.4 minit bersamaan 31.6% daripada masa keseluruhan proses pendiagnosan malaria.

STRATEGI PENAMBAHBAIKAN:

Strategi penambahbaikan dilakukan dengan menggunakan air paip sebagai pencair larutan Giemsa menggantikan larutan tampan phosphate. Dengan cara ini dapat memendekkan proses pendiagnosan tanpa melalui proses penyediaan larutan tampan phosphate.

KESAN PENAMBAHBAIKAN:

Kesan daripada tindakan penambahbaikan, 100% pelatih dapat melakukan pendiagnosan malaria dalam tempoh masa piawai dengan purata 56.5 minit iaitu kurang 3.5 minit dari masa piawai (60 minit). Dengan penggunaan air paip sebagai pencair larutan Giemsa, *Laboratory Turn Around Time* pendiagnosan makmal malaria dapat dicapai dan secara tidak langsung dapat mengurangkan kos pembelian reagen.

LANGKAH SETERUSNYA:

Hasil kajian akan dibuat pengesahan dengan kerjasama semua makmal dibawah Kementerian Kesihatan Malaysia.

PP-25

Improving Eye Drop Administration Technique among Glaucoma Patients Referred by Doctors in Outpatient Pharmacy Department at *Hospital Tuanku Ampuan Najihah*, Negeri Sembilan

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Glaucoma is a chronic eye disease treated with intraocular pressure lowering eye drops. Studies showed that eye drop administration errors among glaucoma patients could lead to a poor therapeutic outcome, adverse effects and medication wastage. A verification study showed that only 4.2 % of glaucoma patients performed good eye drop administration techniques.

KEY MEASURES FOR IMPROVEMENT:

The indicator is the percentage of patients referred who correctly performed all seven critical steps in eye drop administration one month post-counselling. The steps were selected based on a study by Lampert et al., Malaysia Clinical Practice Guideline for Glaucoma and consensus with the Ophthalmology Department (OD). The standard is 60% according to the Lampert et al. study and in agreement with OD.

PROCESS OF GATHERING INFORMATION:

We conducted a verification study with convenience sampling between March to May 2020. Validated questionnaires were distributed to glaucoma patients (n=118), doctors in OD (n=13) and pharmacists (n=58) to verify the percentage of the problem and contributing factors.

ANALYSIS AND INTERPRETATION:

4.2% of glaucoma patients performed all seven critical steps in eye drop administration. 69% of doctors and 21% of pharmacists reported that they would always counsel newly started patients on eye drops. The main barriers to counselling were time constraints for doctors and a lack of doctor referrals for pharmacists.

STRATEGIES FOR CHANGE:

We implemented a new standard workflow for referral by doctors and eye drop counselling by pharmacists in the Outpatient Pharmacy Department. Pharmacists would evaluate the patient's technique by observation. We developed an assessment checklist form, educational video and chart. In Cycle 2, we improved the video, produced pamphlets and an eye anatomy chart and simplified the forms.

EFFECT OF CHANGE:

The percentage increased from 4.2% to 36.4% and 72%. The achievable benefit not achieved was reduced from 55.8% to 23.6% and 0%.

THE NEXT STEP:

This study will be expanded to cluster hospitals and, subsequently, all hospitals in Negeri Sembilan with OD.

PP-26

Reducing Blood Sample Rejection in Pathology Department, *Institut Kanser Negara*, Putrajaya

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Blood sample rejection in the Pathology Department is a serious issue that negatively affects patient management. Repetitions of blood draw cause pain and distress to the patient and consequently lead to wastage of cost and time. This study aims to minimise the rejection percentage of blood samples.

KEY MEASURES FOR IMPROVEMENT:

The key measures for improvement were measured by the percentage of blood sample rejection calculated monthly. The standard is <1% based on MSQH 5th edition: Service Standard 15 (Pathology Services).

PROCESS OF GATHERING INFORMATION:

A cross-sectional study was performed from January to December 2019. All blood samples received in the Pathology Department were included, and rejections were based on standardised rejection criteria. Monthly data of rejected samples and reasons for rejection were extracted from the Laboratory Information System (LIS). Implementation of remedial measures was carried out in May 2019, and post-remedial evaluation was conducted from June to December 2019.

ANALYSIS AND INTERPRETATION:

A verification study conducted from January to April 2019 showed the average rejection percentage was 1.61%, with Achievable Benefit Not Achieved (ABNA) being 0.61%. Sample rejections were due to haemolysed (57%), clotted (15%), insufficient samples (9%), and others.

STRATEGIES FOR CHANGE:

The Haemolysis Index Method was implemented, which accurately determines the degree of lysed samples. Only gross haemolysed samples with Haemolysis Index greater than 4+ were rejected. Other measures included Continuous Medical Education (CME), onsite visits, and refreshment training.

EFFECT OF CHANGE:

The Haemolysis Index Method has reduced the rejection of haemolysed samples, thus significantly reducing the total rejection percentage in the Pathology Department. Starting from June 2019, the rejection percentage was successfully brought down to 0.88%, suggesting the sustainability of remedial measures.

THE NEXT STEP:

All strategies will be continued to maintain the rejection percentage. Measurement of the Haemolysis Index will be incorporated for all samples as this will improve the quality of laboratory results.

PP-27

Reducing the Percentage of Transcribing Errors in the Pharmacy Information System (PhIS) at Pharmacy Departments under *Pejabat Kesihatan Daerah Kampar*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Transcribing errors may occur when transferring information from manual prescriptions into an electronic system known as a Pharmacy Information System by pharmacy personnel. In August 2020, out of 6224 prescriptions received at the Pharmacy Departments under *PKD Kampar*, 361 (5.8%) prescriptions with transcribing errors were detected.

KEY MEASURES FOR IMPROVEMENT:

The indicator is the percentage of transcribing errors in PhIS at the Pharmacy Departments. The standard is 0% as per in the Manual for Quality Assurance Program (QAP) Indicators.

PROCESS OF GATHERING INFORMATION:

This quality improvement study was conducted in two cycles from October 2020 until June 2021. Pre-designed data collection and Daily QAP1 Reporting Form are used to record the transcribing errors and contributing factors. All new prescriptions received were included. The data were analysed using Microsoft Excel.

ANALYSIS AND INTERPRETATION:

A total of 55 (0.8%) transcribing errors were detected during the pre-intervention phase. Most of the identified contributing factors were overlooked on the changes in the patient's drug regimen (89.1%), followed by inadequate training of PhIS (3.6%), unconducive working area (3.6%) and shortage of manpower (1.8%). There were 63.6% of errors which involved the same medications.

STRATEGIES FOR CHANGE:

An innovative Tagging Sticker was established to notify and visualise prescription changes. A list of medications frequently transcribed wrongly was placed at the top of PhIS computers. Hands-on session and Continuing Medical Education about transcribing errors were conducted. The workspace layout was rearranged to be more ergonomic. Staggered Time Appointment System and establishment of the Google Sheet for Daily Staff Movement were introduced.

EFFECT OF CHANGE:

The percentage of transcribing errors was reduced in cycle 1 from 0.8% to 0.4% and 0.3% in cycle 2. The medications often involved in transcribing errors had reduced from 5 to 2 types.

THE NEXT STEP:

To audit six monthly and reinforce strategies towards achieving the standard for transcribing errors in the future.

PP-28

Improving the Appropriateness of Antibiotic Prescriptions in Upper Respiratory Tract (URTI) Cases in *Klinik Kesihatan Kuala Lumpur (KKKL)*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Inappropriate antibiotic use can lead to antibiotic resistance, unnecessary drug-related side effects, and an increase in healthcare costs. A 1-day prescription audit done in KKKL in 2019 revealed that almost 90% of URTI cases were inappropriately treated with antibiotics. The objective of this project was to improve the appropriateness of antibiotic prescriptions in URTI cases.

KEY MEASURES FOR IMPROVEMENT:

The indicator was the percentage of appropriate antibiotic prescriptions in URTI cases. The standard set was 80 % by BPKK in the Infection Control Audit at the Primary Health Care Facility.

PROCESS OF GATHERING INFORMATION:

In the pre-intervention phase, a cross-sectional study was conducted in KKKL Fever Center from 1st to 30th April 2021, where about 47 patients' treatment cards were used as a data collection tool. A focus group discussion was done among the Medical Officers to determine the contributing factors.

ANALYSIS AND INTERPRETATION:

In the pre-intervention study, only 42.55% of patients have given antibiotics appropriately. Contributing factors for inappropriate prescription were: incorrect diagnosis by the medical officer, non-adherence to the latest National Antibiotic Guideline (NAG) 2019, and lack of patient awareness. The Achievable Benefit Not Achieved (ABNA) was 37.45%.

STRATEGIES FOR CHANGE:

The strategies include talks on appropriate antibiotic prescription, providing a guide/chart in consultation rooms, mandatory use of Centor Score before prescribing antibiotics, and poster reminder for doctors in their WhatsApp group. Pamphlets, posters and Antibiotic Awareness Week were arranged for patients.

EFFECT OF CHANGE:

Post-intervention study in June 2021 revealed an improvement in the appropriateness of antibiotic prescription from 42.55% to 55.10%. The ABNA was narrowed down from 37.45% to 24.90%.

THE NEXT STEP:

In order to achieve the targeted standard, we plan to create virtual learning tools for staff (video viewing regarding the management of URTI) followed by a questionnaire to reassess the knowledge and improve documentation.

PP-29

Menurunkan Kejadian Anemia Ibu Hamil pada Kandungan 36 Minggu di Daerah Muar

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:
Anemia dalam kalangan ibu hamil 36 minggu di daerah Muar meningkat daripada 5.2% pada tahun 2016 kepada 7.7% pada tahun 2018. Kejadian anemia boleh meningkatkan morbiditi dan mortaliti ibu hamil. Kajian ini bertujuan untuk membuktikan pengesanan awal dan pengurusan anemia yang sistematik adalah penting.

PENGUKURAN UTAMA PENAMBAHBAIKAN:
Indikator kajian ini ialah peratus kejadian anemia di kalangan ibu hamil pada usia kandungan 36 minggu. Sasaran kajian adalah kurang daripada 7.0% berdasarkan Standard Kementerian Kesihatan Malaysia 2020.

PROSES PENGUMPULAN MAKLUMAT:
Satu kajian hirisan lintang dijalankan di semua klinik kesihatan daerah Muar dari Januari 2018 hingga Disember 2021. Maklumat dikumpul menggunakan Borang Penyiasatan Ibu Antenatal Anemia. Verifikasi data dijalankan dari Januari hingga Disember 2018, penyiasatan punca anemia dijalankan dari Januari hingga Disember 2019 dan langkah penambahbaikan dilakukan dari Januari 2020 hingga Disember 2021.

ANALISIS DAN INTERPRETASI:
Kejadian ibu hamil anemia pada usia kandungan 36 minggu adalah 7.7% pada tahun 2018. Faktor penyumbang adalah 42.7% kes tidak dilaporkan dalam reten, hanya 41% anggota kesihatan mempunyai tahap pengetahuan yang baik, pengendalian kes anemia tidak mengikut standard *Model of Good Care* dan ibu antenatal anemia kurang pengetahuan pemakanan berkaitan anemia.

STRATEGI PENAMBAHBAIKAN:
Intervensi meliputi pengurusan rekod dan *linelisting* anemia, pendidikan cegah anemia untuk anggota kesihatan dan ibu hamil, kemaskini proses kerja pengurusan anemia dengan mewujudkan cap anemia, Jadual Intervensi Farmakologi dan Jadual Intervensi *Quality Assurance* (QA) Anemia.

KESAN PENAMBAHBAIKAN:
Kejadian ibu hamil anemia pada usia kandungan 36 minggu menurun daripada 7.7% pada tahun 2018 kepada 6.1% pada tahun 2021.Tahap pengetahuan anggota kesihatan yang baik meningkat daripada 41% kepada 98.4%. Tahap pengetahuan ibu hamil tentang anemia juga telah meningkat.

LANGKAH SETERUSNYA:
Bagi mengekalkan pencapaian standard yang ditetapkan, kod QR program pendidikan pemakanan ibu hamil anemia akan diwujudkan dan Program Pencegahan Anemia Pra-Kehamilan telah dirancang oleh PKD Muar.

PP-30

Improving the Knowledge and Practice of Terminal Cleaning Procedures among Housekeeping Staff in Pantai Hospital, Manjung

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

The COVID-19 pandemic caused a sudden rise in hospital admissions. Thus, forcing stringent terminal cleaning practices among the housekeeping staff. Our initial questionnaires exhibited below-average results on knowledge (76%) and practice (49%) compared to the previous studies.

KEY MEASURES FOR IMPROVEMENT:

To improve the knowledge and practice score of terminal cleaning procedures among the housekeeping staff to 85% and more than 90%, respectively.

PROCESS OF GATHERING INFORMATION:

Self-administered questionnaires and compliance audit checklists were distributed to 20 housekeeping staff. Root cause analysis was conducted using a fishbone diagram and 5 WHYs. The contributing factors were inadequate tools and poor monitoring of terminal cleaning procedures, no competency monitoring, and no proper checklist on the process.

ANALYSIS AND INTERPRETATION:

The initial KAP questionnaires scored only knowledge of only 76% and practice at 49%, which is below average compared to other similar studies.

STRATEGIES FOR CHANGE:

One-week intensive training was conducted to improve the housekeeping staff's knowledge and practice scores of terminal cleaning procedures. A terminal cleaning monitoring system was introduced consisting of a terminal cleaning competency checklist, an environmental checklist for supervisors, and flow charts for quick referral. In addition, Glo Germs fluorescent pens were used to monitor any missed areas.

EFFECT OF CHANGE:

Post-intervention questionnaires showed improvement in both studied aspects, the knowledge score (89%) and practice score (96%). The time taken for terminal cleaning procedures has also been reduced by 15%.

THE NEXT STEP:

We plan to achieve 100% knowledge and practice scores of the terminal cleaning procedures by July 2022. The adopted questionnaires will be used to assess the training efficiency. The improved training and audit method will be shared with relevant supervisors for continuous assessment and training.

PP-31

Meningkatkan Kefahaman Pesakit Diabetes terhadap Cara Penggunaan Insulin di Klinik-klinik Kesihatan Daerah Kuala Nerus

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Berdasarkan rekod Diabetes Mellitus PKD Kuala Nerus, jumlah kes diabetes aktif meningkat dari 3,814 (tahun 2019) kepada 4,073 (tahun 2020) manakala pesakit yang menggunakan rawatan insulin juga meningkat dari 2,305 (tahun 2019) kepada 2,649 (tahun 2020). Pelbagai komplikasi bakal dihidapi oleh pesakit jika diabetes tidak dikawal. Pada tahun 2019, 11% pesakit mempunyai masalah buah pinggang (tahap 3 dan 4), 44% pesakit didiagnos retinopati dan 1.8% pesakit mengalami *Diabetic Foot Ulcer*. Objektif kajian ialah untuk meningkatkan kefahaman pesakit terhadap cara penggunaan insulin.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Indikator dikira dengan membandingkan peratus bilangan pesakit mempunyai kefahaman baik terhadap cara penggunaan insulin dengan *standard* yang ditetapkan iaitu ≥ 90% berdasarkan persetujuan Unit Farmasi dan Penyakit Tidak Berjangkit (NCD).

PROSES PENGUMPULAN MAKLUMAT:

Kajian untuk mengenalpasti faktor penyebab dijalankan selama 1 bulan melalui borang soal selidik serta temubual kepada 100 pesakit dan 20 anggota farmasi di tiga klinik kesihatan daerah Kuala Nerus. Kajian pra dan pasca penambahbaikan dijalankan selama 1 bulan pada setiap fasa. Langkah penambahbaikan telah dilaksanakan selama 8 bulan.

ANALISIS DAN INTERPRETASI:

Hasil dapatan kajian verifikasi menunjukkan hanya 41% pesakit faham mengenai cara penggunaan insulin. Faktor-faktor yang menyumbang termasuklah salah tanggapan terhadap insulin (71%), pesakit kurang yakin (38%), bahan pendidikan kurang menarik (60%) dan tidak menerima kaunseling susulan (66%).

STRATEGI PENAMBAHBAIKAN:

Alat bantu kaunseling seperti video insulin dialek Terengganu, *'flip chart'*, poster dan risalah diwujudkan. *Insuright* diberikan kepada pesakit untuk menilai kefahaman asas insulin. Maklumat lanjut dimuat naik di platform media sosial iaitu Ez-kaunseling. Pelaksanaan *'tagging'* dalam sistem PHIS dan penggunaan *'planner'* dilaksanakan untuk meningkatkan kaunseling susulan. Pesakit dengan masalah logistik diberikan kaunseling melalui telefon.

KESAN PENAMBAHBAIKAN:

Peratus pesakit faham terhadap penggunaan insulin meningkat dari 41% kepada 88%. ABNA berjaya dikurangkan dari 49% kepada 2%. Pemantauan HbA1c menunjukkan 52 daripada 83 pesakit mengalami penurunan. Masa kaunseling efektif dapat dikurangkan daripada 34 minit kepada 20 minit.

LANGKAH SETERUSNYA:

Hasil penambahbaikan projek ini boleh dikembangkan di klinik kesihatan dan hospital lain.

PP-32

Improving the Completeness of Therapeutic Drug Monitoring (TDM) Request Forms in *Hospital Jasin*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Therapeutic drug monitoring (TDM) is the clinical practice of measuring narrow therapeutic drug concentration in a patient's bloodstream for drug individualisation and optimisation. Inadequate mandatory information leads to misinterpretation that causes severe impacts on patient care such as trauma, toxicity, therapeutic failure and prolonged hospitalisation. Furthermore, it will increase workload and waste of resources. A retrospective analysis conducted in 2019 found that only 0.5% (n=1) of TDM request forms were filled completely.

KEY MEASURES FOR IMPROVEMENT:

This study aims to improve the completeness of mandatory information in TDM request forms, with a more than 75% standard based on consensus among team members.

PROCESS OF GATHERING INFORMATION:

Data collection included all TDM request forms and excluded those from other facilities. The forms were screened, and the completeness was summarised in a data collection form using Microsoft Excel. Pre- and post-test questionnaires were used to assess the knowledge of healthcare personnel on therapeutic drug monitoring. Remedial actions were conducted during the first cycle from April 2020 until March 2021, whereas the second cycle was from January 2022 to April 2022.

ANALYSIS AND INTERPRETATION:

The main contributing factors to this problem include non-established TDM request procedure in our hospital, ineffective communication and lack of awareness among healthcare personnel.

STRATEGIES FOR CHANGE:

In the first cycle, the TDM request workflow was updated, and a WhatsApp group consisting of a multidisciplinary team was created. TDM Champions were appointed to review monthly reports in each unit/ward to assist with form completion during the second cycle.

EFFECT OF CHANGE:

The outcome from the first cycle slightly increased from 0.5% to 18.4%. However, complete TDM request forms increased tremendously after the second cycle to 62%.

THE NEXT STEP:

In conclusion, updating the TDM workflow with effective communication skills greatly improved the completeness of TDM request forms. Continuous close monitoring and sustainable implementation of the measures are vital as they may affect the clinical interpretation of results.

PP-33

Meningkatkan Prestasi Penyeliaan Klinikal dalam kalangan Pengajar Kejururawatan Latihan Pra Perkhidmatan di ILKKM Kubang Kerian

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PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Pemantauan klinikal yang efektif adalah penting untuk membantu pelatih menguasai pengetahuan dan kemahiran dalam merancang perawatan pesakit. Namun yang demikian, tiada penilaian prestasi penyeliaan dilaksanakan dan kurangnya latihan penyeliaan klinikal dalam kalangan pengajar di ILKKM Kubang Kerian, Kelantan.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Kajian ini bertujuan untuk meningkatkan prestasi penyeliaan klinikal dalam kalangan Pengajar Kejururawatan Latihan Pra Perkhidmatan. Indikator kajian adalah bilangan pengajar yang mempunyai prestasi penyeliaan klinikal yang tinggi. Standard penyeliaan klinikal yang tinggi adalah >93.3%, tanda aras melalui kajian lepas.

PROSES PENGUMPULAN MAKLUMAT:

Kajian keratan lintang dijalankan dari Disember 2020 hingga November 2021 bagi menentukan bilangan pengajar dengan prestasi penyeliaan klinikal yang tinggi, mengenal pasti punca-punca masalah dan menilai keberkesanan intervensi. Kaedah pengumpulan data adalah melalui borang *Maastricht Clinical Teaching Questionnaire* (*MCTQ*) dan borang soal selidik kepada tenaga pengajar terlibat.

ANALISIS DAN INTERPRETASI:

Hasil kajian verifikasi (n=22) menunjukkan seramai 19 (86.36%) pengajar jururawat mempunyai prestasi penyeliaan klinikal yang rendah. Faktor penyumbang kejadian adalah tiada penilaian, 21 (96%) dan tiada *Standard Operational Procedure* (SOP) pemantauan klinikal, 18 (83%).

STRATEGI PENAMBAHBAIKAN:

Langkah-langkah penambahbaikan yang dijalankan ialah mewujudkan SOP pemantauan klinikal sebagai rujukan pengajar dalam penyeliaan klinikal. Penilaian kemahiran penyeliaan klinikal pengajar dilaksanakan setiap 6 bulan melalui borang penilaian *Maastricht Clinical Teaching Questionnaire* (*MCTQ*). Kursus pemantapan penyeliaan klinikal setiap 2 tahun sekali bagi memperkasakan kemahiran penyeliaan klinikal pengajar. Taklimat penyeliaan klinikal diberikan setiap 6 bulan sebelum pengajar menyelia pelatih di Pusat Latihan Amali. Bimbingan penyeliaan klinikal diberikan oleh Ketua Program dan Timbalan Pengarah Akademik kepada pengajar dengan prestasi penyeliaan klinikal di bawah 93.3%.

KESAN PENAMBAHBAIKAN:

Terdapat peningkatan dalam bilangan pengajar yang mempunyai prestasi penyeliaan klinikal yang tinggi dari 3 (13.64%) pada sesi Jan-Jun 2021 kepada 14 (63.64%) dalam sesi Julai – Disember 2021.

LANGKAH SETERUSNYA:

Tindakan penambahbaikan perlu diperkukuhkan lagi dengan mengadakan bengkel simulasi penyeliaan klinikal setiap tahun. Kemahiran penyeliaan pengajar dalam *bedside teaching,* demonstrasi prosedur serta pembentangan kes klinikal diperkasakan, bagi membolehkan pengajar menguasai kemahiran dan mencapai prestasi penyeliaan klinikal yang tinggi.

PP-34

Improving Mumps, Measles and Rubella (MMR) 2 Immunisation Rate in *Klinik Kesihatan Jalan Oya*

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:
The MMR 2 immunisation rate for *KK Jalan Oya* was always below the Ministry of Health standard of 95%. The low immunisation rate poses public health danger as it leaves children and the community vulnerable to vaccine-preventable diseases and deadly outbreaks.

KEY MEASURES OF IMPROVEMENT:
The indicator is the percentage of children aged 12-23 months registered in the clinic who received the second dose of MMR vaccine at 12 months. The standard for this study is to achieve an MMR 2 immunisation rate of more than 95%.

PROCESS OF GATHERING INFORMATION:
The process of gathering information in this project involves a retrospective study on 120 samples from KKK 101 Ledger 2017 to identify pitfalls in defaulter tracing, interview of defaulters, a KAP (Knowledge, Attitude and Practice) study on parents/guardians, and an observational study for health promotion materials.

ANALYSIS AND INTERPRETATION:
Pre remedial MMR immunisation rate was 84.1% (2016) and 92.2% (2017). Parental factors, delay in defaulter tracing and lack of health promotion are among the contributing factors identified. Out of 100 parents, 82% show good knowledge and 65% have good vaccination practice. Most defaulters face transportation problems (60%), while 25% cited time constraints and 15% forgot appointments. Only 60% of defaulters were successfully contacted and 40% of home visits were achieved within three days.

STRATEGIES FOR CHANGE:
Staff could trace defaulters efficiently by implementing a systematic defaulter tracing tool using *Borang Quality Assurance Project* (QAP) that contains multiple patients' particulars. A notification slip was left at the patient's home as a safety net for missed patients during the home visit.

EFFECT OF CHANGE:
In 2018, 84.8% of defaulters were successfully contacted and 80% of home visits were completed. The rate of MMR 2 immunisation increased from 92.2% (2017) to 98.2% (2018).

THE NEXT STEP:
Defaulter tracing systems using *Borang QAP* are in the process of being adopted for infants registered in all health clinics in Sibu division.

PP-35

Pengurusan Berat Badan di kalangan Penjawat Awam Pejabat Kesihatan Daerah (PKD) Sik Secara Maya

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Pejabat Kesihatan Daerah Sik, Kedah

PEMILIHAN PELUANG UNTUK PENAMBAHBAIKAN:

Obesiti merupakan faktor utama penyakit tidak berjangkit. Pengawalan berat badan efektif dapat menurunkan kadar morbiditi dan mortaliti. Pada tahun 2019 dan 2020, didapati 60.2% dan 59.1% kakitangan mempunyai Indeks Jisim Tubuh (IJT)≥25.0 kg/m2. Fokus kajian adalah mempromosikan cara hidup sihat, mewujudkan tempat kerja yang menyokong aktiviti-aktiviti kawalan obesiti secara maya.

PENGUKURAN UTAMA PENAMBAHBAIKAN:

Indikator adalah peratus peserta yang berjaya menurunkan berat badan dalam tempoh 3 bulan. Standard adalah 30% peserta menurunkan berat badan 5% dari berat badan asal berdasarkan *Public Health England 2017.*

PROSES PENGUMPULAN MAKLUMAT:

Kajian hirisan lintang melibatkan peserta dengan IJT ≥25 kg/m² dijalankan dalam dua kitaran pada Julai-September 2021 dan Mac-Jun 2022. Kumpulan *Whatsapp* ditubuhkan, pautan *Google Sheet* dimuatnaik untuk pengumpulan data antropometri dan aktiviti fizikal secara bulanan. Faktor penyebab dikenalpasti menggunakan borang Pengetahuan, Sikap Dan Amalan Pemakanan, borang Ingatan Diet 24 jam, borang Tahap Aktiviti Fizikal dan saringan *Depression Anxiety Stress Scales* (DASS). Aplikasi Mynutridiari dan Bookdoc digunakan untuk pengiraan kalori dan langkah.

ANALISIS DAN INTERPRETASI:

60 responden dipilih. Pra-intervensi menunjukkan 42% kakitangan berlebihan berat badan dan 58% adalah obes. Didapati 65% responden mempunyai tahap pengetahuan pemakanan baik, 61.6% pengambilan kalori harian >2001Kcal, 71.6% kurang aktiviti fizikal dan 65% bersetuju tekanan mempengaruhi pengambilan pemakanan harian.

STRATEGI PENAMBAHBAIKAN:

Intervensi dilaksanakan secara maya melalui pemberian taklimat pemakanan, promosi kesihatan, kaunseling, penubuhan *Whatsapp* kumpulan sokongan serta penggunaan Mynutridiari dan Bookdoc di kedua-dua kitaran dengan penambahan aktiviti fizikal bersemuka dan cabaran berkumpulan di kitaran kedua.

KESAN PENAMBAHBAIKAN:

Peratus peserta yang berjaya menurunkan berat badan dalam kitaran pertama dan kedua adalah 36.6% dan 28.3%. Keputusan kitaran satu dan kedua seperti berikut; tahap pengetahuan pemakanan baik 98.3% dan 96.7%; pengambilan kalori harian >2001 Kcal 36.7% dan 26.7%; manakala 87% dan 80% peserta aktif secara fizikal.

LANGKAH SETERUSNYA:

Jabatan Kesihatan Negeri Kedah menjalankan konsep yang sama pada 2022 bagi program pengurusan berat badan peringkat negeri melibatkan 11 Pejabat Kesihatan Daerah. Program telah diperluaskan membabitkan warga pendidik Pejabat Pendidikan Daerah.

PP-36

Reducing the Number of Falls among Psychiatry Inpatients, *Hospital Sultan Haji Ahmad Shah* (HoSHAS), Temerloh

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Falls are a constant problem in psychiatry care. It jeopardises patients' safety and hinders treatment recovery. Psychiatry inpatient falls were highest in 2020 with a prevalence of 18% compared to 2019 (9%) and 2018 (15%). While falls are preventable, the existing recommendations are limited for Psychiatry. This study aimed to mitigate falls through psychiatry-tailored interventions.

KEY MEASURES FOR IMPROVEMENT:

The indicator measured as the percentage of falls among Psychiatry inpatients in HoSHAS, with a standard of <5% based on literature reviews.

PROCESS OF GATHERING INFORMATION:

A cross-sectional study was conducted from March-April 2021 to determine the contributing factors of falls from 2018-2020. Data was extracted from incident reports of falls, hospital information system, Morse Fall Scale, and census of falls in the past three years.

ANALYSIS AND INTERPRETATION:

Major factors responsible for falling were the complexity of clinical conditions (57%), lack of knowledge, experience and skills of the staff (50%), and sedative effects of medications (50%). The ABNA before remedial measures was 13%.

STRATEGIES FOR CHANGE:

Specifically designed fall prevention measures were carried out from May 2021-March 2022, followed by re-evaluation in April 2022. A fall prevention team was established to coordinate the implementation. Staff were trained using the Wilson Simms Fall Risk Assessment Tool (WSFRAT). Lectures on fall prevention and psycho-education to patients on fall precautions were conducted. All admissions were assessed clinically with WSFRAT as an additional tool. Patients with a higher risk of falling were closely monitored, and a fall alert tag was placed on the board of patients' information for reference. A designated doctor in charge of the ward was assigned for continuous patient care, especially to ensure judicious use of long-acting benzodiazepines.

EFFECT OF CHANGE:

Falls reduced from 18% to 0% with ABNA -5%.

THE NEXT STEP:

Fall precautions will be continuously monitored to ensure the sustainability of the implementations. In the future, patients at higher risk of falling shall be identified by different coloured hospital attire.

PP-37

Reducing the Percentage of Prescribing Error for Iron Dextran in Obstetrics and Gynaecology (O&G) Department, *Hospital Tengku Ampuan Rahimah*, Klang

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SELECTION OF OPPORTUNITIES FOR IMPROVEMENT:

Prescribing errors may threaten patients' safety, which may cause fatality. It also increases healthcare costs due to inappropriate indications. A study conducted at the O&G wards from February to July 2019 found that 45.7% of 188 iron dextran prescriptions have prescribing errors.

KEY MEASURES FOR IMPROVEMENT:

The key indicator was measured by screening the percentage of prescribing errors in iron dextran prescriptions. The standard for this study was set at 0% errors in iron dextran prescriptions.

PROCESS OF GATHERING INFORMATION:

This is a quality improvement study for iron dextran prescriptions from the O&G wards. The verification study was conducted from August to December 2019, followed by cycle 1 from January to May 2020 and cycle 2 from Jun to November 2020. A knowledge assessment questionnaire for doctors and nurses and a checklist of prescribing errors were used for data collection.

ANALYSIS AND INTERPRETATION:

A verification study showed that 46.7% of 230 iron dextran prescriptions have prescribing errors. It was shown that 48.6% was contributed by the wrong dose, followed by 37.1% of incomplete prescriptions, 12.9% of wrong indications and 1.4% of the wrong route.

STRATEGIES FOR CHANGE:

The iron dextran calculation worksheet with a QR code-linked user guide was introduced to quantify patients' iron dextran requirement as a part of cycle 1. A customary stamp was implemented in cycle 2 to standardise the iron dextran prescription. Continuing Medical Education (CME) was conducted to brief doctors on the implemented plan.

EFFECT OF CHANGE:

The aforementioned strategies reduced the iron dextran prescription errors from 46.7% to 15.3%. This percentage was further reduced to 9.68 % after cycle 2 implementation.

THE NEXT STEP:

This strategy was also replicated by one of the cluster hospitals. The iron dextran calculation worksheet will be transformed into a handy electronic version. CME and internal audits will be carried out at scheduled intervals.

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